COHABITATION AS A PROJECT FOR POST-ANTHROPOCENIC ARCHITECTURE: STRATEGIZING FOR AN URBAN SYMBIOSIS

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STRATEGIZING FOR AN URBAN SYMBIOSIS**

submitted by **ECE GÖREN** in partial fulfillment of the requirements for the degree of **Master of Architecture in Architecture, Middle East Technical University** by,

Prof. Dr. Halil Kalıpçılar
Dean, Graduate School of **Natural and Applied Sciences** _____

Prof. Dr. F. Cânâ Bilsel
Head of the Department, **Architecture** _____

Assoc. Prof. Dr. Funda Baş Bütüner
Supervisor, **Architecture, METU** _____

Examining Committee Members:

Assoc. Prof. Dr. İpek Gürsel Dino
Architecture, METU _____

Assoc. Prof. Dr. Funda Baş Bütüner
Architecture, METU _____

Assoc. Prof. Dr. Ebru Erbaş Gürler
Landscape Architecture, ITU _____

Date: 08.09.2023

I hereby declare that all information in this document has been obtained and presented in accordance with academic rules and ethical conduct. I also declare that, as required by these rules and conduct, I have fully cited and referenced all material and results that are not original to this work.

Name Last name : Ece Gören

Signature :

ABSTRACT

COHABITATION AS A PROJECT FOR POST-ANTHROPOCENIC ARCHITECTURE: STRATEGIZING FOR AN URBAN SYMBIOSIS

Gören, Ece
Master of Architecture, Architecture
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As ecological strategies reach an increasingly impendent halting point on one hand, and the Anthropocene is widely recognized in academia on the other, the discipline of architecture is seeking new approaches in light of the planetary-scale disruptions of humankind. Herein, the missing link in environmental discourse begins from the basis of thinking. Within this discourse, the notion of cohabitation emerges as a model to unify the nexus between ecology and architecture, define a new scope of responsibility for architecture, and reframe professional ethics for practices that positively construct, rather than systematically despoil. To construct cohabitation as a project for post-anthropocenic architecture, two propositions are recognized; architecture is not transcendent to, but entirely immanent to nature –therefore neither human, nor design is outside, above or beneath nature– and secondly, cities are habitats, and the city is a modification of nature. In this context, three main design acts are defined for the lexicon of cohabitation; functional symbiosis, capable architecture, and integrated engagement, that vary for potential urban field conditions unfolded as polluted discontinuity, third landscape, and densely urban.

The Middle East Technical University (METU) Campus is then explored for the practical implementation of cohabitation via the campus's unique urbannature and potential for coexistence through architecture. The three design acts of cohabitation are used for the selected areas on campus, and responsive design strategies for the framework of post-anthropocenic architecture are proposed for METU. Cohabitation is thusly postulated as a project for the Anthropocene by utilizing architecture as a collective tool of existence.

Keywords: Post-Anthropocenic Architecture, Cohabitation, Hybrid Ecology, Interspecies Architecture, Architectural Design Strategies.

ÖZ

POST-ANTROPOSENİK MİMARİ İÇİN BİR PROJE OLARAK BİRLİKTE YAŞAM: KENTSEL BİR SİMBİYOZ İÇİN STRATEJİLER

Gören, Ece
Yüksek Lisans, Mimarlık
Tez Yöneticisi: Doç. Dr. Funda Baş Bütüner

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Ekolojik stratejiler bir yandan giderek yaklaşan bir durma noktasına ulaşırken, diğer yandan Antroposen çağı akademide geniş çapta tanınırken, mimarlık disiplini, insanlığın gezegen ölçeğindeki bozulum etkileri ışığında taze yaklaşımlar arıyor. Bu noktada çevresel söylemdeki kayıp halka, düşünmenin en temelinden başlıyor. Bu söylem içinde, birlikte yaşama kavramı, ekoloji ve mimarlık arasındaki bağı birleştirmek, mimarlık için yeni bir sorumluluk alanı tanımlamak ve sistematik yağmalamadan ziyade pozitif inşaa uygulamaları kuran bir profesyonel etiği (yeniden) çerçevelemek için bütüncül bir model olarak ortaya çıkıyor. Post-antroposenik mimari için bir proje olarak birlikte yaşamayı kurgulamak için iki önerme tanınır; mimarlık doğaya aşkın değil, tamamen içkindir -bu nedenle ne insan ne de tasarım doğanın dışında, üstünde veya altında konumlandırılamaz- ve ikincisi, kentler habitatlardır, ve kent doğanın bir modifikasyonudur. Bu bağlamda, birlikte yaşama sözlüğü için üç ana tasarım eylemi tanımlanır; *fonksiyonel simbiyoz*, *muktedir mimari* ve *entegre katılım*, bu eylemler, *kirli süreksizlik*, *üçüncü peyzaj* ve *yoğun kentsel* olarak listelenen potansiyel kentsel saha koşullarına ilişkin ortaya çıkmaktadır. Bu eylemlerin ve birlikte yaşamanın Orta Doğu Teknik Üniversitesi

(ODTÜ) Kampüsü'ne pratik uygulaması için kampüsün eşsiz kentsel doğası ve mimari yoluyla bir arada yaşama potansiyeli mimarlık aracılığıyla irdelenecektir. Kampüste seçilen alanlar için birlikte yaşamanın üç tasarım eylemi uygulanmış ve ODTÜ için post-antroposenik mimari çerçevesinde cevabi tasarım stratejileri önerilmiştir. Böylelikle birlikte yaşama, mimariyi kolektif bir varoluş aracı olarak kullanarak Antroposen için bir proje olarak ele alınır.

Anahtar Kelimeler: Post-Antroposenik Mimari, Birlikte Yaşama, Hibrit Ekoloji, Türlerarası Mimari, Mimari Tasarım Stratejileri.

To the line that extends from me, to the earth,

to the Faculty of Architecture building, and beyond

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LIST OF ABBREVIATIONS

ABBREVIATIONS

AAD: Animal-Aided Design

AI: Artificial Intelligence

DKM: Doğa Koruma Merkezi (Nature Conservation Centre)

DSI: Devlet Su İşleri (State Hydraulic Works)

EKOSAM: Ecosystem Implementation And Research Center

KYK: Kredi ve Yurtlar Kurumu (Higher Education Student Loans and Dormitories Institution)

METU: Middle East Technical University

IUCN: The International Union for Conservation of Nature

TMMOB: Türk Mühendis ve Mimar Odaları Birliği (Union of Chambers of Turkish Engineers and Architects)

CHAPTER 1

INTRODUCTION

> *"Are you ready, and at the price of what sacrifice, to live the good life together? That this highest of moral and political questions could have been raised, for so many centuries, by so many bright minds, for human only without the nonhumans that make them up, will soon appear, I have no doubt, as extravagant as when the Founding Fathers denied slaves and women the vote." —Bruno Latour*[1]

The consensus with green design technologies today appears to be that they are planned towards a fast-paced urbanism that needs colossal cities, and needs them built fast. Howbeit, this product-based mode of modern sustainability with its gross scales and rapid demand periods cause forfeit to the ecological integrity of the eco-modernist project and hinders the very place of articulation of its ethics. Most importantly, most resolutions solely carry a narrow regard for the habitation of a single certain species and its interests. Current methodology falls far too short in the face of climate crisis as urban wildlife, and the diverse agents of the extensive ecology, more often than not do not play a significant role in design processes. In *The End of the Wild*, political scientist Meyer finds that it is dangerous as it is self-contradictory that we simply let natural courses be in a planet thoroughly dominated by sheer human force. "Neglect will not be benign" he finds[2]. The end of the wild as Meyer announces is not a crisis of the environment, but fundamentally a crisis of humanity, and directly of "how we have chosen to live and how those choices relate

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[1] Latour, B. (1999). *Pandora's Hope: Essays on The Reality of Science Studies*. Harvard University Press, 297.
[2] Meyer, S. M. (2006). *The end of the wild*. The MIT Press, p.74.

to the world around us"[3]. Moreover, the environmental crisis is diagnosed to be a design crisis in many ways as Van der Ryn and Cowan expound[4]. If the primary focus in architecture is shifted from the anthropocentric narrative of human overpopulation or the means of human development, to the evident planetary crisis directly induced by anthropogenic activity on Earth, an alternative conclusion may be arrived at by refiguring practice toward the possibility of a buzzing coexistence among planetary biodiversity. Architecture can be harnessed to foster new relationships and compossibility; and rearticulate better established and well-nourished symbiotic relationships between the maldeveloped rigid contrapositions of; wilderness and city, nature and architecture, human and nonhuman. Architecture can be employed to bridge gap, rather than serve for the counter-productive insistence on it to separate and be separated from, provided that we can meet the pre-condition that architecture steps ideologically outside the hierarchical narratives it has been persevering for centuries. Architecture can, and more importantly must, be a tool of interrelation and interrelating. In post-anthropocenic architecture, cohabitation can become a positive force in the status quo by solidarity, interconnectedness and transdisciplinarity operating as the main ethos. An architecture of cohabitats should demonstrate a holistic regard for all modalities of the planet, including microbiota, flora, fauna (and the human being as a mere part of fauna; in other words, an imminent part of nature) alike to ensure continuity, successfully meet the needs of all urban dwellers, including, or rather, especially of nonhuman habitants[5], be fundamentally informed by ecology, geography, and geology, and should not be imposing or unreasonably stipulating control over land.

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[3] *Ibid.*, p. 75.
[4] Van Der Ryn, S., & Cowan, S. (2013). Ecological design. Island press, 25.
[5] Roudavski finds that "A common way to argue for the importance of nonhuman life is to highlight the usefulness of biodiversity, the interconnectedness of all ecosystems, the moral worth of nonhuman beings, or the suffering induced by human actions". Roudavski, S. (2022). Design for All Life: Editorial. Architect Victoria, p. 35. The main argument for this research also stands as a combination of these arguments on this topic.

The fundamental purpose of this thesis is to establish how this coexistence can and will find material form in built habitats. In doing so, the case research will begin by the analysis of varied case studies identified under different design acts for different urban conditions. Thereafter, the Middle East Technical University Campus as a unique case of urban-nature is selected for the exploration of the discussed design acts of cohabitation.

1.1 Motivation: A Critical Overview of Ecomodernism

The motivation for this thesis stems from a critique of the efficiency of green design technologies and the sustainability discourse in ecomodernist architecture, and most significantly, the gap that they never seem to be able to bind in integrating and accorporating research and data provided by the discipline of ecology. From this critical position, the thesis aims to redefine architecture in the post-anthropocenic context as the discipline of spatial relations between species.

A summative compendium of widely adopted perspectives of ecological architecture in the Anthropocene is catalogued by Sijmons in *In the Anthropocene, Site Matters in Four Ways* (2021)[6], in what he identifies as, "a motherboard for environmental debates over coming decades" [7]. As posited by the author, the initial two quadrants that form the matrix—denialism, which glorifies malicious ignorance, and the chronically delusional eco-modernism, which exults perpetual progress—belong to outdated perspectives that are no longer adequate for addressing the challenges we face in the Anthropocene[8]. Although the pluralism the author advocates for appears benevolent, to be able to progress beyond the limitations of contemporary practices,

[6] Sijmons, D. (2021) In the Anthropocene, Site Matters in Four Ways, eds. Carol J. Burns and Andrea Kahn, *Site Matters: Strategies for Uncertainty through Planning and Design*, New York, Routledge; 110-130.
[7] *Ibid*., p. 126.
[8] *Ibid*., p.128.

the denialist and eco-modernist worldviews forming the second half of the matrix need to be denonunced inasmuch as them having no real scientific basis. Posthumanist approaches and what is referred to as *Anthropocentrism 2.0* (so as to evade being a potential Anthropocentrism Lite), must rather be construed as a pervious bipartite in constant dialogue with each other in order to move beyond the failings and shortcomings of our collective practices. Strategies informed by posthumanism and Anthropocentrism 2.0 should be organized accretively, formulated as a both/and rather than an either/or mentality, where posthumanist discourse informs the substructure on which the technology for Anthropocenic accountability builds the superstructure on[9]. The theorical basis for cohabitation is thus grounded in posthumanist theory to expand the limits of social consciousness and of solidarity among all inhabitants of the planet in architectural discourse.

Guy and Farmer on the other hand, describe the six competing logics of sustainable architecture as the following: eco-technology (Norman Foster, Ken Yeang, Renzo Piano, Richard Rogers); eco-centric (Brenda and Robert Vale, Victor Papanek, Myke Reynold); eco-aesthetic (Frank Gehry, Santiago Calatrava); eco-cultural (Glenn Murcutt, Hassan Fatty); eco-medical (Peter Schmid, Floyd Stein); and eco-social (Peter Hubner, Lucien Kroll, Ralph Erskine)[10]. Within this framework, the eco-centric, which cohabitation as a form of post-anthropocenic architecture would also fall under, has been denoted as "Harmony with nature through decentralized, autonomous buildings with limited ecological footprints. Ensuring the stability, integrity, and 'flourishing' of local and global biodiversity"[11]. What is expected hereupon is a progressive expansion of mentality belonging to green design from not

[9] This discussion is based on the main argument in my term research paper titled "Ecological Immanence, Dynamism, and an Autodiagnosis of Hierarchy in Landscape and Ecology-Based Urbanism" within the scope of the course ARCH 728 Reflections on Landscape.
[10] Guy, S. Farmer, G. (2001) Reinterpreting Sustainable Architecture: The Place of Technology. *Journal of Architectural Education*, 54 (3), pp 140-148, Feb 2001.
[11] *Ibid.*, p. 141.

only “maintaining the health of this planet” as put forward by Sangster[12], but the need for actively attending the prosperity of all species as an agent of positive change for the shared biotope.

Another contemporary agenda in green design is the “ecological accounting” that is argued to be becoming a major force in architecture and construction[13]. Assessment systems in architecture such as BREEAM (Building Research Establishment Environmental Assessment Method), LEED (Leadership in Energy and Environmental Design), SITES (Sustainable Sites Initiative) -that leads with a clear reference and partnership to LEED- or most recently The Living Building Challenge[14], all define a number of checklist criterion on a points-based system to grade efforts that meet certain standards, covering a range of metrics from sustainable building materials to energy use and as a result, grant a designated level of certification for plaudits. As the standards are broken down into subcategories with disparate percentages of contribution to the total points, not all ecological measures are given an equal significance. The points-based system subsequently engenders strategic responses that prioritize certain areas of the build and disregard others in order to maximize the possible points rating that can be received for a project. It also creates the illusion that there are certain acceptable “levels” of impact and pollution that construction projects are entitled to. This perception of human architecture defines the planet by its relation to design and appertains full autonomy to humans in shaping the surface of the Earth. There is a certain installation in the exhibition “The Future Starts Here” in Victoria and Albert Museum, London [Figure 1.1] that perfectly visualizes this self-assigned human privilege; as the visitors’ shape and deform the sand using their hands, the algorithm of the installation changes the

[12] Cited in González-Díaz, M.J., & García-Navarro, J. (2011), p. 295.
[13] Van Der Ryn, S., & Cowan, S. (2013), p. 3.
[14] The Living Building Challenge in distinciton to the others embraces “the symbiotic relationship between people and all aspects of community”. International Living Future Institute, (2016), p. 6.

visual image projected onto the surface to reflect the new topology inflicted by the visitor. The concept is exhibited over a lightbox that reads “Should the planet be a design project?”. Ecomodernist architecture’s answer to this question is a confident yes. This worldview is confident in human technology to shape and mold the Earth without a concern. This particular ideal of ecological design can be explained through the *technological sustainability* and *ecological sustainability* difference[15] in design theory. Additionally, the total of the certification process is perceived as a financial interest since certified buildings can generally charge higher rates and offer improved financial performance for the build.

[15] Van Der Ryn, S., & Cowan, S. (2013), p. 20.



Figure 1.1 “The Future Starts Here”, Victoria and Albert Museum. London, 2018.

Source: Kühn, W. F. (2018). The Future Starts Here (Model of the House of One).

A most recent initiative in posthumanist/ecocentric practice, is the *Project Cohabitation* (2021) by ARCH+ magazine composed of an exhibition, discourse program, urban explorations, a symposium, and an ARCH+ issue[16]. The project builds a transdisciplinary and transnational network that connects design approaches in art, architecture, landscape architecture and urban planning with questions of interspecies solidarity, social justice, a dynamic understanding of ecology and the right to the city. The project defends that cities not only do not solely belong to humans, but conversely that they have never belonged to humans.[17] The manifesto authored by Fahim Amir declares "solidarity is the tenderness of the species, cohabitation its lived exploration"[18] which thus calls for a rethinking of the dictum that ordains human to be the measure of the world, a reconsideration of architecture as an exclusively human affair, a rethinking of *technè politikè*, and a rethinking of human-nonhuman relations. This specific project has produced a vast collection of scholarship on cohabitation with a diverse array of topics.

The design practice Animali Domestici, formed by Alicia Lazzaroni and Antonio Bernacchi, has generated a number of works under this project. Lazzaroni and Bernacchi state that their practice has been initiated by a prospect of not integrating design with nature, but rather to engage with feral zones through design[19]. With projects such as Critters Black Den [Figure 1.2], Opportunistic Ecologies and Hardware Stories, the duo discusses issues of the sterilization of quasi-hermetic buildings of modern architecture[20], bodies classified into dichotomies, life classified

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[16] *Cohabitation*. ARCH+. (n.d.). Retrieved January 16, 2023, from https://archplus.net/de/cohabitation/
[17] *Ibid.*
[18] *Ibid.*
[19] *Animali domestici*. (n.d.). https://animalidomestici.eu/
[20] On the topic of sterilization in architecture, see the discussion on probiotic architecture in Beckett, R. (2021). Microbes are our friends. *RIBA Journal*., Gruosso, S., & Di Cinzio, A. (2022). Kaleidoscopic ecologies. New scenarios, from ecological utopia to probiotic architecture. *Architecture Heritage and Design, 10*, 91-96., and Ramirez-Figueroa, C., & Beckett, R. (2020). Living with buildings, living with microbes: Probiosis and architecture. *Arq: Architectural Research Quarterly*, 24(2), 155-168.

into dichotomies, artificial natures, and their own creative process with “ecosystemic” implications. Interspecies spaces such as the Critters Black Den, which creates a space for multispecies engagement between insects and humans are the quintessential production of cohabitation as the future project of architecture that has inspired the idea for this thesis.

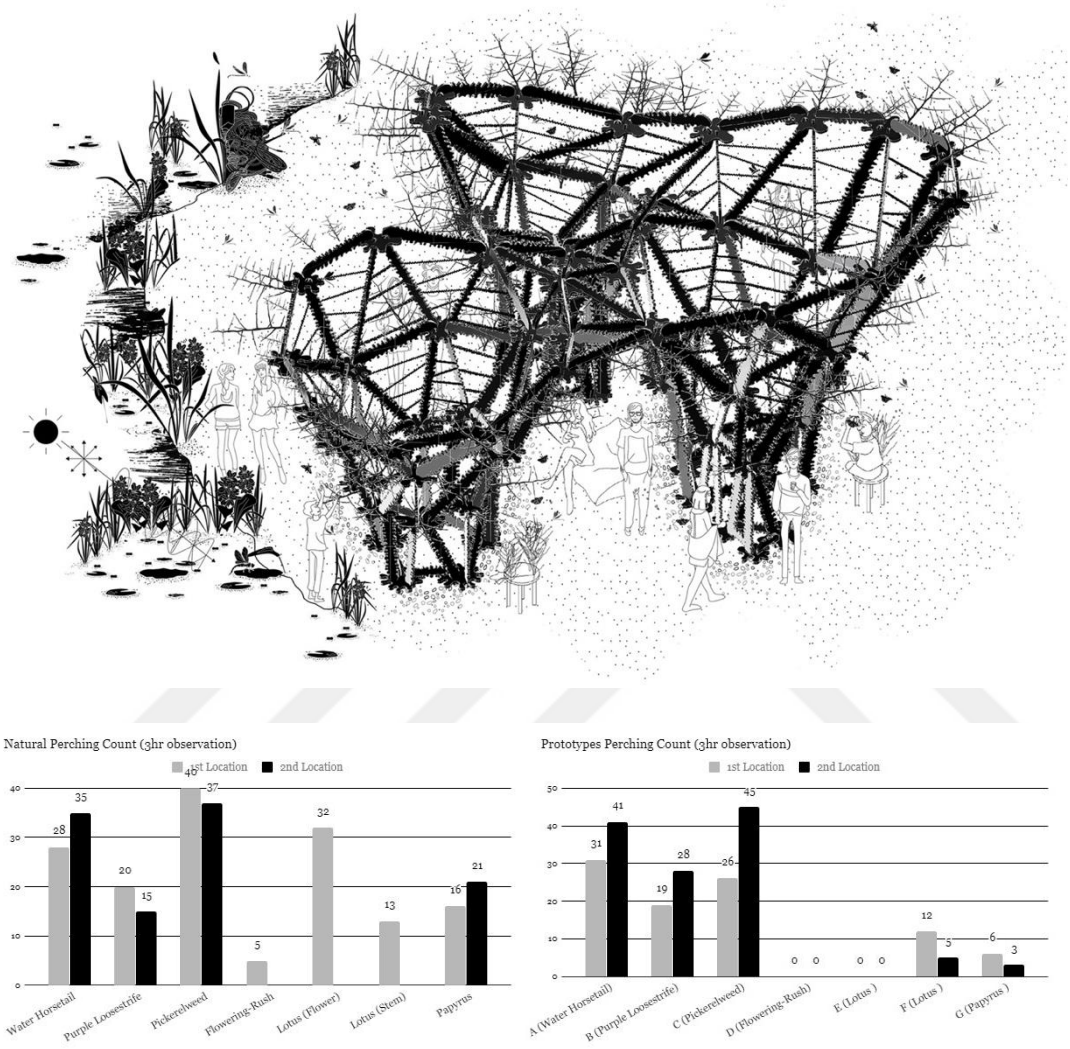


Figure 1.2 The *Critters Black Den* by Animali Domestici (2020).

Source: *Critters Black Den*. animali domestici. (n.d.). Retrieved January 16, 2023, from https://animalidomestici.eu/Critters-Black-Den



Figure 1.2 (Continued)

1.2 Method and Structure

The thesis comprises an exploration of cohabitation as a new approach for architecture, design, and planning disciplines in the context of anthropocenic challenges and designing post the Anthropocene epoch. The main aim of the research is to postulate the reflex and response of architecture in the Anthropocene where design reaches a global scale and a new scope of responsibility and new methodology needs defining in the new post-anthropocenic period for the discipline.

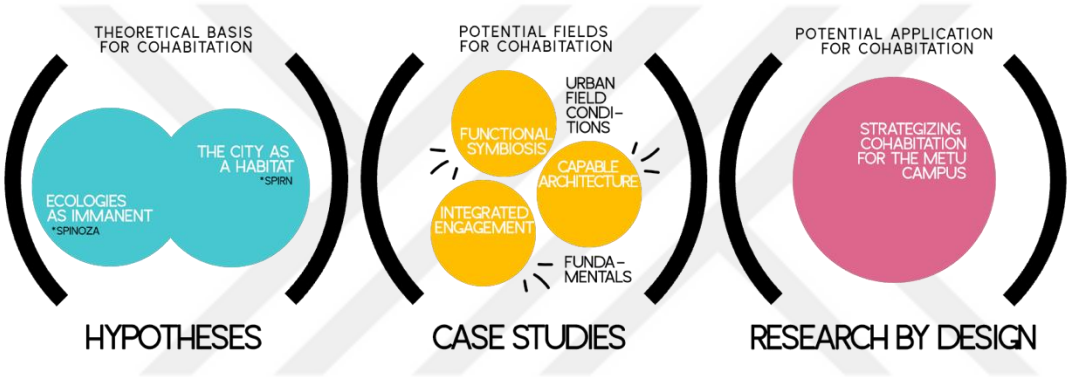


Figure 1.3 Diagram for the overall structure of the thesis.

After the completion of Chapter 1, the introduction to the thesis, Chapter 2, titled *On Cohabitation*, first begins by establishing the theoretical basis of cohabitation by defining and tracing the concept's evolution in a literature review. With reference to the literature, a lexicon of cohabitation is formulated by the thesis. Then, a dual hypothesis titled *Ecologies as Immanent* and *Cities as Habitats* is introduced under two sections to complete the chapter comprising the theoretical basis for this thesis. *Ecologies as Immanent* declares that architecture is one of the interconnected agencies in ecology, witholding equal agency as humans or nonhumans. Under this section, the subsection *Immanent Ethics and Political Ecology* introduces an argument on political ecology and Spinozan ethics, the following subsection *Post-*

Anthropocentric Habitats defines that human architectures are level with other beings in a challenge towards disciplinary hierarchy, and the subsection *Redefining the Socio-Political Prospect* generates a redefinition of *technè politikè* and public space making in the terms of architecture. The second hypothesis of Chapter 2 elaborated as *Cities as Habitats*, begins with the polemical nature/culture dichotomy in *Nature/Culture Dichotomization and Hybrid Ecology* by arguing that city *is* nature, and concludes with an argument on sustainability titled *Cohabitats and Sustainability*, which declares that sustainable cities are not possible without cohabitation.

Chapter 3, *Designing Cohabitation*, is a collection of 3 case studies. The first one, catalogued as functional symbiosis is on the project Oyster-tecture by SCAPE. The second case is the Floating University in Berlin, which is a unique experimentation of architecture, classified as capable architecture. The third case study is titled integrated engagement and it is the methodological practice of architecture studio Animal-Aided Design. The thesis develops these three possible design acts of cohabitation in answer to potential urban field conditions in the city as the fields for cohabitation. *The Fundamentals of Designing Cohabitation* completes the third chapter with continuity, collectivity, adaptability, and accountability in post-anthropocenic architecture epitomized as the fundamental values of cohabitation.

The final Chapter 4, *Strategizing Cohabitation for METU* is an applied research by design project on the Middle East Technical University (METU) Campus to explore how cohabitation can be practically implemented in an urban environment with well-studied biodiversity through architectural practices. The chapter begins with general information on *The METU Campus*, *The Landscape*, the distinctive qualities of *The Scale* and *The Biodiversity* of the campus, as well as a critical review of *Current Construction Practices* on campus. The chapter is followed by the *Selected Areas* on METU based on the three urban field conditions and respective design acts of cohabitation defined by the thesis. Then, the AAD Method is applied to METU for the integrated engagement act in *AAD Method Applied to the METU Campus*, conducted by *Target Species and Species Portraits* and the *Ecological Objectives* to

be met for the 12 target species. The 12 target species are southern white-breasted hedgehog, red fox, european badger, least weasel, greek turtle, european hare, caucasian squirrel, birds, steppe fritillary, domestic dog, domestic cat and the bumblebee. Finally, to conclude Chapter 4, under the section *Conclusive Design Strategies,* the design strategies proposed for METU by the thesis in the framework of cohabitation as a project of post-anthropocenic architecture are listed.

The thesis concludes with Chapter 5 with an emphasis on cohabitation as a new methodology to collectively design our coexistence with all species, reframing architectural design as a strategy of existence.

CHAPTER 2

ON COHABITATION

This chapter defines the term "cohabitation" as a holistic approach to an interconnected architecture between human, animal, plant, and nonorganic life forms. Cohabitation advocates for cosmological space equity and defines a new scope of advocacy for post-anthropocenic architecture that is based in including over interfering. In sections *2.2.1* and *2.2.2,* the two partite pedestal hypothesis for the thesis will be elaborated, respectively that; ecologies are composed of immanent networks of agencies, and cities are habitats to wide communities of nonhuman and human actors.

2.1 Defining Cohabitation

The term cohabitation is relatively new to the architectural lexicon. Although the theory behind the notion has been progressively building up per the ideas of various different theorists and their schools of thought over decades, these ideas have only recently congregated to a unified concept of *coexistence* over the past few years. Orff defines that to cohabit, is to "live together in an intimate relationship, to dwell with one another, and share the same place"[21]. Simply put, *to cohabit*, in the broader sense, means *to coexist*. The term etymologically derives from the Latin *cohabitare*, formed by the combination of the two words *co*-(together) and *habitare* (dwell)[22]. What differentiates the term *cohabit* from *coexist* and places it right at the center of

[21] Orff, K. (2016). *Toward An Urban Ecology*. Monacelli Press, 81.
[22] Etymological definition attained from Greenberg J. S, Bruess, C. E. & Oswalt S. B. (2017). Exploring the dimensions of human sexuality (Sixth). Jones & Bartlett Learning.

architecture's domain is plausibly the verb *dwelling*, connoting to how this coexistence finds material form in our built habitats. The principal idea of cohabiting proposes an alternative perspective of exploring an enmeshed existence of human, animal, plant, and nonorganic modalities of life, suggesting that cohabitation can be organized via architectural processes. It frames, "a new scope of advocacy and responsibility"[23] for collective design and planning disciplines and their accustomed practices that sustain disciplinary ontonorms, reductionist worldviews and unprogressive customs. Cohabitation reorganizes architecture as a strategy of existence, and the architect as an immanent agent of ecology. It is a self-evident and unwavering fact that we as humans occupy the same planet as any other species known to science. What is more, how we strategize our coexistence and our relationships with fellow species in the broader network of our biotope not only defines our living conditions as humankind, but it defines our shared living environment as a whole. This may appear increasingly urgent to the average humanist as we acknowledge the fact that, "humans depend on ecosystem properties and on the network of interactions among organisms and within and among ecosystems for sustenance, just like all other species"[24] . However, to position this debate from the point of view of an ecosystem services argument, would once again become an iteration of anthropocentric privilege forasmuch serving humankind is terribly far from nature's raison d'être. In point of fact, in accordance with the holistic ecosystem approach in conservation theory, what is clarified is that all elements and systems of nature have diversified effects, services, transactions, common interests, conflicting interests, impacts and threats on each other. What becomes significant to a greater extent at this stage is the relationships instead of services, and the major objective in this case becomes undertaking the maintenance to sustain and balance the network of relationships within ecological systems.

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[23] Orff, K. (2016), 81.

[24] United Nations Environment Programme. "Ecosystems and their Services" http://www.unep.org/

Although the notion does not originate from an occupation with human welfare, the resulting effects of a healthy coexistence will inherently give rise to deeply sustainable and prosperous living conditions for the human population. More recently, Hauck and Weisser have defined cohabitation within the domain of an architecture that does not cause any harm to nonhuman species, creates inter-species contact spaces and spatially organizes a prosperous coexistence of nonhuman and human[25]. Additionally, in some cases we may need to argue for the necessity of inversely non-contact (or zero human interaction) spaces between different species for the prosperities of each. To sum, we may define cohabitation for the purpose of defining it as a model of post-anthropocenic architecture as; designing the spatial relationship of species, that of including, inter-species contact spaces, zero human interaction spaces, and the diversiform mobile transition spaces in-between. The term appears simple enough to define, nonetheless its complex implications have inadvertently been the essence of debate by environmentalists and ecologists for quite some time now.

2.2 A Lexicon on Cohabitation

Before delving into a lexicon on cohabitation that guides and drives this ideology, it must be denoted that the term as employed here is not limited to (or precluding) a conception of animal architecture. Cohabitation offers a collective strategy of existence surpassing acts of nonhuman animal architecture, human-designed habitats for wildlife, or wildlife conservation and integration strategies. It may be anatomized as an essential strategy that operates via some or all of these methodologies. Most significantly, what cohabitation prescribes is global space equity, seeing that "[l]iterally, not symbolically as before, we have to manage the planet we inhabit, and

[25] Hauck, T; Weisser, W. (2021). The Architecture of Cohabitation-Seven Theses; *TOPOS*, 117, 46- 49.

must now define [a] politics of things."[26]. The politics of things redefined within this research purports the emphasis on including over interfering. Generally outlined, cohabitation will be explained here to combine continuity, collectivity, adaptability, and accountability as the primary ethos of post-anthropocenic architecture.

2.2.1 Ecologies as Immanent

Under this first section of the two legged base, the Spinozan notion of immanence is expounded in a theoretical review to establish the intrinsic connectedness and sameness of architecture-nature and human-nonhuman agencies.

2.2.1.1 Immanent Ethics and Political Ecology

The initial indications of nature's significance in architecture, beyond its mere function as a provider of land, emerge with the advent of Aldo Leopold's seminal work, "The Land Ethic." This pioneering publication introduced the concept of the Earth as more than a tradable commodity, emphasizing instead its intrinsic value as a community in which humans are fundamentally intertwined. The Land Ethic was hailed as an ecological revolution, marking a shift towards an increasingly ecocentric approach within the field of architecture. Consequently, the perception of our planet Earth has evolved to encompass a broader and more comprehensive set of ethics. The primary question political ecology discourse and ecological design ethics raise is the question of design accountability. Herein, Virilio points to the diligence in not forgetting *the invention of the shipwreck* in the invention of the ship[27]. In other

[26] Latour, B. (1999). *Pandora's Hope: Essays on The Reality of Science Studies*. Harvard University Press, 203. A more elaborate discussion on the politics of cohabitation is to be provided under section 2.2.1.3. in the following chapters.
[27] Virilio, P. (1997). *Open sky* (Vol. 35). Verso.

words, architects need to be comprehensibly able to be held accountable for the work they produce, and the impact that the works themselves may produce as a result.

Way diagnoses that ecology-based movements in design disciplines oft fail in building on the history of ecological theory by presenting as new[28]. I suggest that what is de facto lacking in these approaches begins from the basis of thinking in terms of hierarchies, and the recursive perpetuation of aforementioned hierarchies within design and planning conducts. This chapter explores the concept of immanence in ecology as a horizontal distribution of relations, and how this Spinozan onto-epistemological perspective informs contemporary practices of urbanism and ecology-based design theory. The historical narrative of architecture and design practices has heretofore stipulated canon anthropocentric hierarchies which position the Anthropos as transcendent to all other life-forms, or in like manner, the architect as a transcendent agent. To provide for a better illustration of humans' collective internalized hierarchy, and the conception of the architect as a transcendent god, fifteenth-century humanitarian Ficino writes;

"…man who provides generally for all things, both living and lifeless, is a kind of God. Certainly, he is the god of the animals, for he makes use of them all, rules them all, and instructs many of them. It is also obvious that he is the god of the elements, for he inhabits and cultivates all of them. Finally, he is the god of all materials for he handles, changes and shapes all of them."[29]

Along the lines of this logic, it can be clearly derived that the architect who handles, changes, and shapes the built environment is considered no different from a god. The same thoroughly anthropocentric ontology that establishes a rigid hierarchy between

[28] Expounded in a short essay about feminist approaches to ecological design in Orff, K. (2016), through a critique of the two tropes -landscape urbanism and ecological urbanism- for their lack of acknowledgement of historicism and their false celebration as new.

[29] Burroughs, J.L. (1944). Marsilio Ficino, *Platonic Theology*. Journal of the History of Ideas, 5, 234.

modalities as expressed by Ficino has been historically persisted in architectural theory at varied levels. We now, although belatedly, need to address these totalitarian views embedded in our practice towards a process of undoing anthropocentric narratives and despotism. Such disciplinary canons pressingly need to be diagnosed and attended to in ecological discourse in order to establish a constructive continuum between nature and architecture. Accordingly, a renewed dialectic of ecology for design professions will need to be defined. As opposed to a postulation of architecture as bifurcated from nature, or as 'overcoming nature', it should be acknowledged that architecture is a direct extension of nature. Nature is not defined with the human. Therefore, it only seems plausible that a perception of the Earth with human at the center is ultimately discredited.

Immanence, best defined in contradistinction to *transcendence*, is the condition of being entirely within something, deriving from the Latin *immanēre*, meaning to dwell in, or remain. The heterodox Spinozist conception of immanence propounds, *deus sive substantia sive natura*[30], God or substance or nature, where there is no established distinction between the creator and the creation. Hence, none between nature and natural beings. Spinoza's ontology situates all forms of life on a common plane of immanence. The earliest and most vigorous opposition to Descartes' dominant dictum that nature and culture constitute a duality, Spinoza rather insists that, we are nature, we are an immanent extension of nature, and we may not situate ourselves above or against nature. The idea of an egalitarian coexistence in the ecosystem builds largely on the initial ideas of Spinoza in this sense. Terms stemming from egalitarian ecological relations as discussed by other theorists that regard a similar objective include a number of different terminology. *Heterarchy*[31], formulated as the antonym to hiearchy, is defined as a level system in which members of a group are not organized by ranking in the works of Kodalak.

[30] Spinoza, B., & Morgan, M. L. (2002). *Spinoza: Complete works*. Hackett.
[31] Kodalak, G. (2018). Spinoza, Heterarchical Ontology, and Affective Architecture. *Spinoza's Philosophy of Ratio*, pp. 89-107.

Skolimowski similarly employs the term *cosmocracy*[32], in place of ecological democracy since the term itself etymologically derives once again from *demos*, the human. Politics in this sense, is not the exclusive preserve of the human being and likewise the human being is not the only political being to be defined within cosmopolitics. In keeping with a similar line of approach for the theory of agency, Karen Barad's *intra-action*[33], where she uses the term "*intra-activity*" in replacement of the word, *interactivity*, defines agency as a dynamism of forces, and recognizes the mutual constitution of entangled agencies as the nature of being. Similarly in Latour, networks, *actants* and *parliament of things*[34] are used to involve and represent the agentic capacities of nonhuman life forms. Latour critiques modernity's mode of classification and ontological reductionism, and in opposition, he advocates for the agency of nonhuman subjects and a larger *parliament of things*. *Actant*, is a semiotic term for any entity, be it inanimate or animate, that "modifies another entity in a trial", where the prerequisite to be human is lifted from being considered a political being. Analogously, Deleuze and Guattari also discuss nonhuman-human assemblages in their *A Thousand Plateaus* [35]. A frequently discussed work that follows a Deleuzo-Spinozan affective assemblage model of agency to discuss a political ecology of humans and nonhumans[36] is also *Vibrant Matter* by Jane

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[32] Skolimowski, H. D. (2003). Cosmocracy: As the Next Stage in The Development of Democracy. *World Affairs: The Journal of International Issues*, 7(2), 133–151. See also, the concept of *cosmodality*, the continuum that aligns the cosmos with modalities of existence at all scales in Kodalak, G. (2021), "Cosmodality: Prolegomena to a New Architectural Metaphysics" as well as *cosmopolitics*, the possibility for a politics of *quasiobjects* in Stengers, I. (2005) "The Cosmopolitical Proposal." *Making Things Public: Atmospheres of Democracy*, ed. Bruno Latour and Peter Weibel, Karlsruhe: ZKM Center for Art and Media, pp. 994 -1003.

[33] Barad, K. M. (2007). *Meeting The Universe Halfway: Quantum Physics and The Entanglement of Matter and Meaning.* Duke University Press.

[34] Latour, B. (2004). *Politics of nature: How to bring the sciences into democracy*. Harvard University Press, 237; (1999). *Pandora's Hope: Essays on The Reality of Science Studies.* Harvard University Press.; (1993). *We Have Never Been Modern*, Cambridge, MA: Harvard University Press.

[35] Deleuze, G. & F. Guattari. (1987) A Thousand Plateaus: Capitalism and Schizophrenia. University of Minnesota Press.

[36] Bennett, J. (2010). *Vibrant Matter: A Political Ecology of Things*.

Bennett, where she interposes the notion that agency can only be explained with reference to human volition or intentionality. Bennett's ecophilosophy propounds a "vital materiality" inherent in all bodies, human and nonhuman, to argue that agency is not solely the province of humans. The book explores the vital force within material formations as quaint as landfills. On the whole, it can be gathered that agentic capacities are not exclusively human as informed by posthumanist theory, and we may discuss a notion of "shared agencies" with distributed agency sets repositioning architects as an assembly of nonhumans and humans. If we are to extend this discourse to an alternative realm, buildings can also have agentic capacities as prompted by Wakkary[37], capacities to pollute, capacities to have toxicity, capacities to be resilient or capacities to collapse. Therefore, we may conclude that agency can be possessed by organic life forms such as humans, animals, plants or microorganisms, but also by inorganic forms such as built material.

2.2.1.2 Post-Anthropocentric Habitats

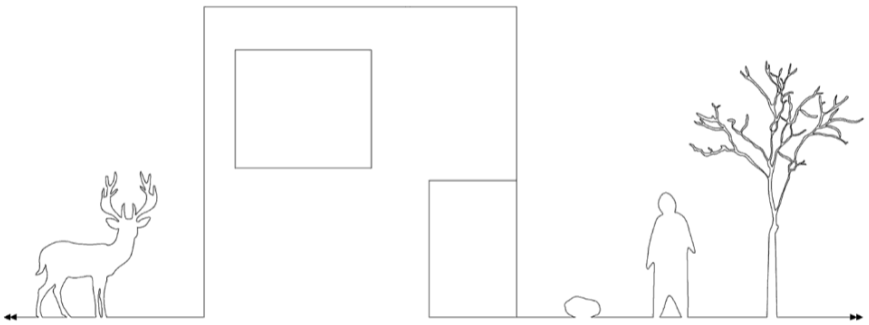


Figure 2.1 Heterarchy diagrammatized by Kodalak by a continuous line that sets animals, plants, geological formations, humans, and buildings not only on a level plane of existence, but as direct extensions of each other.

Source: Kodalak, G. (2021). From Architecture Lifeless to Architecture Alive. *Architectures of Life and Death: The Eco-Aesthetics of the Built Environment*, 39.

[37] Wakkary, R. (2021). *Things we could design: For more than human-centered worlds*. The MIT press.

What the discussion of immanent ethics and Spinozist relationality theory suggests for architecture is outright related to architecture's forenamed agentic capacities, and its direct interconnectedness to nature. This idea calls for an operation to remove hierarchy from the dialect of architecture to be able to discuss an architecture equal for all beings. The heterarchy that Kodalak postulates after Spinozist thought is the mode of relating to beings by the concept of "levelness" instead of the assumed bilateral hierarchical structures of thought in which either nature, or human, are glorified **[**Figure 2.1**]**. The verdict about the glorification of nature needs to be especially magnified on in this statement. Potential levelness by no means connotes to a dated nineteenth-century notion of "nature as a moral antidote to urbanization" as Corner similarly critiques[38]. This amputation of hierarchy does not work mono-directional, the same critique applies to the sacrosanct conception of nature that apotheoses nature as an omnipotent deity that is untouchable, unalterable, or superior to all. In other words, we are not *outside*, *above*, or *beneath* nature by any means. Au contraire, we stand as an inseparable part within nature as informed by relationality theory.

[38] Corner, J. (2006). Terra Fluxus. *The Landscape Urbanism Reader*, 25.

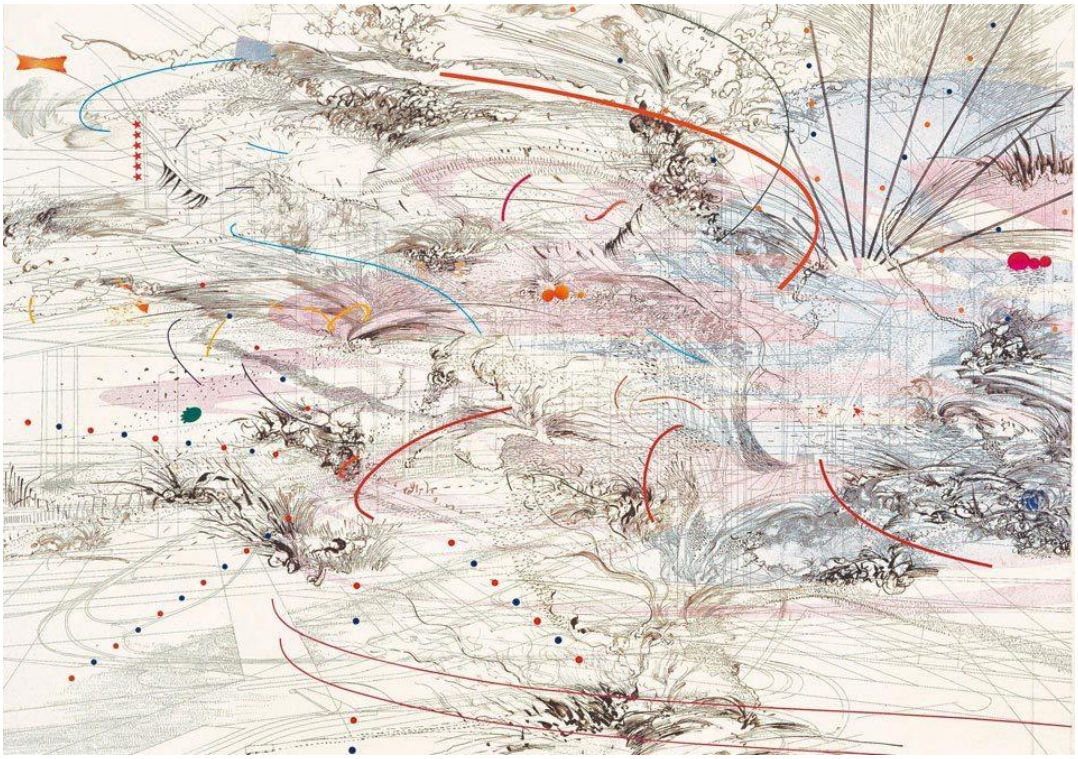


Figure 2.2 "*Immanence*", Julie Mehretu (2003).

Source: Mehretu, J. (1970, January 1). *Immanence, 2004 - Julie Mehretu*. www.wikiart.org. Retrieved January 16, 2023, from https://www.wikiart.org/en/julie-mehretu/immanence-2004

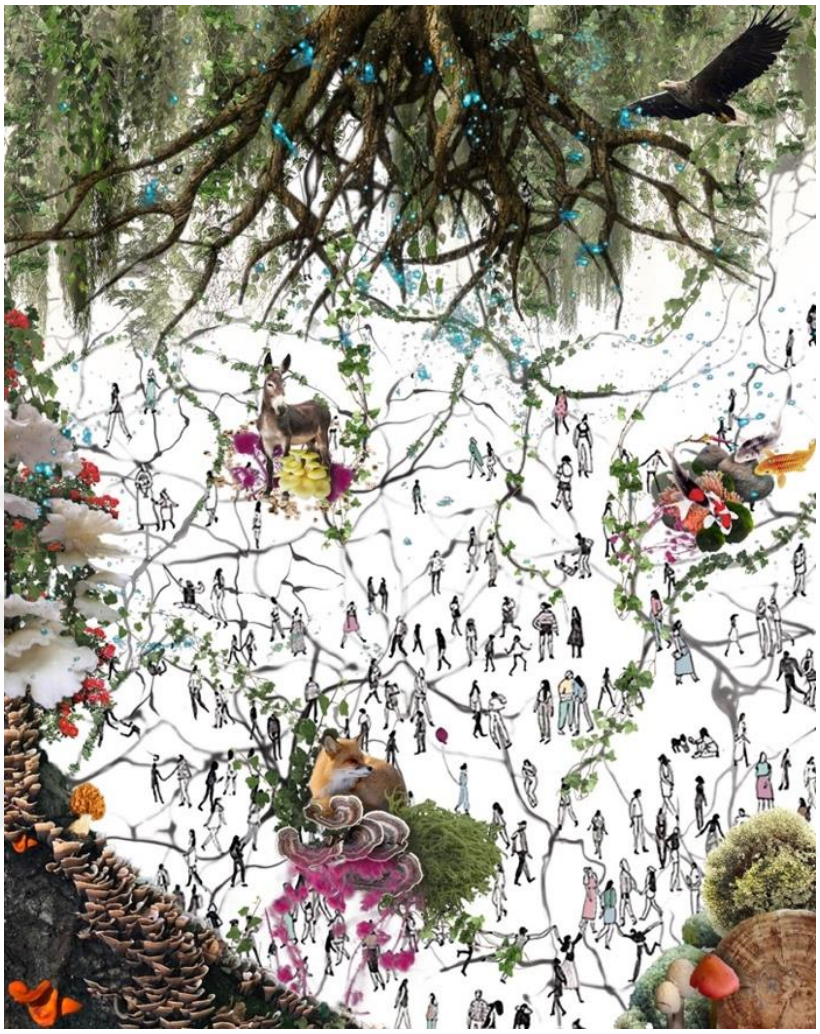


Figure 2.3 "*Entangled Kingdoms*", Doxiadis+ (May 22 – November 21, 2021), 17th International Architecture Exhibition Of La Biennale Di Venezia. The project highlights the symbiosis of species as a *sine qua non* condition for the survival and future prosperity of planet Earth through an exploration of the taxon of fungi.[1]

Source: *Biennale Architettura, (2021). Doxiadis+*. La Biennale di Venezia. Retrieved January 16, 2023, from https://www.labiennale.org/en/architecture/2021/emerging-communities/doxiadis

To comprehensively digest an idea of the immanence of relationships in question, we may look at two specific images; Mehretu's *Immanence* **[**Figure 2.2**]**, and *Entangled Kingdoms* presented by Doxiadis+ under the theme *"How will we live together?"* **[**Figure 2.3**]**. What both of these images similarly convey and render, is a complex ecology in which all parts are equally related to each other, as well as intrinsically connected by a web of relations made up of diverse agents –although not the same– are in constant communication and interaction with each other. Embarked on the philosophy of "*forming symbiosis*", *Entangled Kingdoms* in particular questions humanity's place on the planet, focused through the interdependencies instead of the conflicts. Project authors state, "we have provided a home for these fungi, but we do not control them"[39]. The aim is to simply *see* and to make visible the completely unpredictable and dynamic fungi, not to contain, to control, or to form. As followed through this concept, immanence inherently calls for a symbiotic coexistence. What the doctrine of immanence implies here is not a theological "god is everywhere", but particularly an ontological "everything is everywhere". The theory of immanence which implies that subjectivity is not the exclusive prerogative of the Anthropos and bases it on the immanence of relations[40] most certainly offers ecological design thinking brand new doors to open. Cohabitation as a counter-position to the reductionist approaches to ontology and civil rights, fully acknowledges the immanence within ecologies, and designs for an

[39] *Ibid.*

[40] Braidotti, R. (2013). Post-Anthropocentrism: Life beyond the Species. *The posthuman*. Polity Press, 82. In Chapter 2, on the notion of Post-Anthropocentrism: "The idea of subjectivity as an assemblage that includes non-human agents has a number of consequences. Firstly, it implies that subjectivity is not the exclusive prerogative of anthropos; secondly, that it is not linked to transcendental reason; thirdly, that it is unhinged from the dialectics of recognition; and lastly, that it is based on the immanence of relations. The challenge for critical theory is momentous: we need to visualize the subject as a transversal entity encompassing the human, our genetic neighbours the animals and the earth as a whole, and to do so within an understandable language". The logic of life is inherently post-human. Post-anthropocentrism is defined as a necessary apperception for the discourse of ecological heterarchy.

architecture where architecture is not only for the human, but at once for human, for nature, for all beings and for the network of relations in the ecology.

2.2.1.3 Redefining the Socio-Political Prospect

After having established that humans are level with the rest of the elements of nature, we would effective immediately need to define a new formulation of our modern *technè politikè* as the decision-making for the sake of public interest in our societies. As explained within previous sections in this chapter, the affective assemblage model of agency prompts that both animate, inanimate, human and nonhuman subjects are the subject of politics. As the load under the word *public* changes and vastly expands to encapsule every entity existing on our shared planet, in other words, *an association of humans and nonhumans*[41], we inevitably need to redefine what we make of public interest, public life, and public space as we discuss urban matters and design politics. As these definitions expand to include nonhuman individuals and forms, we may invent a *neo-technè politikè* that serves the needs and benefits of the well-being of an extended neo-public[42]. Latour finds that, "objects and subjects can never associate with one another, humans and nonhumans can"[43]. Thus, to peg nonhumans as ineffective objects and not the agentic subjects that they are would be largely amiss. Latour further proclaims,

"...humanity right where we belong in the crossover, the central column, the articulation, the possibility of mediating between mediators. [...] an increasingly large number of humans are mixed with an increasingly large number of nonhumans,

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[41] Latour, B. (1999). *Pandora's Hope: Essays on The Reality of Science Studies.*
[42] "Political representation of nonhumans seems not only plausible now but necessary, when the notion would have seemed ludicrous or indecent not long ago." *Ibid.*, p. 202. Also see, "The nasty problem we now have to deal with is that, unfortunately we do not have a definition of politics that can answer the specifications of this nonmodern history." *Ibid.*, p. 214.
[43] Latour, B. (2004). *Politics of nature: How to bring the sciences into democracy*, p. 76.

to the point that, today, the whole planet is engaged in the making of politics, law, and soon, I suspect, morality."[44]

Humans' role in this case, becomes that of a democratic mediator within a larger society. As a species withholding incredible reaches of technological and scientific knowledge and resources, this surely is an action that human beings can efficiently undertake.

What this implies for post-anthropocentric architecture is; number one, a revision of the limitations of the definition of architecture and architect, number two, a reconsideration of the traditional method of working for a client or an employer, number three, a revision of the subject of user in design terminology and thinking, and lastly number four, a mechanism of autocritique for human agency and jurisdiction that addresses the complete operations of the ecosystem. As Roudavski proffers, contemporary understandings of participatory design need a critical expansion to "become more radically inclusive, from the design for nonhumans to the design with them"[45]. By this definition, the practice of architecture moves far beyond a convention of land as commodity, or sites as simply building lots which acts as a rationale that serves directly for capital and economic systems of government[46]. What should be advocated for instead is land as community in our advanced eco-politics.

The book, *The Rise of the Common City* (2022) produces the hypothesis that common culture provides urban sustainability. Stavrides' chapter elaborates on 'Buen Vivir' of the indigenous Andean peoples as "a harmonious respectful coexistence of human

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[44] Latour, B. (1999). *Pandora's Hope: Essays on The Reality of Science Studies*. Harvard University Press, *p. 214*.
[45] Roudavski, S. (2018). Notes On More-Than-Human Architecture. *Undesign*, p. 30.
[46] Such rationale is not simply a structure of knowledge, but arguably a *strategy of power*. See; Moore, J. W. (Ed.). (2016). *Anthropocene or Capitalocene?: Nature, history, and the crisis of capitalism*. Pm Press.

communities with nature"[47]. Borrowing from this ideology, community is not assigned the collective owner of natural resources or land, but community is the *tender* of the territory. Commoning is conceived, or rather re-conceptualized, as an "extensive participation in exchanges within and through nature that aim to be just, sustainable and based on mutual care"[48]. In this sense, commons intentionally include nonhuman communities in territorial rights, democracies, and stewardship in addition to the human community. As an experimental index, The Archive of the Future[49] is a project of an open archive for the challenges in the times of the Anthropocene that scrutinize "how can species other than humans be effectively participated in political power?". More extensively, Stanislav Roudavski argues for the necessity of nonhuman participation in not just politics, but in all forms of governance, including design[50]. Additionally, in his Chapter 6, *Urban Commonality and Architectural Singularity,* Kodalak emphasizes on bottom-up work and cultural formations to arrive at a "wild dance of unlikely alliances" between all beings[51]. An architecture of commons diffuses the boundaries between culture and nature, and also between people and matter in its processes by the expanded concept of eco-commons. By this means, the act of cohabiting itself manifests as an act of commoning in the greatest sense.

In this line of work, Organisms Democracy is a participatory political experiment devised by the interdisciplinary artists collective Club Real in 2018. Operating in the German cities of Gelsenkirchen[52], Düsseldorf, Leipzig, and Berlin (currently going

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[47] "Buen Vivir includes an understanding of community's commonwealth as the result of relations of cooperation between its members based on solidarity and complementarity. Cooperation is supported by an ethos that permeates both the human relations as well as the relation of the community with Nature" Stravrides, p. 86 in Volont, L., et al. (2022). *The rise of the Common City: On the culture of commoning*.
[48] *Ibid.*, pp. 86-87.
[49] Club Real (2021). Conception and realization by Fiona Schrading and Theresa Dagge.
[50] Roudavski, (2022). p. 35.
[51] *Ibid.*, p. 103.
[52] In Consol Park, Gelsenkirchen, the carbon dioxide emitted by the coal from the Consol colliery was discovered to require a span of 800,000 years to be transformed back into

through its third legislative period), as well as in Vienna, Austria and Paris, France, the project explores "democracy with everyone and for all"[53]. Organisms Democracy is a species-inclusive regime[54] of a politics in which all species are given the same political rights and it seeks to explore alternative forms of democratic engagement and collectivity with equal rights for all living beings. Club Real states,

"Of 2-10 million species who inhabit the planet (approx. 71,000 in Germany, excluding microorganisms), only one species has so far had political rights. This needs to change."[55]

The project is thus a challenge to traditional hierarchical power structures via promoting a horizontal and inclusive ecological approach to democracy. By emphasizing the interconnectedness of citizens (i.e., all living beings considered as citizens) and fostering a sense of collective responsibility, Organisms Democracy aims to reimagine democratic practices and empower nonhuman individuals to actively participate in shaping their communities and societies. The project is of the opinion that, the way democracies can develop and stay alive is by "constantly meeting the demands of enabling participation in politics for everyone"[56] and the everyone that they refer to here is inclusive of all kinds of beings inhabiting the Earth,

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oxygen and biomass by the organisms inhabiting the park. For this purpose, an organisms democracy was founded in 2021 and the countdown to the 800,000 years was initiated. Organismendemokratie. (n.d.). https://organismendemokratie.org/

[53] Organismendemokratie. (n.d.). https://organismendemokratie.org/

[54] Dreyer, I., & Schmidt, D. (2022, May 17). *The Parliament of spiders and worms*. Earth Island Journal.

[55] Organismendemokratie. (n.d.). https://organismendemokratie.org/. See also, "The General Declaration of Organisms Rights is based on an idea of the evolutionary biologist Dr. Hannes Anbelang from Helsinki. It was as early as 1907, when Anbelang wrote in his diary that the fight for justice could only be consistently fought if it included all living beings: No organism should be denied the right to a good and free life. The current version was written in 2017 by the Organisms Club Berlin. The General Declaration of Organisms Rights is a postulate with global claims for the future of life on earth." Organisms Democracy. (2017). Universal Declaration of Organisms Rights (UDOR) Berlin 2017. https://organismendemokratie.org/wp-content/uploads/2020/08/19DeclarationOrgRights.pdf.

[56] *Ibid.*

from trees and other plants to vertebrates, invertebrates, fungi, bacteria and viruses. All organisms are represented in the Parliament of Organisms by a voluntary human individual under the following subgroups: Bacteria/Single Celled Organisms/Viruses, Fungi/Mosses/Lichens, Arthropods, Vertebrates, Molluscs/Worms, Trees/Shrubs/Climbers, Herbs/Grasses/Perennials and Neobiota (non-native "immigrant" species brought by people) **[**Figure 2.4**,** Figure 2.5**]**. The parliament representatives directly serve for the peaceful cohabitation within the "Organisms Republic" as predicated in the Constitution published by the project[57]. For the terms of post-anthropocenic architecture, this idea of ecological democracy suggests that all living beings who inhabit or use a territory are equally entitled to the same legal and political rights and decision-making about their habitats, and all living beings should be collectively making the decisions on the future of their urban habitat.

[57] Organisms Democracy. (2019). CONSTITUTION Organisms Republic_Berlin 2019. https://organismendemokratie.org/wp-content/uploads/2020/08/19ConstitutionBerlin.pdf

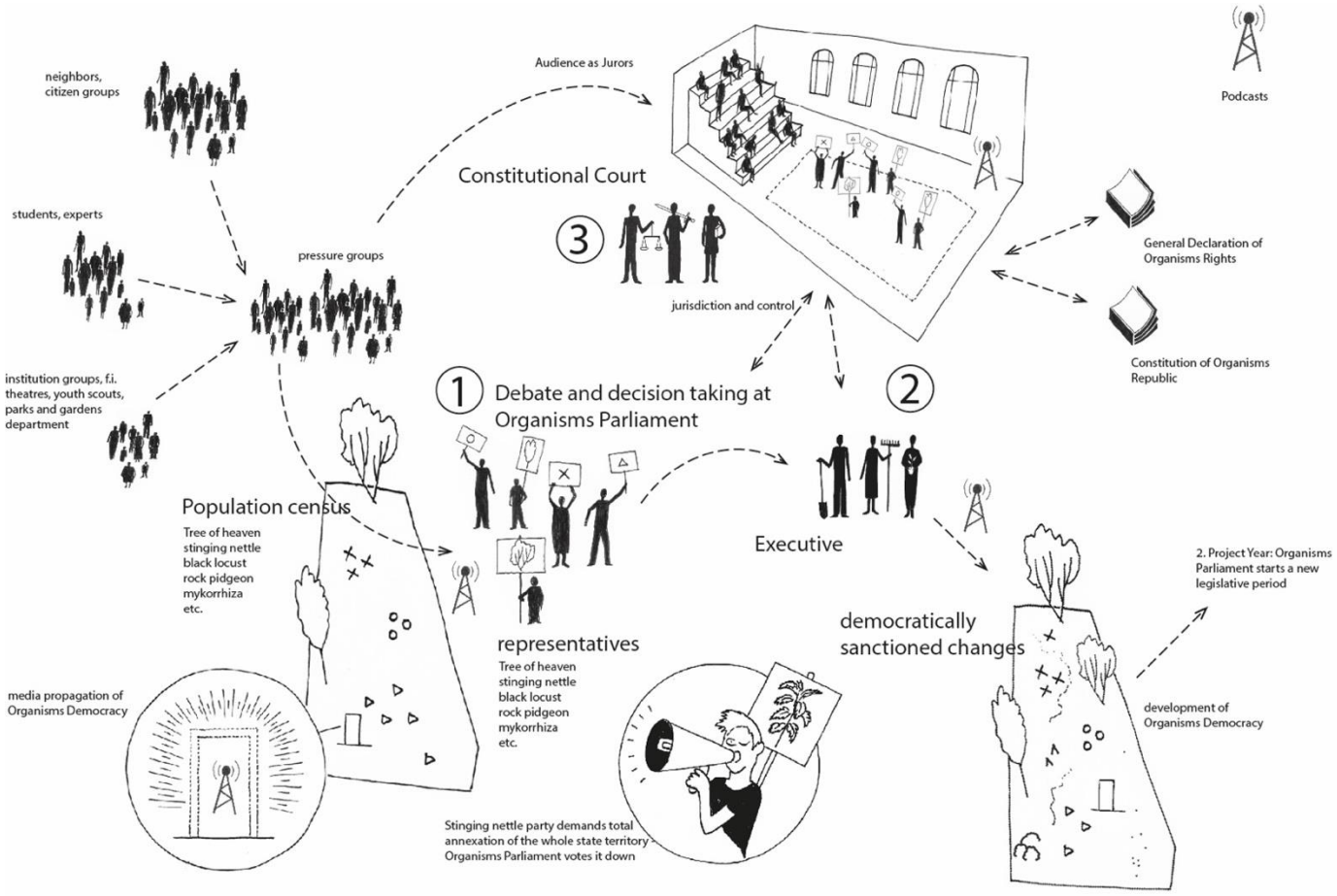


Figure 2.4 Graphic depiction of Organisms Democracy's system.

Source:Organismendemokratie. (n.d.). https://organismendemokratie.org/.

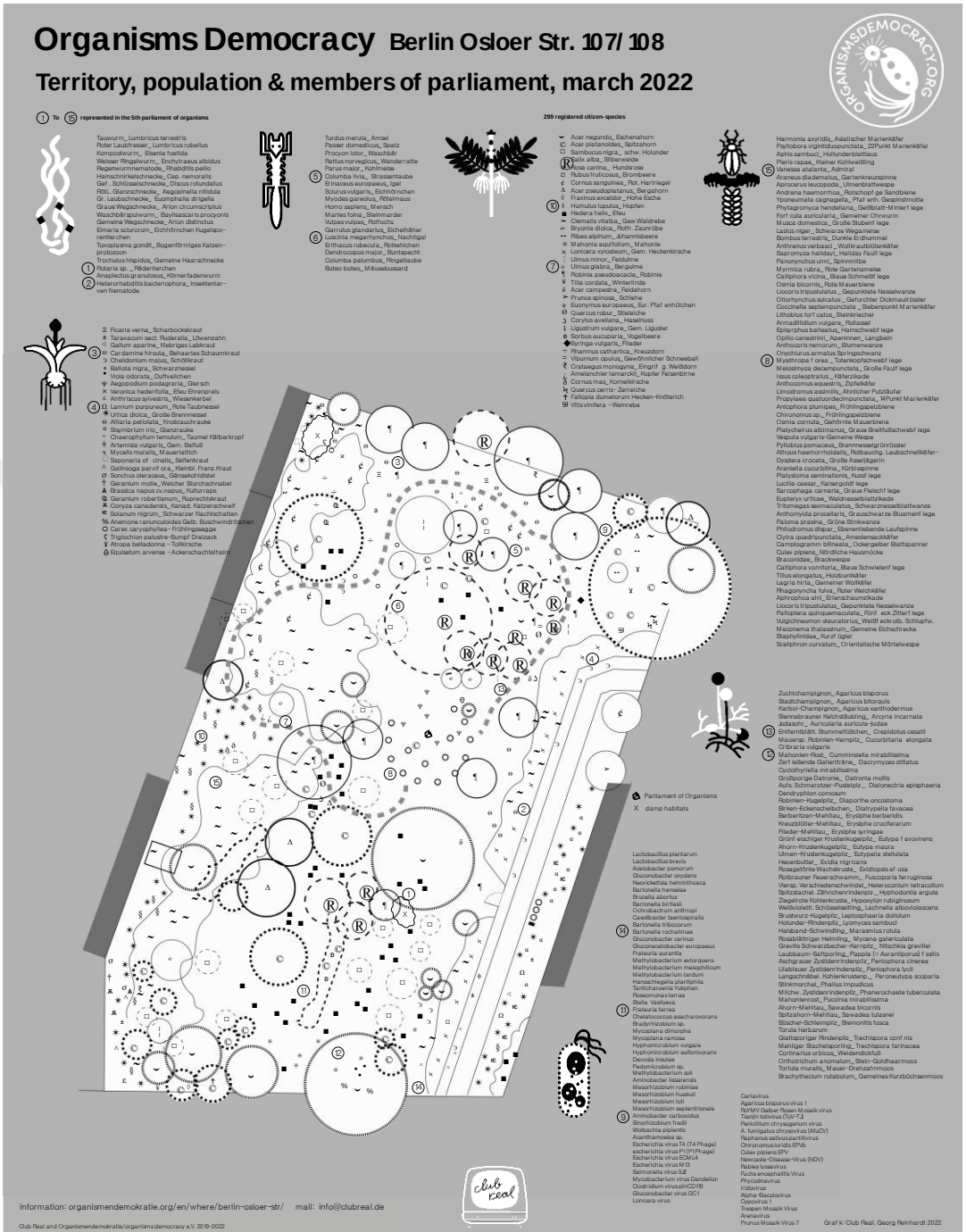


Figure 2.5 Map showing territory, population, and members of parliament in Organisms Democracy, Berlin, March 2022.

Source: Organismendemokratie. (n.d.). https://organismendemokratie.org/.

2.2.2 The City as A Habitat

This section defines the city as an ecosystem, a habitat, and main setting for life for human/nonhuman agencies for the second segment of the main theory for the thesis.

2.2.2.1 Nature/Culture Dichotomization and Hybrid Ecology

The second fundamental half of the hypothesis for this research is the argument that, cities should be acknowledged as habitats for human/nonhuman communities. Not only are they most certainly not exempt from ecosystemic cycles, but cities in fact constitute a major part of them. The prolonged philosophical bifurcation of the city from nature; similarly, nature from culture[58], the urban from wilderness, the human from the nonhuman is a narrative that is both counter-productive to solutions that may be strategized toward ecological and climate welfare, and, is ultimately non-scientific as we begin to discuss phenomena such as planetary urbanization[59] and the descent into the Anthropocene epoch[60]. In their book, *Are we human?* (2016), Colomina and Wigley also annunciate that design now extends to a planetary scale where it becomes a geological layer to which point there is "no longer an outside to the world of design"[61]. Given such circumstances and global realities, the discussion

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[58] In Radman and Kousoulas' book *Architectures of Life and Death* (2021), architecture is defined not as a representative of culture, but as the mechanism of culture. As opposed to architecture as the nature's other, architecture can be formulated as the mechanism of the anthropos in a complex system of operations performed by the ecosystem at large and contained within natural processes.

[59] See Brenner, N. & Schmid, C. (2014) Planetary Urbanization, *Implosions / Explosions Towards a Study of Planetary Urbanization*, ed. N. Brenner, Jovis; pp. 160-64.

[60] Sijmons, D. (2021) In the Anthropocene, Site Matters in Four Ways, eds. Carol J. Burns and Andrea Kahn, *Site Matters: Strategies for Uncertainty through Planning and Design*, New York, Routledge; pp.110-130.

[61] Ineptly, they somehow arrive to the conclusion that "design is what makes the human", once again stuck on the transcendentalist postulate dictums of the practice, by overlooking entire histories of animal architecture, examples of which have been discussed by Frisch, K. von & Frisch, O. von. (1974). *Animal architecture* ([1st ed.]). Harcourt Brace Jovanovich; Hansell, M. H. 1. (2007). *Built by animals: the natural history of animal architecture*.

of nature as the city's other, above all, seems irrelevant. No matter the magnitude of the impact, and the level of disruption incited by the Anthropocene, the fact remains that cities are a mere modification of nature, built by natural agents. In ecological urbanist theory, Spirn argues six key principles of ecological urbanism[62]:

1. Cities are part of the natural world.
2. Cities are habitats.
3. Cities are ecosystems.
4. Urban ecosystems are connected and dynamic.
5. Every city has a deep structure or enduring context.
6. Urban design is a powerful tool of adaptation.

By this vein, Spirn argues that not only are cities part of the natural world, but cities are habitats. They are functioning ecosystems and urban ecosystems are just as interconnected and dynamic[63] as natural ecosystems are. Likewise, as natural ecosystems are also defined over "a broad range of scales, from the community to the bioregional to the global, all 'eventually closing into a single, gigantic web of formidable complexity' (de Duve 1995, 217)"[64], an urban ecosystem also behaves as a web of interlinked ecosystems of varied scales, and is always in relation to other existing systems within a larger network of relations.

Oxford; New York, Oxford University Press; Ingraham, C.T. (2005*). Architecture, Animal, Human: The Asymmetrical Condition* (1st ed.). Routledge.

[62] Spirn cited in Albrecht Da Silveira, C. F. (2018). *A Systemic Approach for Integrative Design of Buildings and Landscapes: Towards Ecosystem Services Provision in Urban Areas.* Ph.D. Dissertation in Architecture. Pennsylvania State University. p. 16.

[63] Spirn, A.W. (2014) Ecological Urbanism: A Framework for the Design of Resilient Cities, Ndubisi, F.O. eds. *The Ecological Design and Planning Reader*, Island Press, Washington, DC, pp. 559-564.

[64] Albrecht Da Silveira, C. F. (2018). *A Systemic Approach for Integrative Design of Buildings and Landscapes: Towards Ecosystem Services Provision in Urban Areas.* Ph.D. Dissertation in Architecture. Pennsylvania State University. p. 16.

It should additionally not be disregarded that our cities also depend on ecosystem services and mechanisms[65], therefore, the city is virtually unimaginable as separate from, or autonomous to nature. In order to be able to produce livable habitats that can respond to the dynamic procedures of the global ecosystem, as well as to the climate crisis at large, architecture and the designs of cities must rely on a foundation of *intraconnectedness*, and the *intradependence*[66] of species in the global Biosphere.

2.2.2.2 Cohabitats and Sustainability

As the number one and most frequently expressed promise of green architecture; sustainability, can and should not be reduced down to simplistic issues of a reducing of the increase in energy emissions, a cosmetic incorporation of vegetation on façade applications and roofs, a gold or silver status certification for the sake of market credit and image, or simply a corporate process of operational efficiency. As stated by Kate Orff in *Toward an Urban Ecology*, "The notion of a sustainable future is inseparable from robust habitats and the fostering of global biodiversity."[67]. Therefore, the concept of ecological sustainability and sustainable design is intrinsically linked to the prosperity of global habitats and the capacity to adapt to ecosystems. For architectural design to be naturally, ecologically, temporally, and socially sustained for extended periods regardless of their context in urban or nonurban nature, design needs to be planned and scenarized through the biological processes of any other organic being, that is, the finitude of life cycles[68]. Wakkary

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[65] United Nations Environment Programme. "Biodiversity and ecosystems" https://www.unep.org/explore-topics/resource-efficiency/what-we-do/cities/biodiversity-and-ecosystems

[66] The prefix *intra-* (signifying parts within the same group) has been preferred over *inter-* (signifying between multiple groups) for the purpose of this research after Baradian ideology. Barad, K. M. (2007). *Meeting The Universe Halfway: Quantum Physics and The Entanglement of Matter and Meaning.* Duke University Press.

[67] Orff, K. (2016), p. 83.

[68] On this subject, see also; Cairns, S., & Jacobs, J. M. (2017). *Buildings must die: A perverse view of architecture.* The MIT Press.

expressly emphasizes designing the end of design[69] in regard to this matter. It should not be disregarded that design also has an ultimate decomposition date just as any other entity in nature, thus architectural design should also be formulated to enclose the processes of construction, maintenance, adaptation and decomposition. Designing the complete process and life cycle of architecture, connotes to an acknowledgement and accountability of the finite life cycle of architecture. In consequence, sustainability as a value extends over the occupation (tenancy) period of the building to include the aftermath and completion of architecture. Beyond a market-driven and green-washed generic sense of sustainability, planning for the intentional continuity or finitude of architecture, and stitching architecture through diverse agencies of assemblages, human, non-human, and material, will result in a more substantial practice in terms of sustainability.

In addition, we may also discuss cultivation, regeneration, and coevolution in the longer run as processes of architecture. Albrecht Da Silveira finds that "a systemic approach is beneficial for cities' sustainability especially because of the possibility of unintended or unexpected factors, events, or impacts, which are part of living systems that are nonlinear and emergent (Newman and Jennings 2008; Capra 1996)"[70]. Herein dynamism becomes a key factor. García-Acosta and Romeva refer to their self-defined notion of ecospheric design as a guide for the deep understanding and the maintenance of the dynamic equilibrium of nature. The ecologically sound design of resilient cities in ecospheric design is configured through a capacity for dynamic transformation in architecture. Similarly, Marcotullio and Boyle expound that,

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[69] Wakkary, R. (2021). *Things we could design: For more than human-centered worlds*. The MIT press.

[70] Albrecht Da Silveira, C. F. (2018). *A Systemic Approach for Integrative Design of Buildings and Landscapes: Towards Ecosystem Services Provision in Urban Areas.* Ph.D. Dissertation in Architecture. Pennsylvania State University. p. 17.

“While cities have traditionally been seen as aberrations of ‘nature’, such a distinction neglects the opportunity to envision human built environments that can exist in balance with wider ecological systems. Sustainability can only be achieved when cities are approached as systems and components of nested systems in ecological balance with each other.”[71]

Paris-based firm ChartierDalix, led by architects Frédéric Chartier and Pascale Dalix, has introduced the notion of "architecture as ecosystem," aiming to achieve a harmonious coexistence between architecture and ecosystems[72]. This particular methodology exhibits a prime example of a design conception responsively in line with dynamic and immanent ecologies. ChartierDalix base their practice on the link between architecture and ecosystem and the matter of integrating life into architecture. This research holds great significance and relevance, particularly when we acknowledge that architecture serves as the fundamental environment for human life. ChartierDalix propound that they conceive architecture and the integration of life as “different organs in the same anatomy, which complete and enhance one another in a harmonious manner”[73]. The concept of architecture as an ecology is advanced through the creation of novel urban functions, including urban agricultural spaces and green areas, which foster a sense of community in urban environments. Additionally, the research and development of innovative construction methods and materials contribute to the realization of this vision **[**Figure 2.6**]**. Architecture as an ecosystem represents not just a paradigm shift within the discipline of architecture but also holds profound implications for the field of ecology itself.

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[71] Marcotullio, P. & Boyle, G. (2003). *Defining an Ecosystem Approach to Urban Management and Policy Development*. Tokyo, Japan: United Nations University Institute of Advanced Studies.
[72] ChartierDalix. (2020). Chartierdalix. *Hosting life: Architecture as an ecosystem*. Park Books.
[73] *Ibid.*

In varied sources, the six main characteristics of ecosystems are loosely listed as: biodiversity/diversity, flexibility and self-regulation/adaptiveness, coevolution/interconnectedness, resilience, self-renewal/regenerative capacity and zero-waste/symbiosis[74]. An approach of architecture as ecosystem, ecospheric design, biophilic design, or similar terminologies that may be referred by different theoreticians, will be paralleling these same characteristics. Beyond ecological mimicry, the design of architectural systems compatible with and adaptive to the ecological systems of the Earth, and of the localized specific biotope of its site, can carry the capacity to perform the diversity, flexibility, and resilience inherent in natural orders. This sense of architecture developed with respect to an imminent understanding of nature is a practice of continued and endured cultivation in nature.

[74] Bossel (1998) and Newman and Jennings (2008) cited in Albrecht Da Silveira, C. F. (2018). p. 15.

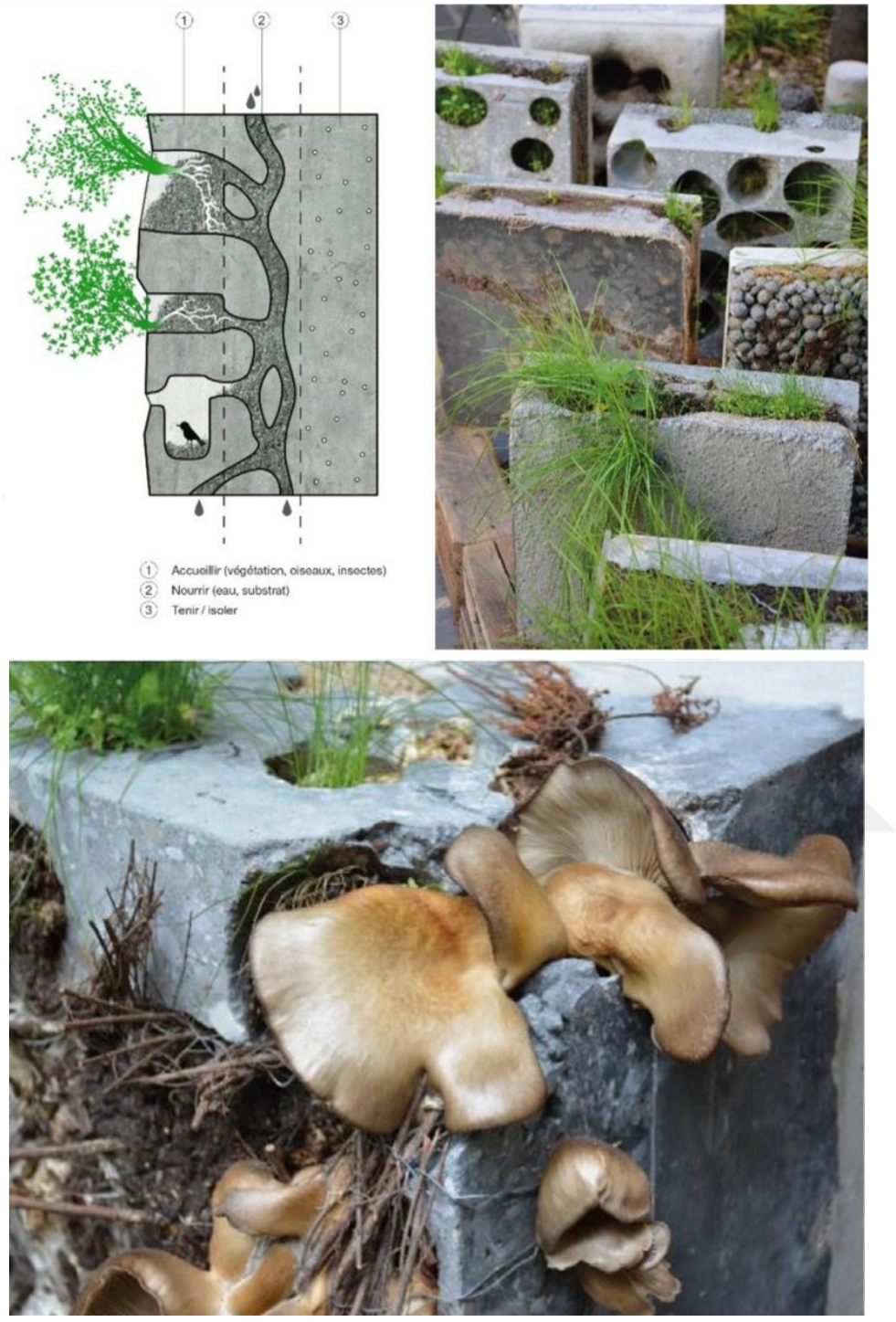


Figure 2.6 Prototype for a new concept of multi-layer facade system, FAIRE, by ChartierDalix, and the colonization of mycelium on the concrete brick.

Source: ChartierDalix referenced in Chayaamor-Heil and Vitalis, 2021, p. 7.

CHAPTER 3

DESIGNING COHABITATION

After formulating a theoretical basis on cohabitation, methods of *designing* cohabitation in architectural realities will be discussed under this second section of the discussion informed by case studies demonstrating various typologies of cohabitation. It should be foremost disclosed that cohabitation as a mode of architecture does not postulate a scenario in which an intervention to nature is made. There are three main urban field conditions that should be mentioned for cohabitation [Figure 3.2]: One, is the urban condition of polluted discontinuity, where the area of varied scales is in an un-functioning state for both human and nonhuman occupiers as result of a certain environmental or urban damage that has caused a discontinuity in its architectural context, and the domain of cohabitation is a project of remediation or reclamation in this case. The second field condition is that of a *third landscape*, defined as an "undecided fragment of the planetary garden"[75] by Gilles Clément, meaning a neglected urbanized area that has later been reclaimed by nature and is now home to a remarkably rich biodiversity of species through natural processes of recultivation. This field condition is usually of smaller scale, and the architectural project here defined by cohabitation is one of smaller intervention and one performing the inclusion of humans and human stewardship into the rich nonhuman context. The third and final urban field condition predicted here is the most common, and most frequently encountered densely urban context. This scenario resolves the inclusion and integration of nonhuman individuals and nonhuman systems in high urban density zones that have a prevalence of conventional human-architectural typologies and construction methods in larger scales. The following three design acts

[75] Clément, G. (2004). Manifesto of the third landscape. *Trans Europe Halles, Lund [Translated by Bee M. and Fèvre R.]*.

of cohabitation, respectively functional symbiosis, capable architecture, and integrated engagement, elaborated in the following chapter are the resolutions of these scenarios identified for transitive urbannature contexts. The overall motive of all three scenarios is including over interfering, ergo minimized interference and maximized inclusivity. The purpose of the scenarios is to cover a wide array of potential urban fields of possible architectural contexts and scales and how they might differ among urban possibilities. These frameworks are also fully expandible, they cannot be limited to these specific fields defined here as the diversity of conditions possible through urban contexts are indefinitely multipliable. Through these predicted scenarios for varied contexts and varied scales, cohabitation's counsel is to emphasize on not to cause intentional harm to any agencies, and to cultivate relations between different natural and urban agencies.

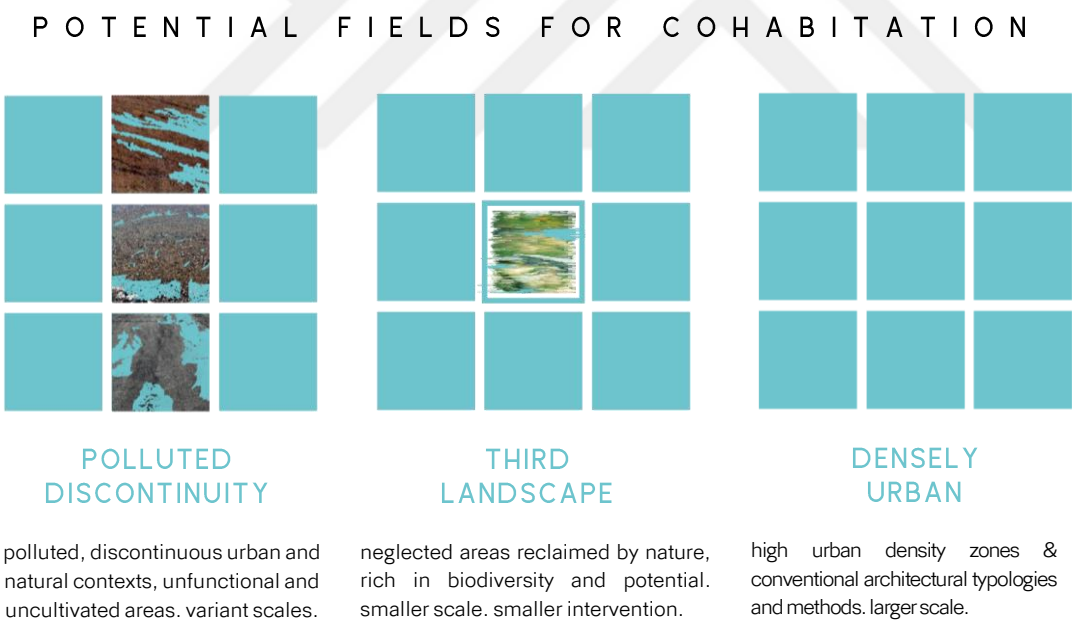


Figure 3.1 Diagram for the potential urban fields for cohabitation.

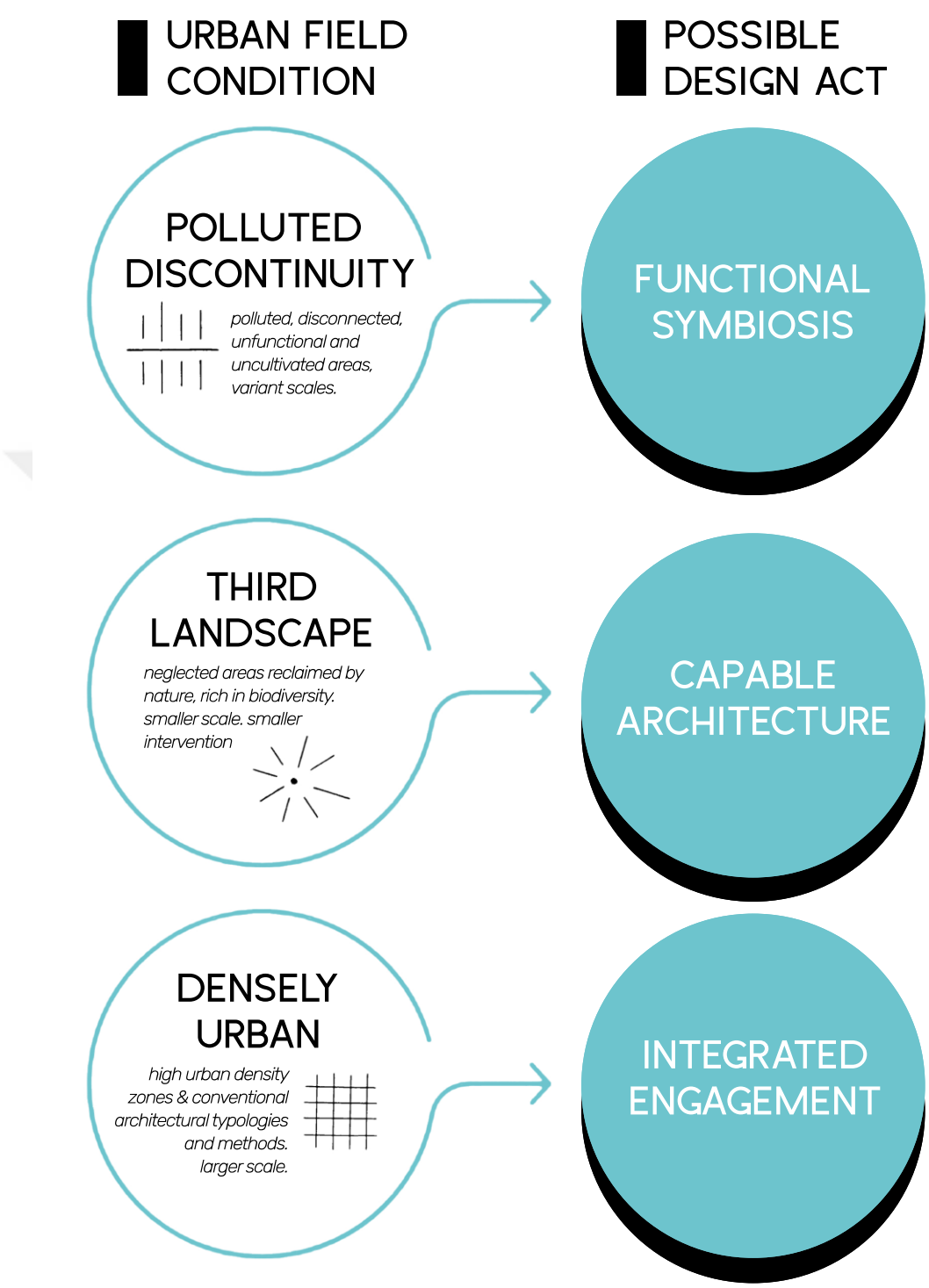


Figure 3.2 Urban Field Condition/Possible Design Act Matrix.

3.1 Possible Design Acts for Cohabitation

In regard to the possible cases defined, what design acts can take shape as solutions within the cohabitation model for post-anthropocenic architecture will be explored under this section. For each design act, a certain typology from a related case study is deployed for each.

3.1.1 Functional Symbiosis

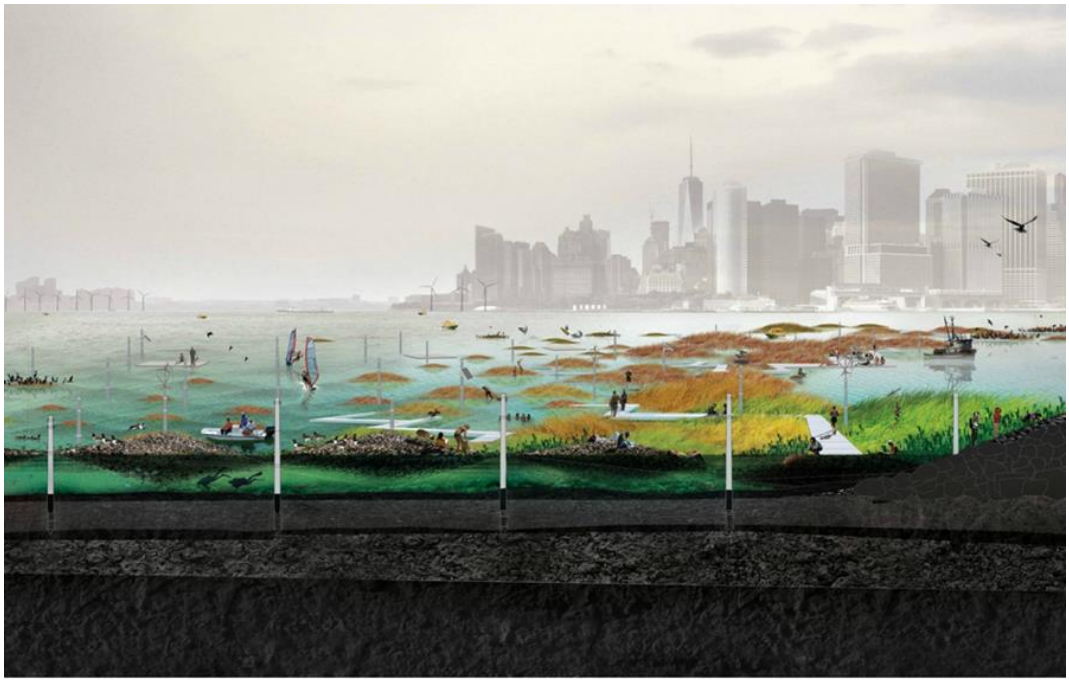


Figure 3.3 Oyster-tecture by SCAPE.
Source: *Orff, K. (2016). Toward An Urban Ecology. Monacelli Press.*

The first design act to be discussed for the model of cohabitation, emerged in the framework of the urban field condition *polluted discontinuity*, is exemplified by the innovative approach of SCAPE and Kate Orff's Oyster-tecture project that vividly embodies the design act of functional symbiosis. The term functional symbiosis is

employed as the project showcases a transformative strategy that rehabilitates both human and nonhuman habitats through functionalizing cohabitation.

With SCAPE, Kate Orff propounds a contemporary perspective toward the meaning of urban ecology for the practices of landscape architecture and urban design. Orff's manufestograph, *Toward an Urban Ecology*, is positioned as an activist practice that strategizes to revive, cohabit, and engage (combined ultimately as scaling) to engender a new relationship of the city with the biosphere. Orff defines certain methods such as urban flyways, artificial habitats, and adaptive management as strategies of performing this ideology. Projects such as Oyster-tecture **[**Figure 3.3**]** (as part of the larger conduct Living Breakwaters) explores the possibility of urban coexistence and functionalizes the state of coexistence as a sustainable development plan for the urban context of New York City in the face of sea level rise caused by global warming. The project aims to increase water quality on the post-industrial aquatic site, i.e., Gowanus Canal, by harnessing the biological power of mussels, eelgrass and oysters as bio-filters and wave attenuators. Oyster-tecture is principally a marine park that develops a new artificial ecology, a reef out in the harbor inaugurated by a soft infrastructure for the oysters to naturally grow on, and the construction process is ensued along with the biotic filtration processes of the oyster population. The objective here is to simultaneously rehabilitate the habitats of this specific species that were polluted to extinction by human activity, to improve the living conditions for other aquatic species sharing the same habitat in the process, to restore the lost biodiversity, and finally, to remediate the area for human dwellers; provide coastal resilience and climate-proofing, and encourage new relationships between New Yorkers and the water by harnessing the mollusc's natural ability to filter and self-populate **[**Figure 3.4**]**. The project forms its foundation on the cohabitation of human life forms and aquatic life forms where both species are collectively and collaboratively building their shared habitats. Orff precisely emphasizes on the significance of an urban culture of engagement and a ground-up approach, and in this specific case the engagement with the community is organized to involve nonhuman life forms as active agents. That being said, Orff's narrative

does regardless become hierarchical at points, with the distinctive typification of certain species as "invasives"[76].

This certain typology is defined here as a form of *functional symbiosis.* It should be mentioned that the functionality here is not malevolent—it is the anthropocentric functionalism that becomes hierarchical, and as long as the functionality of the symbiosis regards both (or more) parties, functional symbiosis can very well be an ecocratic strategy.

[76] *Ibid.*, p. 82. The term "invasives" refers to species not native to a particular area introduced into a foreign habitat by the human species. The subsequent problematization of these species as "invasive species" constitutes a hypocritical anthropocentrism.

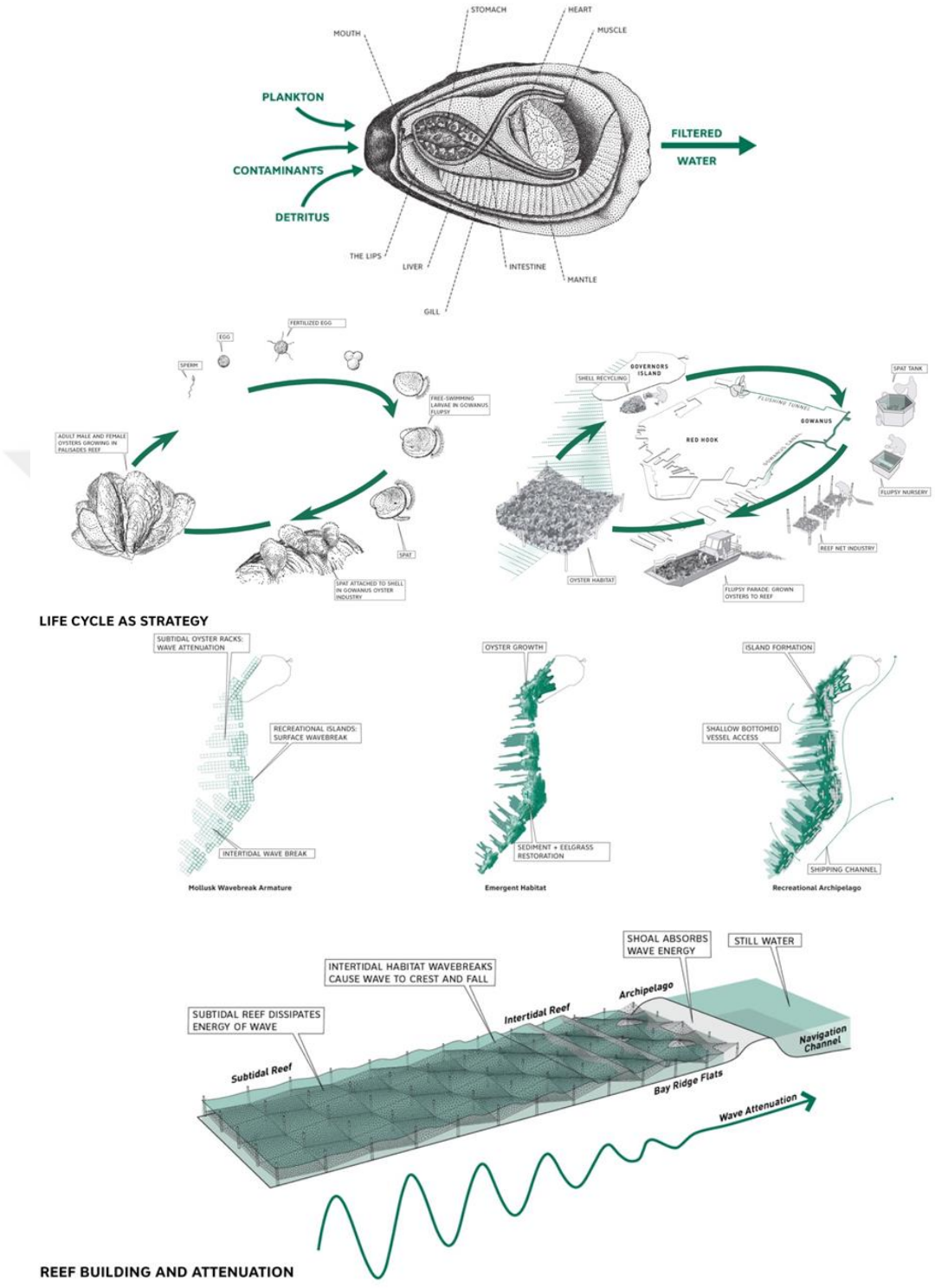


Figure 3.4 Diagrams showing the natural process of the oysters for Oyster-tecture. Source: *Orff, K. (2016). Toward An Urban Ecology. Monacelli Press.*

3.1.2 Capable Architecture



Figure 3.5 Floating University, Berlin. Photographs from the site in 2018-2021.
Source: *Floating Berlin.* Retrieved January 1, 2023, from https://floating-berlin.org/

The second design act to be discussed for the model of cohabitation, emerging from the urban field condition *third landscape*, that is, on abandoned urban vacancies, on neglected lands of blooming biological diversity and ecological reclamation; the unique and inspiring case of Floating University will be elaborated under this section. The term capable architecture is a term used directly by contributors of the *Floating*, and it reflects a dynamic embodiment of adaptability and diversity, and emerges as a careful transformation that orchestrates harmonious interactions between human and nonhuman agencies for collective place-making. It is also a

design act that proposes a projection of the future possibilities of post-anthropocenic architecture.

Pitched as neither floating, nor a university, Floating University **[**Figure 3.5**],** is built ephemerally on a rainwater retention basin adjacent to the former Tempelhof airfield in Kreuzberg, Berlin. The project can plausibly be best defined as a collaborative spatial experiment. Initiated first in 2018 by architecture group *raumlabor* and created through a collaborative building process as a nature-culture learning site, each year the campus of Floating University is reimagined by diverse collaborators **[**Figure 3.6**,** Figure 3.7**]**. A 1:1 architectural model for experimenting with spatial possibilities of post-anthropocenic architecture, potentials for cohabitation, as well as a public pedagogy for arts and architecture, *Floating* makes the decision to reactivate the unique water infrastructure as a cultural and socio-political space. On the site, a diverse range of animals, plants and algae have given birth to a "unique landscape: a man-made environment reclaimed by nature where polluted water coexists with the relatively new presence of the university, forming a *nature culture* (Haraway) or a *third landscape* (Clément)"[77] in a fragile ecosystem where diverse species actively co-exist.

[77] *History • floating berlin*. FLOATING BERLIN. (2021, October 28).

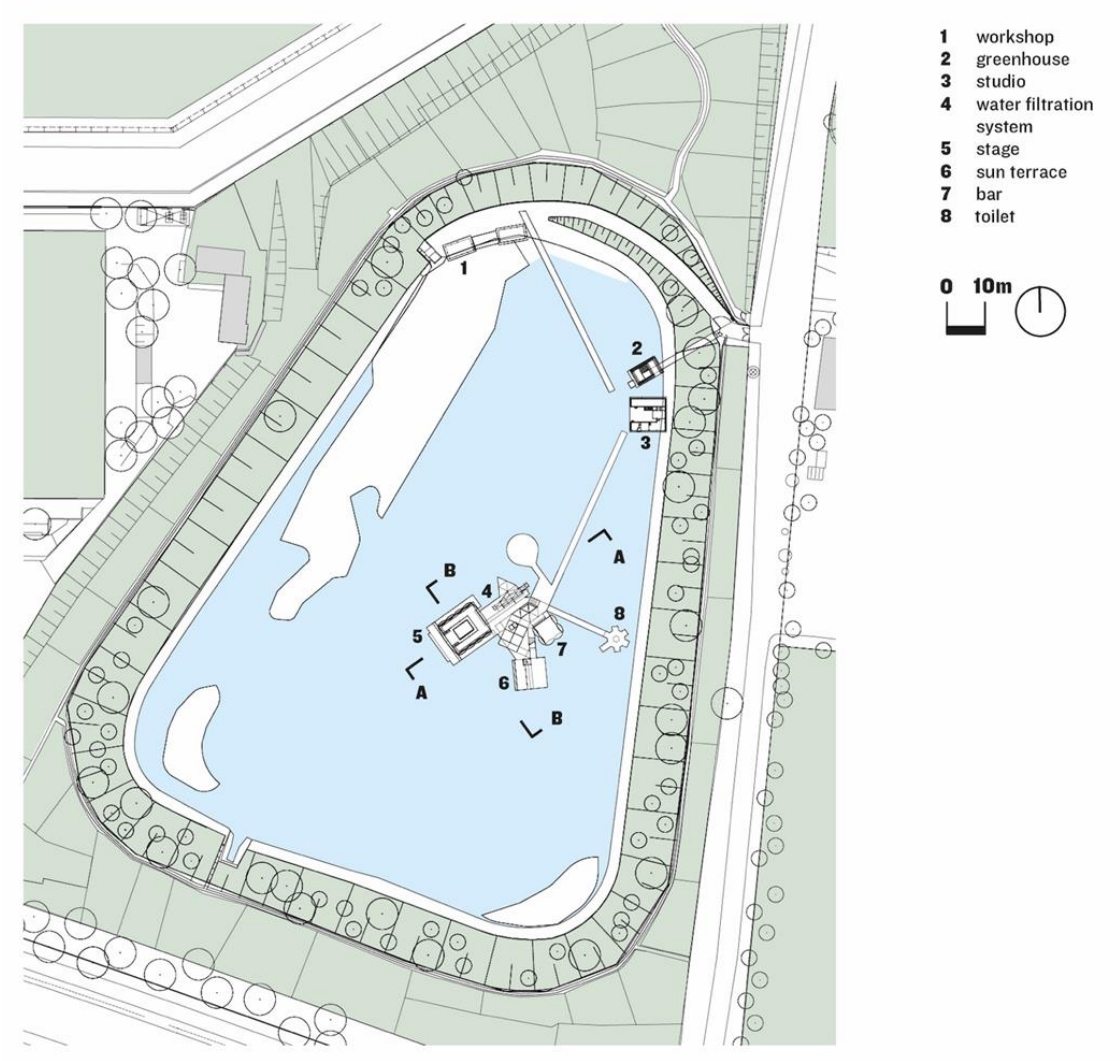


Figure 3.6 Site plan for Floating University as of August, 2018.

Source: Kafka, G. (2022, September 26). Floating university in Berlin, Germany by Raumlabor. *Architectural Review.* Retrieved January 16, 2023, from https://www.architectural-review.com/buildings/floating-university-in-berlin-germany-by-raumlabor



Figure 3.7 Site plan for the transformed Floating University with the altered water levels as of August, 2022.

Source: Kafka, G. (2022, September 26). Floating university in Berlin, Germany by Raumlabor. *Architectural Review.* Retrieved January 16, 2023, from https://www.architectural-review.com/buildings/floating-university-in-berlin-germany-by-raumlabor

At Floating, methods of resource-efficiency; elaborated through caring for the water (organized "to emulate Mother Earth's water cycles rather than mimic Corporate Man's linear sewer pipes"[78]) **[**Figure 3.8**,** Figure 3.9**]**, as well as caring for the soil have been adapted (with regular pollutant analysis, evaluations, and resident Open Soil Labs, which are also open to the use of the general public). The temporary *Schmilblick*[79] structures that house Floating University's interdisciplinary programme of activities are organized around an active cohabitation with other species living on the grounds. As opposed to the plans of Tempelhof Projekt GmbH for rewilding the area, which ironically would be displacing the flourishing frog community much celebrated by the Floating community, the Floating set out on interactions with the site and taking all relationships with the basin into account, including, talking with association members, observing trees and polluted water levels, discussing with political actors as well as neighbors, kids, grown-ups or nesting birds[80]. The biodiversity of the area is a fundamental paradigm,

"The floating has its own climate and is characterized by the dynamics of rainwater and largely due to the establishment of spontaneous plants. The Tree-Ring is a ring-shaped wasteland. It brings a demarcation from the cultivated nature in the

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[78] *Water • floating berlin*. FLOATING BERLIN. (2021, October 28).

[79] The *Schmilblick* is an indispensable object that has absolutely no intended purpose and "can be used in almost any occasion", engendering an infinite number of meanings and definitions through diverse observers and users. Pouzenc in Karrer, R. (2021, October 14). *Some questions around the floating university • floating berlin*. FLOATING BERLIN. Retrieved January 1, 2023, from https://floating-berlin.org/some-questions-around-the-floating-university/

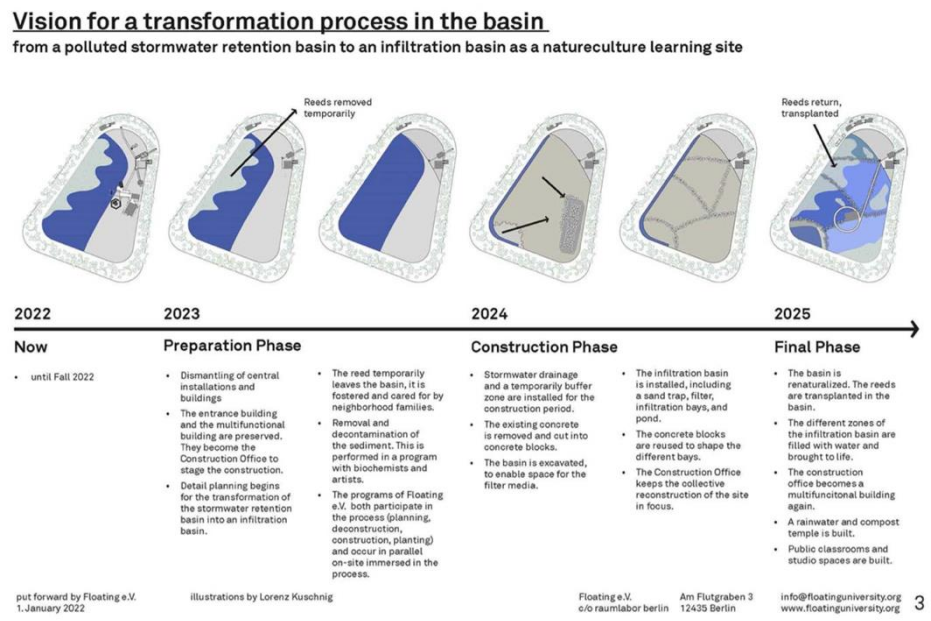
[80] *Spatial Experiments 2020/21• floating berlin*. FLOATING BERLIN. (2021, October 28). For an exciting shift of the subject in conversations with nonhuman entities, see Telhan, O. (Ed.). (2023). *Museum of Exhalation*. 17th Istanbul Biennial. IKSV. Under the prompt *Museum of Exhalation,* coexisting human and nonhuman inhabitants of Langa take part in conversations, "Unlike traditional interviews, where a human interviewer engages with another human subject, this process proposes to shift the roles so that ethnographers, scientists, artists, historians are interviewed by their non-human subjects. An anthropologist is paired with cow dung, a veterinary archeologist with a dog bone, a culinary historian with a plant" (2) where the subjects are not to be 'humansplained' by the interviewers, but acknowledged through a brief encounter.

neighborhood and at the same time is the transition from uncultivated nature to cultivated nature. To one side is the sports facility and the adjacent cemetery, to the other is the allotment garden area, and to the south is the Tempelhofer Feld. Protected by trees and blackberry hedges, the lower-lying basin developed into a niche rich in species. First colonized by animals and today used by humans at certain times, a place of consciously experienced coexistence is developing there."[81]

Floating University, as an alternative school of architecture, not only produces a fully realized, dynamic form of buzzing cohabitation—in direct and persisted dialogue with all of its contributing members, agents, and elements, but it simultaneously presents a prime prototype for the possibility of surpassing the perceived constraints of spatial environments and practices with its *capable architecture.* Capable architecture, as Floating member Pouzenc declares, "Beyond unfinished architecture, the architecture of the Floating University is a *capable architecture*: an architecture which materializes its possible iterations and adaptations and invites all kinds of occupations and uses."[82]. Cohabitation as the project for post-anthropocenic architecture is profoundly possible through capable architecture. Capable architecture is capable of dynamic change, diversity, coevolution, adaptation and capable of cohabitation. As a non-institution, Floating offers the proper freedom to play with new modes of space, education, nature-culture pedagogies, post-anthropocenic architecture, immanent relationships, and coexistence. In the post-anthropocenic architectural context, this sort of approach that advocates a radical flexibility stands in stark contrast to the static rigidness of modern architecture, offering a glimpse of change and engendering the potential for the upcoming era of post-anthropocenic architecture.

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[81] *Biodiversity • floating berlin*. FLOATING BERLIN. (2021, October 28).
[82] Pouzenc in Karrer, R. (2021, October 14). *Some questions around the floating university • floating berlin*. FLOATING BERLIN. Retrieved January 1, 2023, from https://floating-berlin.org/some-questions-around-the-floating-university/



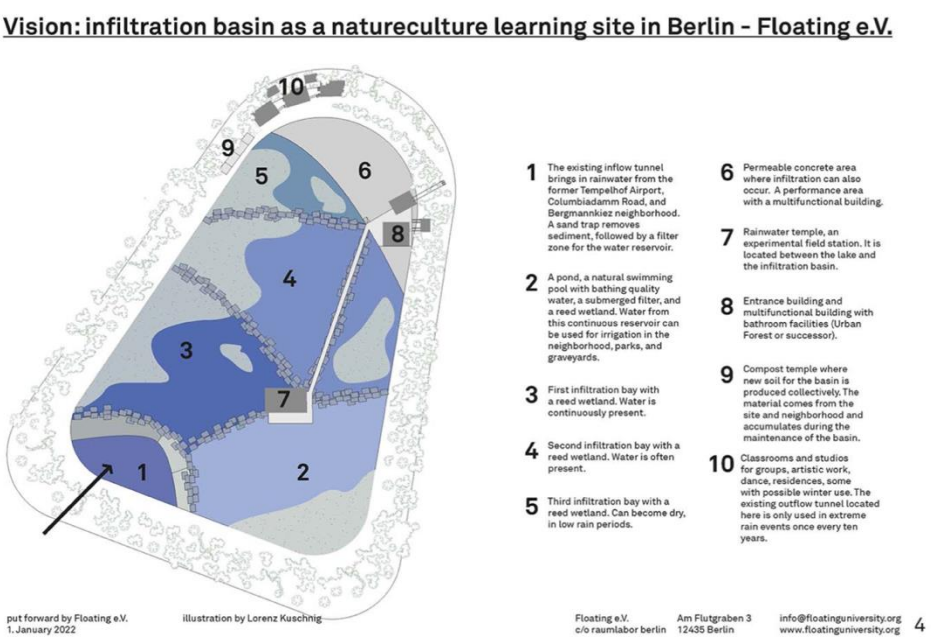
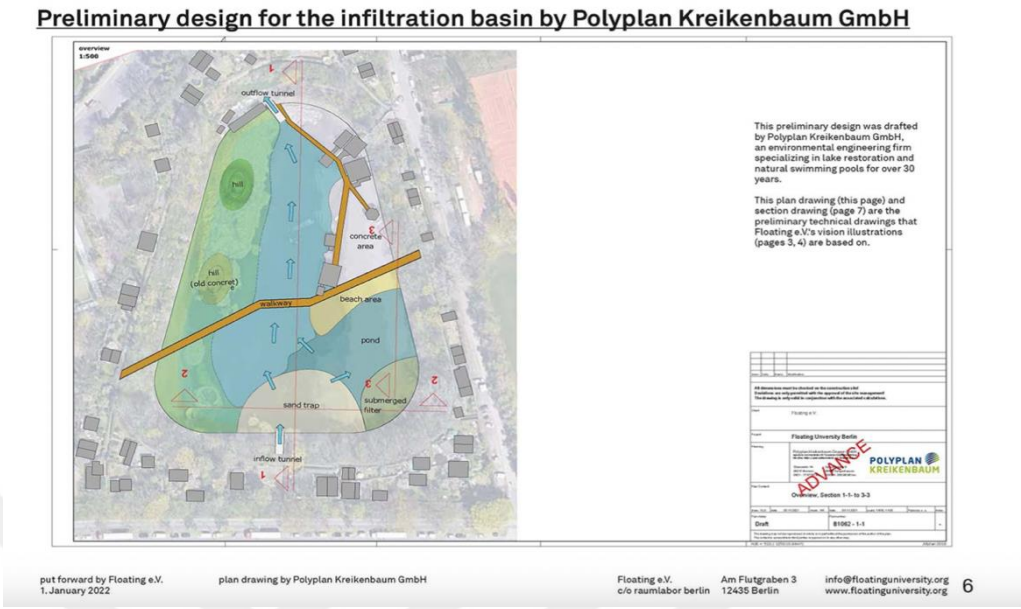


Figure 3.8 Floating Infiltration Basin Vision, Floating University.

Source: *Floating Berlin.* Retrieved May 1, 2023, from https://floating-berlin.org/programmes/web/images-and-visions-water/.



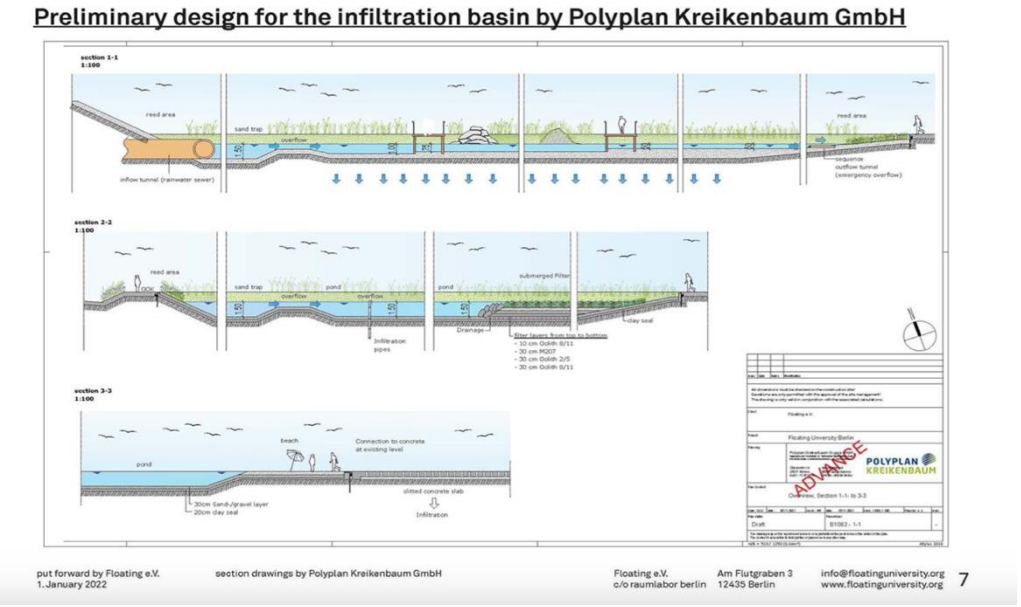


Figure 3.9 Floating Infiltration Basin Preliminary Design, Floating University.

Source: Source: *Floating Berlin.* Retrieved May 1, 2023, from https://floating-berlin.org/programmes/web/images-and-visions-water/

3.1.3 Integrated Engagement

The third design act to be discussed for the model of cohabitation, in response to the urban field condition *densely urban*, which is likely the most commonly encountered condition in most post-anthropocenic urban fields, is exemplified by the visionary nonhuman-animal-centered design approach of Studio Animal-Aided Design (AAD). The term integrated engagement refers to the integration of cohabitation typologies and engagement with other biological species, into the conventional methods and construction models of contemporary architecture. This integration ensures the conscious involvement of nonhuman species (who are also active habitants of the city) and engagement with urban biodiversity instead of excluding these stakeholders from urban habitats by more commonized anthropocentric practices of modern architecture such as sterilization or ecocide. Embedded within the declaration of their manifesto for an architecture of cohabitation, which defines the essence of architecture as a catalyst for nonhuman-human coexistence, the practice of AAD emerges as an embodiment of this ethos. Through an interdisciplinary planning approach and a profound engagement with the intrinsic needs of various species, AAD's transformative methodology redefines architecture as an active participant in nurturing urban biodiversity and fostering dynamic relationships between species [Figure 3.13, Figure 3.14]. This section delves into the intricate realm of AAD, where nonhuman animals take center stage as co-creators and inhabitants of architectural space, illuminating a paradigm of integrated engagement that shapes the trajectory of post-anthropocenic architecture.

As declared in their *Manifest für eine Architektur der Cohabitation,*

“The architecture of cohabitation is a man-made architecture that does not kill, injure, deprive, or otherwise harm nonhuman animals. The architecture of cohabitation is man-made architecture that spatially organizes, builds, and shapes a

thriving coexistence of nonhuman animals and humans. It offers contact spaces for encounters between nonhuman animals and humans."[83].

The animal-based practice of design studio AAD places animals right at the center of all their conduct. The interdisciplinary planning method, Animal-Aided Design, adopted by the studio in conjunction with their prospective information model ECOLOPES (Ecological Building Envelopes) [Figure 3.10, Figure 3.11, Figure 3.12], engages animals in the planning process as actors and active agents who shape and improve the quality of life in the city[84]. Executed projects by AAD will be analyzed here as case studies that demonstrate different typologies and methodologies of cohabitation.



Figure 3.10 The ECOLOPE connects habitats by designing a building envelope into a dynamic living space for animals, plants and microbiota by modulating environmental conditions such as sunlight and water/humidity.

Source: Weisser et. al. (Fig 1), 2023.

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[83] Hauck, T; Weisser, W. (2021), 46- 49.

[84] "*Abiotic and biotic components considered in the design process where humans (light blue), plants (green), animals (red) and micro-biota (yellow) act as inhabitants, and the set of dynamic impacts and relationships among them. The relationships among the inhabitants can change over time depending on the building material and design, abiotic conditions, the dynamics of the biotic components, the degree of connectivity between the building and the surrounding environment, and the type and level of human intervention.*" Ecolopes. (2023, January 13). Retrieved January 16, 2023, from https://ecolopes.org/

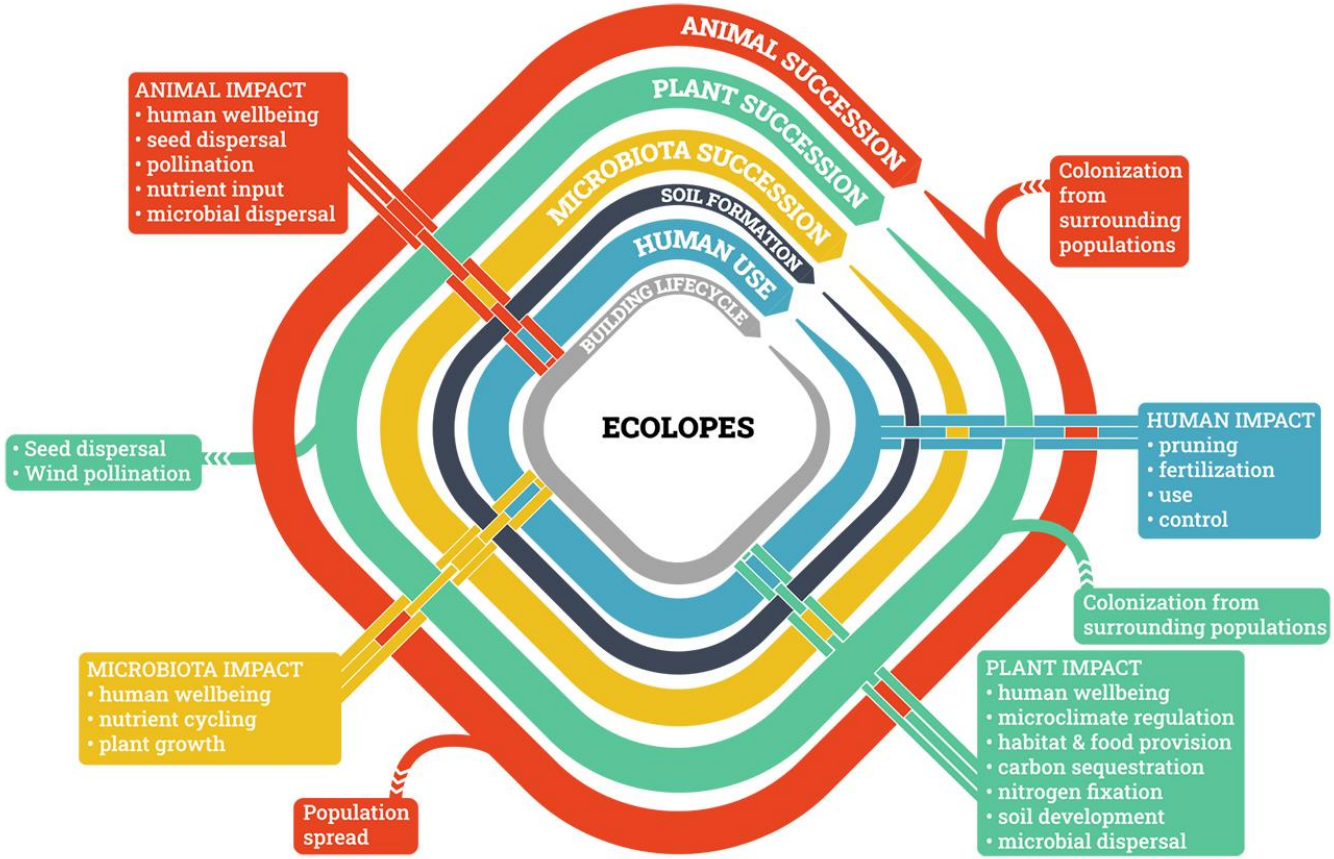


Figure 3.11 ECOLOPES (Ecological Building Envelopes), a HORIZON 2020 funded research project led by AAD that imagines nature's coevolution with the city.

Source: Ecolopes. (2023, January 13). Retrieved January 16, 2023, from https://ecolopes.org/

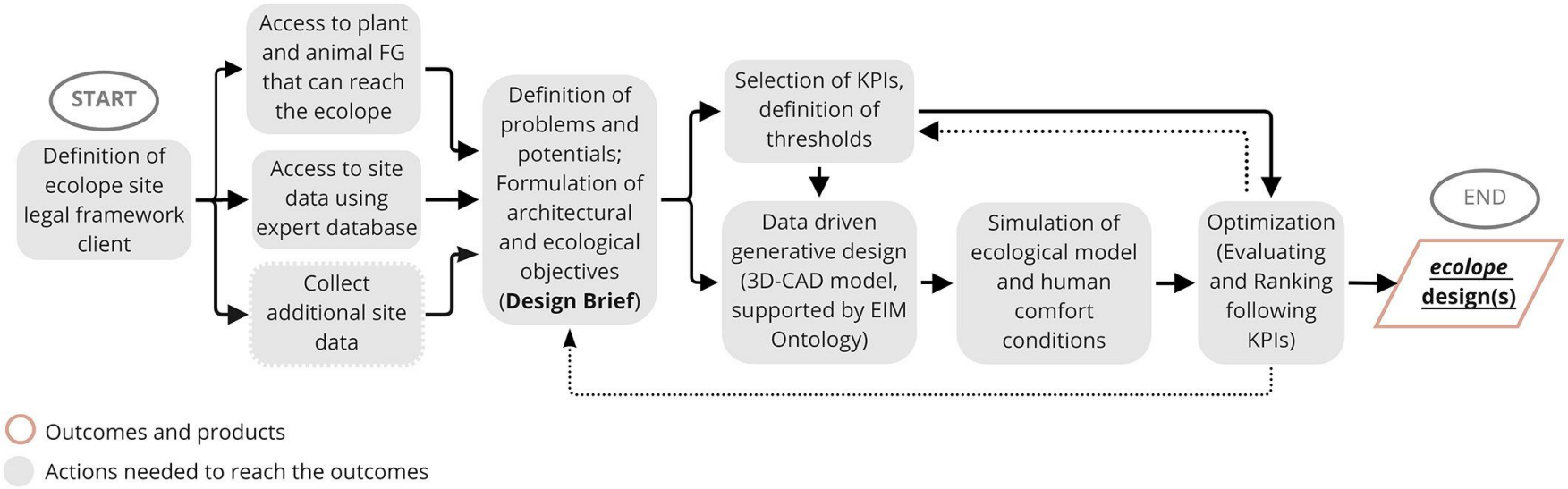


Figure 3.12 Design workflow chart for a an ecolope (user's perspective).

Source: Weisser et. al. (Fig 2), 2023.

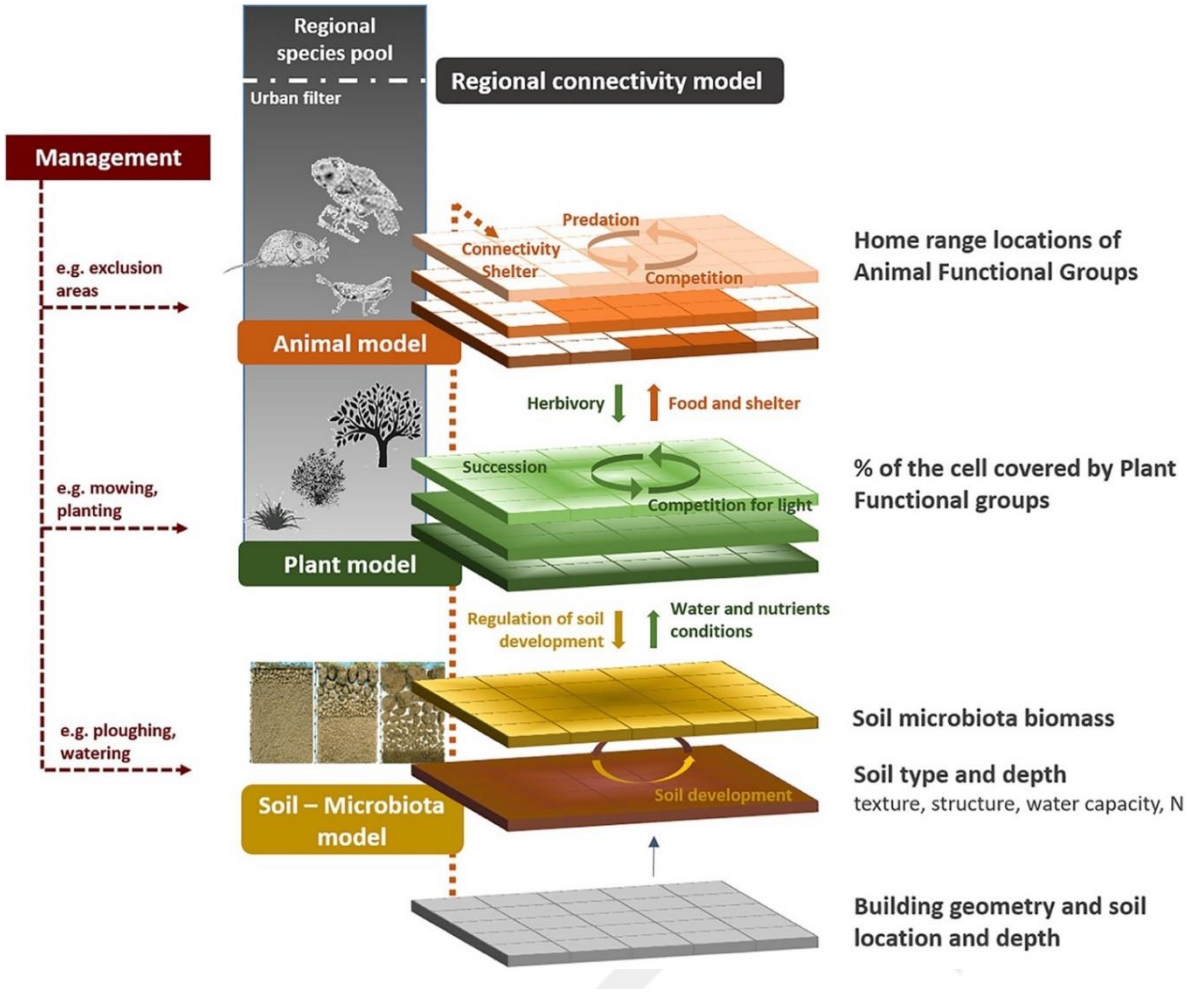


Figure 3.13 Model elements and processes within an ecolope ecosystem model.

Source: Weisser et. al. (Fig 3), 2023.

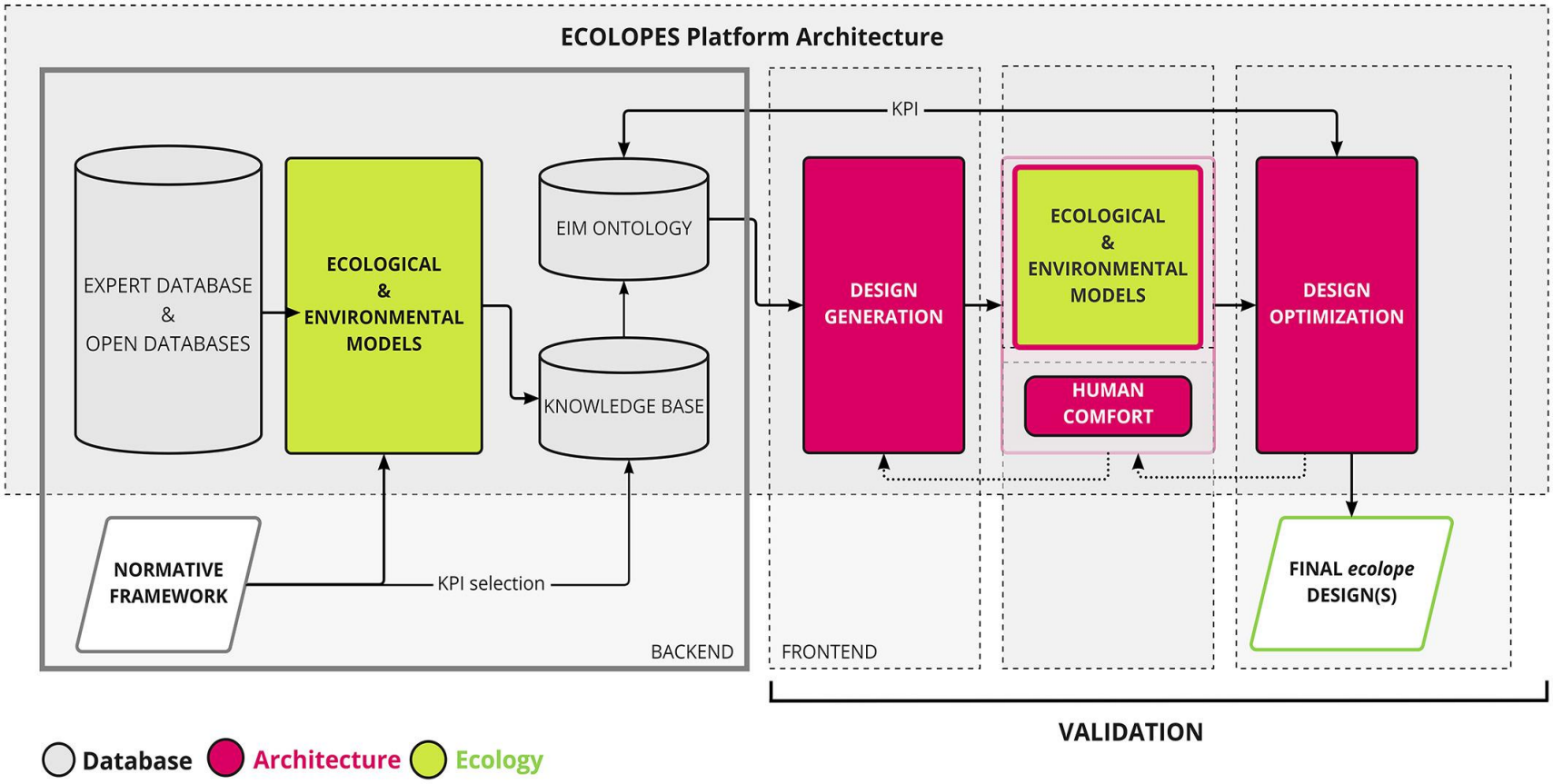


Figure 3.14 Potential design workflow for multi-species design. Knowledge generation (correlations between architecture and ecological aspects), ecological and environmental modelling, design and key performance indicators (KPIs) optimization have to become an intrinsic part of one computational design platform which interfaces with the user.

Source: Weisser et. al. (Fig 4), 2023.

Animal-Aided Design can be "smoothly integrated into standard planning procedures"[85]. After selecting a target species for the local scale, the AAD method produces what is defined as the "species portrait" to describe the critical needs of a particular species based around their individual life cycle in full detail [Figure 3.16]. The species portrait also provides information on the human-animal interface, i.e., the optimal level and mode of human interaction possible with the species, bilateral possible negative or positive effects of interaction and issues of scale regarding space requirements, minimum population sizes and dispersal capacity for their habitats. After this point on, the designer has to provide information on where and how each species meets each of its critical needs in the process of designing the project. AAD also deems that a system of post-occupancy evaluation is absolutely necessitated for monitoring and optimizing the ultimate performance of the designed spaces and the evolving needs of its dynamic occupants as well as the maintenance procedures [Figure 3.15]. AAD have additionally proposed a criterion for the certification offered for projects developed according to the Animal-Aided Design method. The criteria currently include; target species selection and species portraits, adaptation of building (planning and implementation of suitable technical solutions to meet animal requirements, e.g. suitable facade quarters, maintenance plans), adaptation of open space (such as the preservation of existing vegetation, planning of target species-specific vegetation), consideration of general nature conservation concerns (bird safe glass use, animal-appropriate lighting solutions, avoidance of hazards and traps) and quality control during construction (protection measures, and ecological supervision during construction)[86]. More detailed information about the AAD method and certification is elaborated within the informative publication *Animal Aided Design* (2015) by Hauck and Weisser.

[85] Method. AAD. (2020, December 15). Retrieved December 20, 2022, from https://animal-aided-design.de/en/method

[86] Practice-certification. AAD. (2020, December 15). Retrieved December 20, 2022, from https://animal-aided-design.de/en/practice-certification/#practice

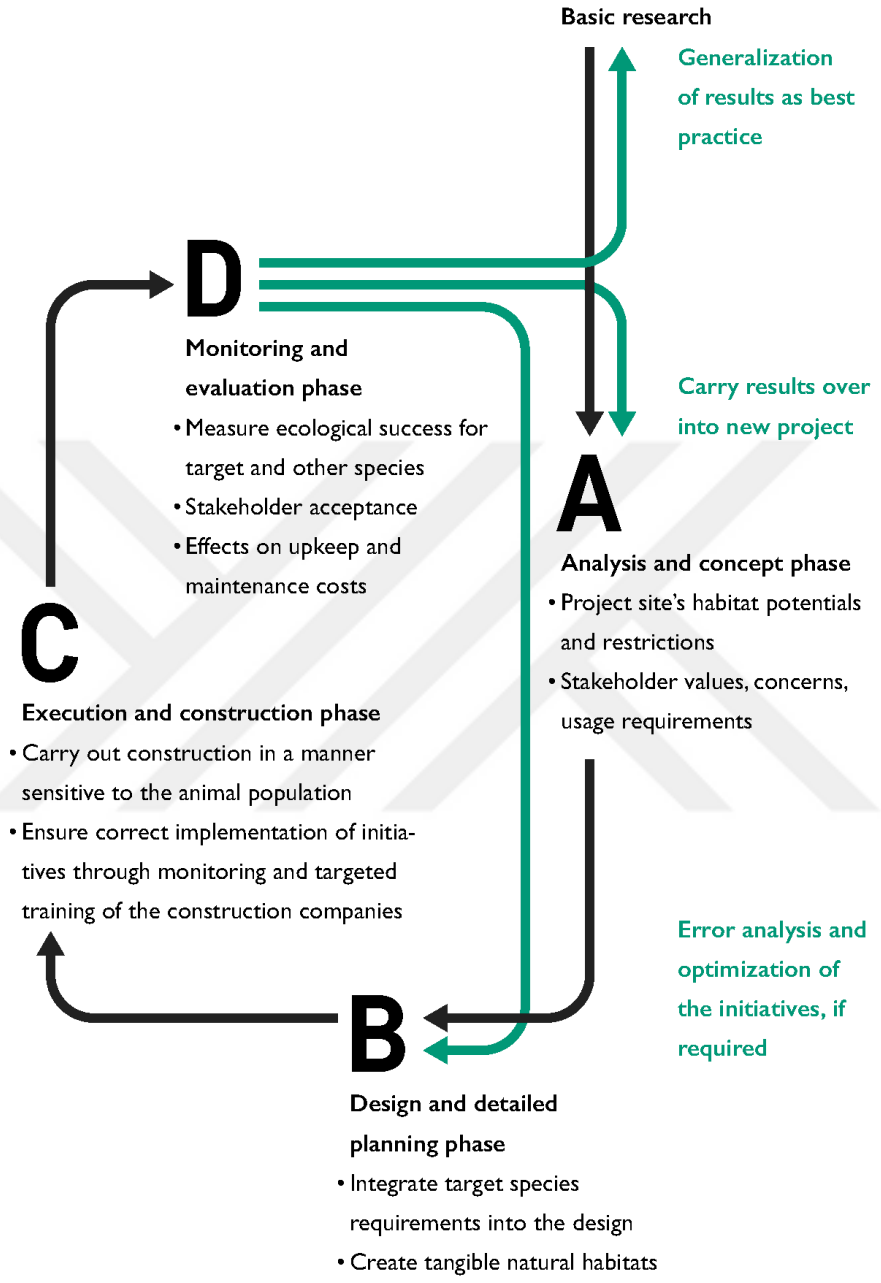


Figure 3.15 Phases for the AAD method.

Source: Hauck, T. E. & Weisser, W.W. (2015): *AAD Animal-Aided Design*.

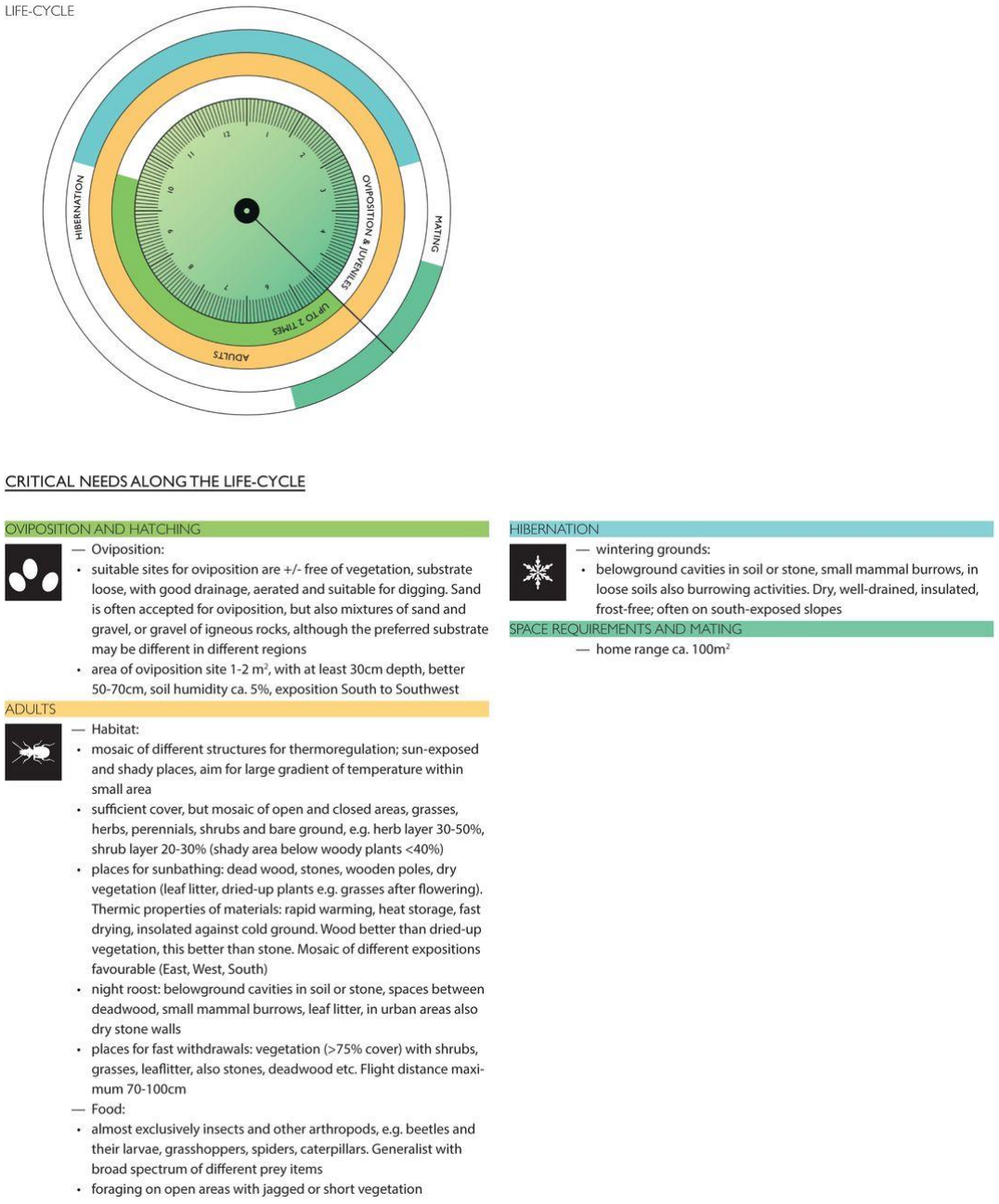
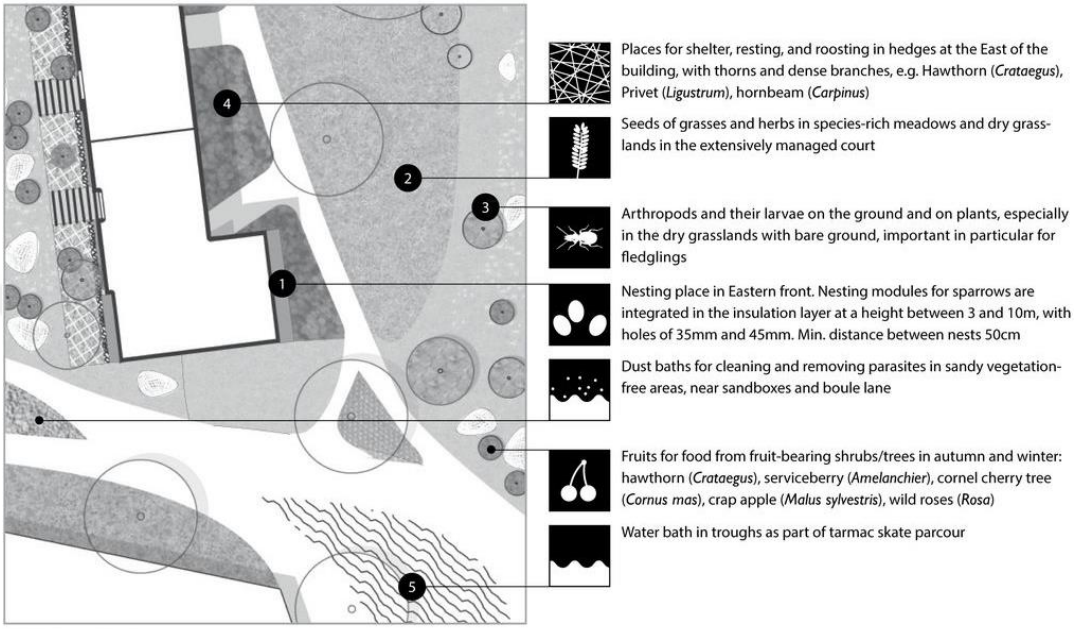


Figure 3.16 Sample process steps of application for the AAD method and species portraits.

Source: Hauck, T. E. & Weisser, W.W. (2015): *AAD Animal-Aided Design*.

The house sparrow lives in colonies and often breeds indoors. Nesting opportunities are provided in the Eastern fronts of the building. As the species has a very small home-range, all critical needs such as seeds and insects for food, shrubs for shelter, a water bath, a dust bath and nest boxes are provided within a circle of 50m radius.





Detail of layout drawing

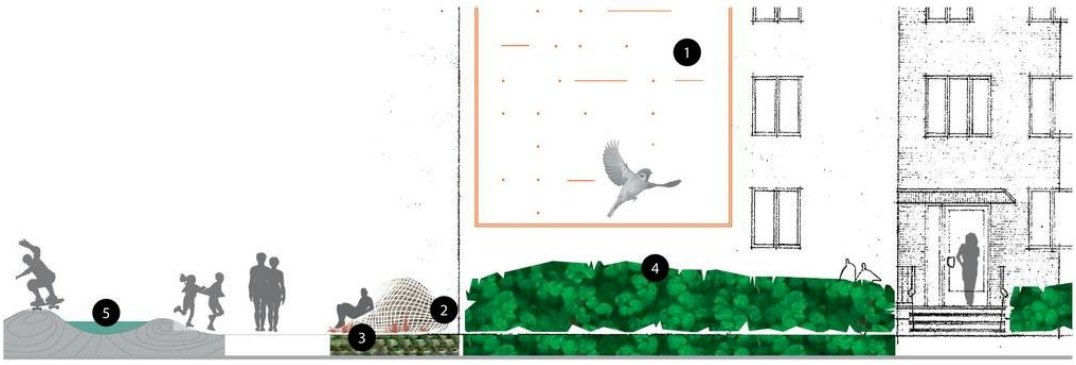


Figure 3.16 (Continued)

To see the methodology of Studio Animal-Aided Design in practice, we may take a closer look at the Schumacher Quartier Berlin project. Bgmr Landschaftsarchitekten, Studio Animal-Aided Design and Polinna Hauck GbR have been commissioned by Tegel Projekt GmbH to develop tools and guidelines of integrating the needs of wild animals into the new developments for the repurposing of the larger Berlin Tegel Airport area as the new Schumacher Quartier in Berlin. The Schumacher Quarter will be offering over 5,000 apartments for more than 10,000 people, as well as additional public facilities on the former site of the airport. In addition to the principle of AAD and urban biodiversity, the project led by the State of Berlin plans for climate neutrality, the application of the principle "*sponge city"* with rainwater management, mobility hubs for active mobility, and also to be the largest timber-constructed district in the world[87]. Studio Animal-Aided Design's contribution to the Quartier include an active integration of biodiversity-promoting measures centered around 14 select species in order to preserve urban nature and its ecosystem in the city. With the Animal-Aided Design concept, animal needs are integrated into the planning, and new habitats for the selected target species are designed. For this prospect, a catalog of measures names the elements necessary for the promotion of the animals, such as blue-green biodiversity roofs, and species-specific facade roosts. The target species for the project, namely; the nightingale, crested lark, starling, house sparrow, swift, kestrel, serotine bat, squirrel, privet hawk-moth, swallowtail butterfly, brown argus, the bow-winged grasshopper, short-fringed mining bee and European green toad are all evaluated by their life cycles through species portraits and provided each with functional habitats integrated within the housing project that are suitable for their specific needs [Figure 3.17]. This intervention not only creates

[87] "The 48-hectare Schumacher Quarter is being built to the east of the airport site and a little beyond. This new residential area will offer over 5,000 apartments for more than 10,000 people - together with the associated facilities such as schools, daycare centers, sports facilities, shopping facilities and lots of greenery. The new district will be the largest timber construction district in the world." Schumacher-Quartier: 5000 residential units in timber construction in Tegel. sdg21. (2020, February 17). Retrieved December 20, 2022, from https://sdg21.eu/en/db/schumacher-quartier

valuable niches for bird, reptile, insect, and mammal species —it is also intended to improve the quality of life for nonhuman and human city dwellers and consequently improve the ecological conditions for other species in the wider ecosystem by promoting the sustenance of local ecological cycles in the area. This particular approach to cohabitation is classified as *integrated engagement.* Post-anthropocenic architecture, should be fundamentally engaged and symbiotic to ensure cohabitation. As Hauck and Weisser from Animal-Aided Design declare,

"With current rates of urbanization and conservation laws that mostly only succeed to preclude the worst damage to biodiversity in city development, it is necessary to mainstream biodiversity conservation into urban planning strategies. We believe that Animal-Aided Design is a methodology that can help to align the aims of urban planners and conservationists, by making animals an integral part of urban planning strategies. AAD may thus help to overcome the cultural separation into the human world and wildlife that has many repercussions in the way urban development and conservation interact today."[88]

More recently, AAD has announced the completion of the housing and daycare center project Brantstrasse, the world's first project using the AAD method completed in Munich[89]. The project introduces several measures for bats, hedgehogs, sparrows, and woodpeckers (see [Figure 4.31] in Chapter 4) in addition to the residential units for human dwellers. Under the typology of integrated engagement, AAD's design method is a simultaneously, and more significantly, an established methodology-plus-typology in one that is elaborated through detailed guidelines and processes. On that account, the thesis will be implementing this method for the

[88] Hauck, T. E.; Weisser, W.W. (2017). Animal-Aided Design – using a species' life-cycle to improve open space planning and conservation in cities and elsewhere.
[89] *AAD. (2023, May 26). Animal-aided design in the living environment: A project from Munich. https://animal-aided-design.de/en/portfolio-items/animal-aided-design-in-the-living- environment-a-project-from-munich/*

extensive context of the METU Campus in Ankara in the following chapter for the purpose of research by architectural design.

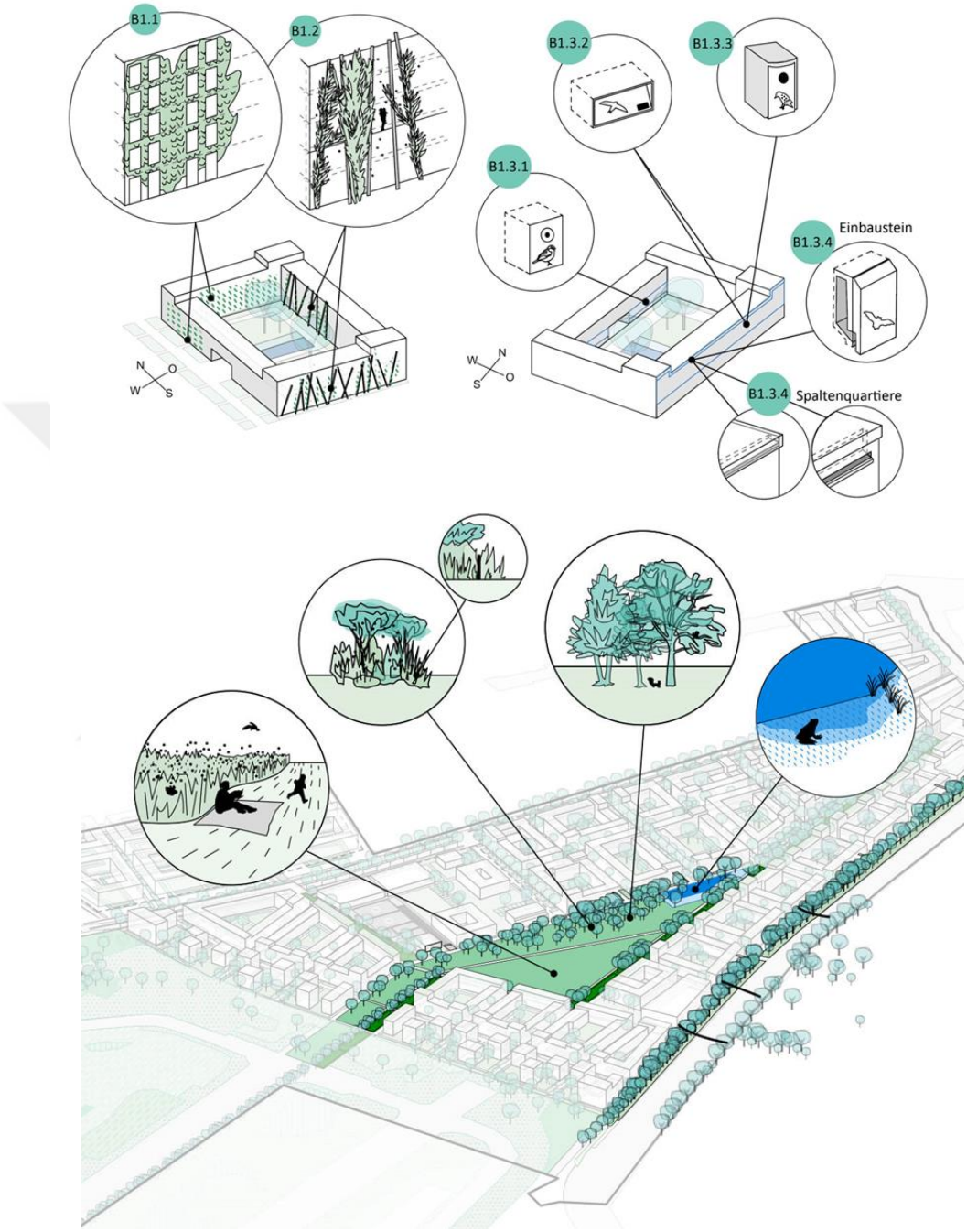
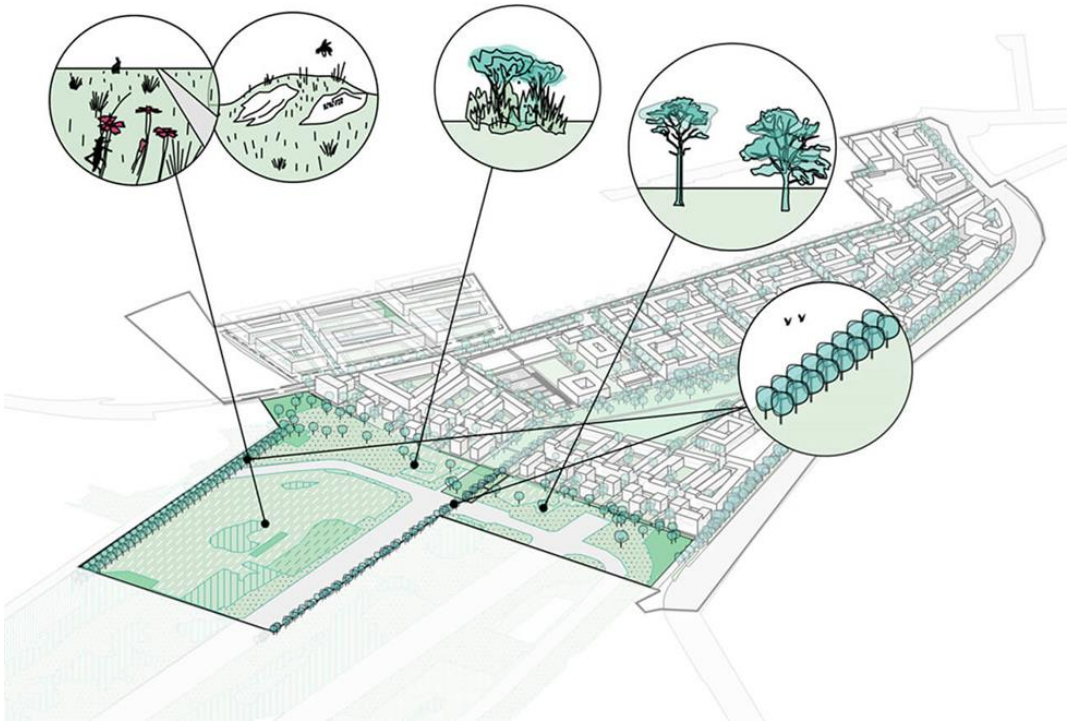


Figure 3.17 Diagrams for cohabitation typologies, Schumacher Quartier Berlin, AAD.

Source: Bgmr and Studio AAD. Retrieved December 20, 2022, from https://animal-aided-design.de/en/portfolio-items/animal-aided-design-schumacher-quartier-berlin/



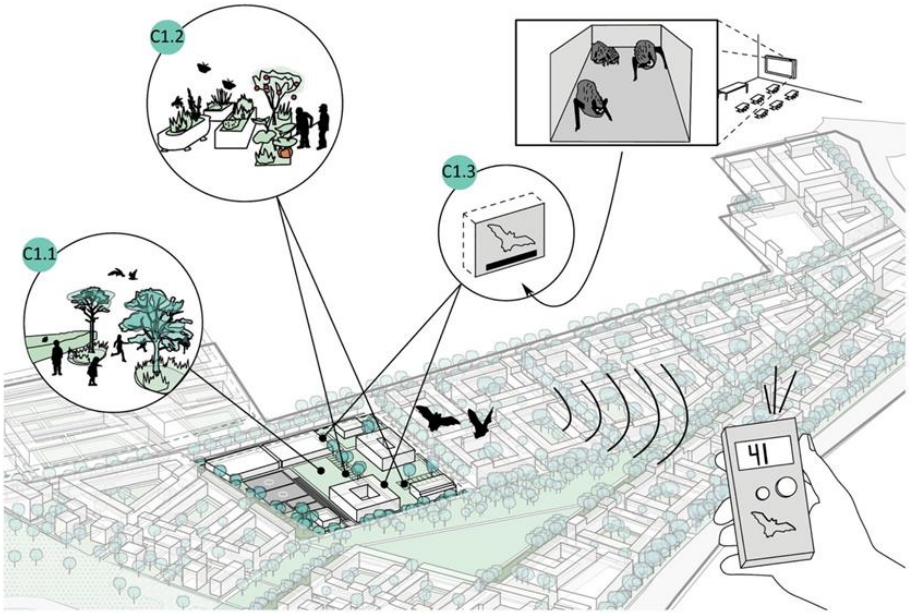


Figure 3.17 (Continued)

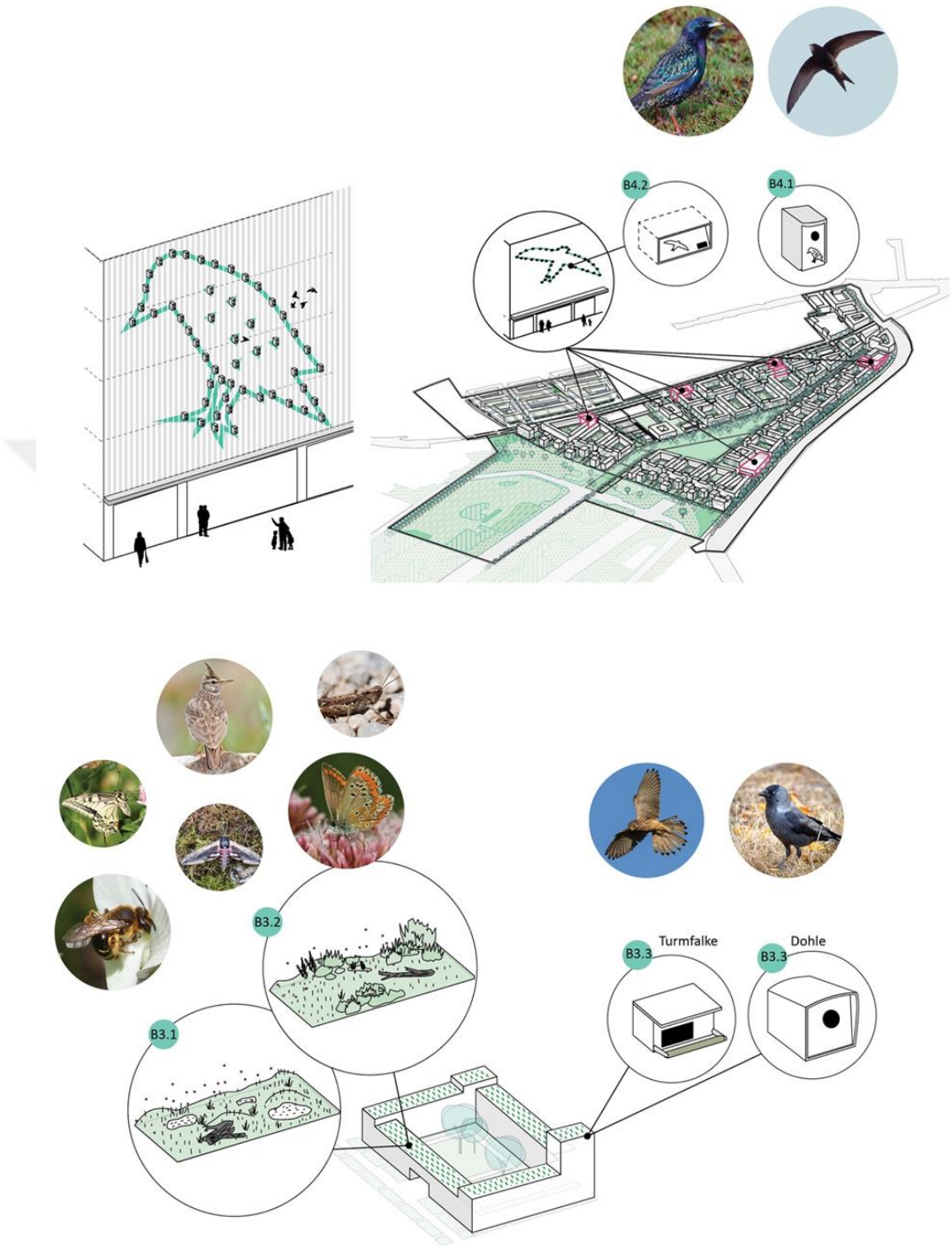


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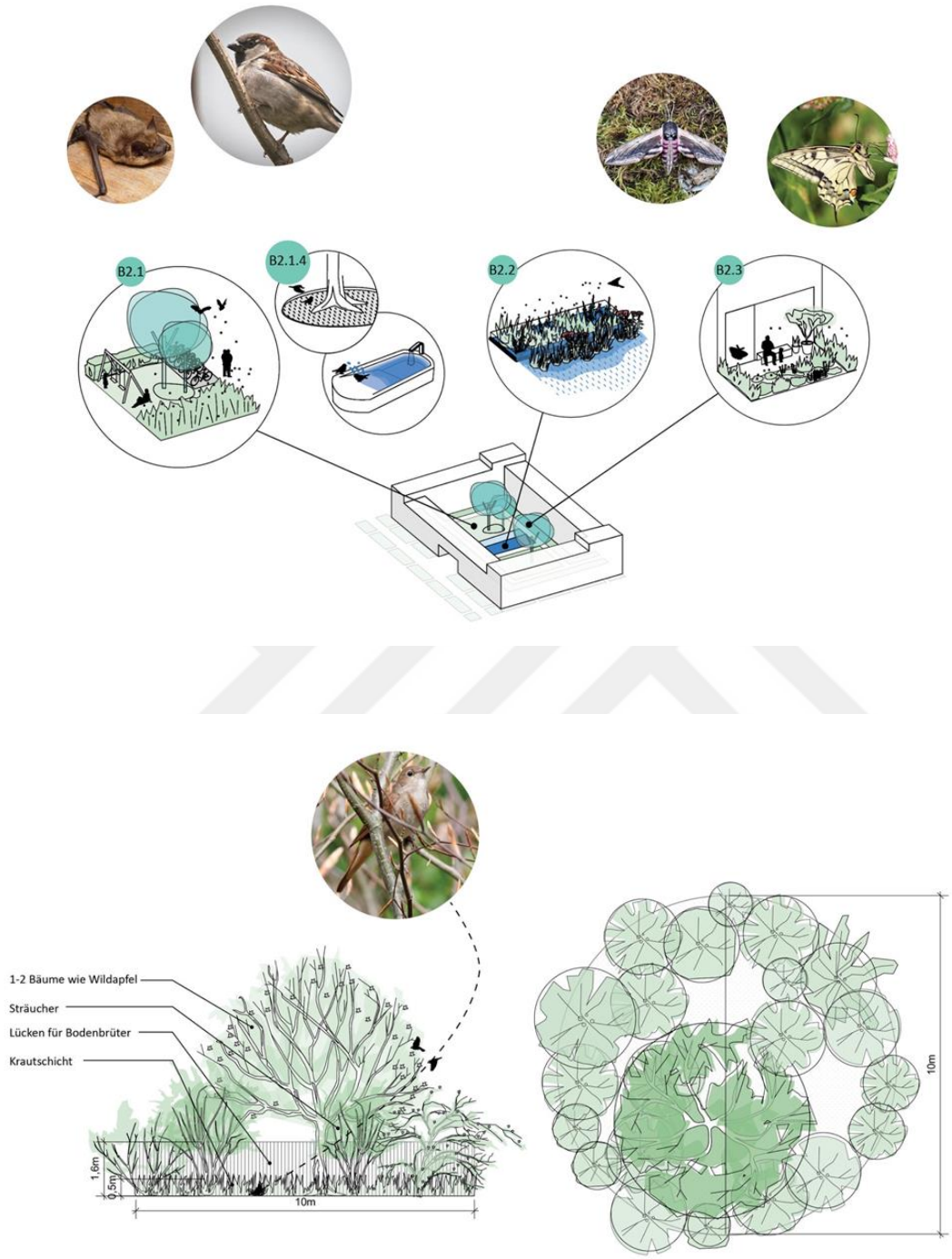


Figure 3.17 (Continued)

Table 1 Design Acts Classification Table.



		FUNCTIONAL SYMBIOSIS	CAPABLE ARCHITECTURE	INTEGRATED ENGAGEMENT
SCALE		≥14.60 HA	2.25 HA	50 HA
TYPOLOGY		ECO-INFRASTRUCTURE	THIRD LANDSCAPE	URBAN *HOLZBAU*
# OF SELECT NONHUMAN SPECIES		3	>230	14
TYPE OF SYMBIOSIS		MUTUALISM+PREDATION	MUTUALISM+COMMENSALISM	MUTUALISM+COMMENSALISM
CONTINUITY	INTERSPECIES CONTACT SPACE	+	+	+
	MULTI-SCALAR CULTIVATION	+ BIOTIC CULTIVATION	++ CARE PROGRAMS	++ WILDLIFE-PROMOTING INITIATIVES
COLLECTIVITY	COLLECTIVE INVOLVEMENT	+	+	?
	ONTOLOGICAL HETERARCHY	HIERARCHICAL COEVOLUTION	+	+
ADAPTABILITY	CAPACITY FOR DYNAMIC TRANSFORMATION	+	+	?
	COEVOLUTION	+	+	+
ACCOUNTABILITY	HABITAT COMPENSATION	+	ACTIVE STEWARDSHIP	+
	NET POSITIVE IMPACT	+	+	+

3.2 The Fundamentals of Designing Cohabitation

In this section, the principles of continuity, collectivity, adaptability, and accountability in architectural design are defined as the common guidelines for cohabitation as result of the three separate design acts investigated. The idea of these fundamentals derives from the basic characteristics of immanent ecosystems as described under section 2.2.2.2.

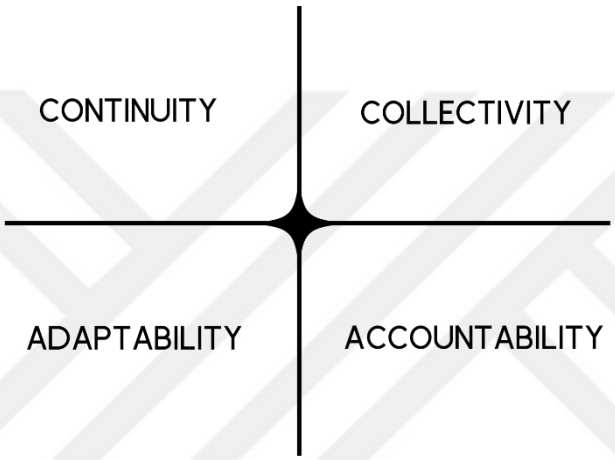


Figure 3.18 The four Fundamentals of Cohabitation.

The chapter defines guidelines for cohabitation as a model of post-anthropocenic architecture that progresses beyond sustainability, beyond biomimicry, beyond greening practices and most significantly, beyond human architectures. The discipline of architecture is reformed with respect to post-humanist ideology in practices of cohabitation. Deriving from the six main characteristics of ecosystems; biodiversity/diversity, flexibility and self-regulation/adaptiveness, coevolution/interconnectedness, resilience, self-renewal/regenerative capacity, and

zero-waste/symbiosis[90], we can combine and sum the fundamental guides for architecture as ecology (and vice versa) as continuity, collectivity, adaptability, and accountability. This model of architecture ensures these four primary fundamentals as discussed as the guidelines for cohabitation in this chapter.

3.2.1 Continuity

Continuity plays a vital role in designing spaces that can sustain the nature-architecture continuum as informed by the theory of cohabitation. This is defined with the production of interspecies contact spaces that can establish networks among natural entities through spatial design, as well as with the straticulate multi-scalar cultivation[91] enacted by spatial configuration. By prioritizing acts of continuous care for nonhuman habitants as an established process of architectural design and its maintenance, a continuous relationship with other species is founded and nurtured. In that regard, the maintenance of a building or a structural system can be organized to include and prioritize active stewardship for nonhuman habitants. Cultivation and inclusion of space is key in this practice. Multi-scalar cultivation ensures a permanent system of connections to provide renewal and continuity of life. For a continuous architecture, inclusiveness needs to be prioritized over an 'absolute' architecture enforced by the discipline as we no longer have the space to move forward leading with disciplinary, commercial, or individual egos, and architecture should not have such space of absolute autonomy regardless. The approach of continuity may encompass various operations be it ecological cultivation, landscape connectivity, continuous (in more common wording, *sustainable*) material selection and sourcing, adaptive reuse, post-occupancy ministration, and symbiotic spatial

[90] Bossel (1998) and Newman and Jennings (2008) cited in Albrecht Da Silveira, C. F. (2018). p. 15.
[91] A notable example is found in the works of Chartier Dalix, as discussed prior, where spaces are designed to be "maintained and cultivated on all scales". ChartierDalix. (2020).

organizations. By incorporating these ideals, architecture moves away from a focus on designing for static completeness, and embraces the dynamic symbiotic relationships in a continuum of urban and nonurban ecosystems.

3.2.2 Collectivity

Design collectivity proffers the two notions of collective involvement and ontological heterarchy. A concept of collective architecture is to emphasize that architects should not work alone, but collaboratively with non-designers and non-human designers alike. The notion of constituting a *cosmocracy*, as a cosmological participatory democracy involving all entities within the cosmos, allows for a collective design process. This approach also propounds that cohabitation is not a discipline-specific project but a transdisciplinary one. The bounds of collective design are not solely disciplinary, but transdisciplinary, therefore the architect works in cooperation and communication with coordinate disciplines in natural and social sciences such as ecology, biology, geology, civil engineering, sociology, economics, and urban planning. More importantly, the human architect is not deemed the sole decision maker in the design of urban habitats, architectural design is expanded to a collaborative commoning practice involving multiple diverse agents and multispecies stakeholders. The architect is not exclusively human, but an assembly of nonhuman and humans in a political ecology of all actors. This act of transdisciplinary-multispecies collaboration enables a holistic construction of the built environment's relationship with the natural and social systems it influences.

3.2.3 Adaptability

Adaptability is defined through a capacity for dynamic transformation and coevolution. Design adaptability involves creating habitats that are adaptable, flexible, versatile and that have the ability to coevolve with their surroundings. By designing for immanent ecologies, the forces that are at work in architecture are

recognized as part of the ‘networks’ that Latour[92] or the ‘assemblages’ that Deleuze and Guattari[93] describe. Accordingly, the architect designs habitats for the constituent, and design is completed by the constituency, that being, non-designer human individuals such as locals or the general public, or non-human designers such as animals, plants, or bacteria. The architect does not design completeness, but designs to be completed, or more effectively, to coevolve [Figure 3.19].

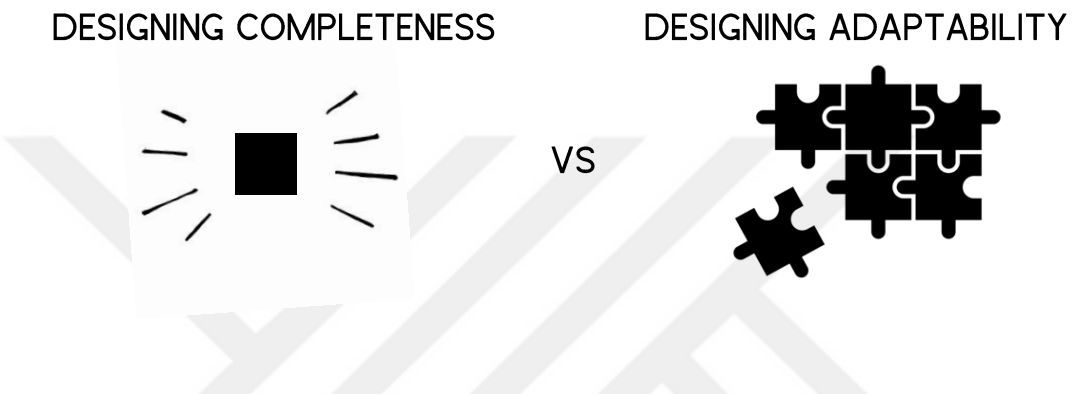


Figure 3.19 Diagram for adaptability.

Architecture as ecosystem provides design with the ability to adapt and evolve as a circular system, just as nonarchitectural ecosystems. Through practices rooted in resilience and regeneration, architectural design can respond and adapt to changing needs, environmental conditions, societal and ecosystemic dynamics. This flexibility ensures that buildings and architectural structures can endure and thrive in the face of evolving environments and habitat requirements.

[92] Latour, B. (1999).
[93] Deleuze, G. & F. Guattari. (1987).

3.2.4 Accountability

Lastly, design accountability should be recognized as an oft-discussed subject within ecological architectural practices. This accountability stands to convey the ethical responsibility the architect bears in designing habitats that align with onto-epistemological, social, and environmental principles. By being accountable, architects assume the broader impacts of their design decisions and their fulfillment of space equity and performance in environmental realities. Two main issues are defined here for the purpose of architecture as cohabitation; habitat compensation, and net positive impact. When building on an urban or nonurban site, the architect holds a responsibility to either preserve, or compensate and enhance the habitats of other species dwelling on the site. The responsibility to provide qualitative spaces for human and nonhuman habitants is equal. Net positive impact on the other hand, is defined by the IUCN (International Union for Conservation of Nature) as follows,

"Net Positive Impact (NPI) on biodiversity is a target for project outcomes in which the impacts on biodiversity (i.e., the variety of ecosystems and living things) caused by the project are outweighed by the actions taken to avoid and reduce such impacts, rehabilitate affected species/landscapes and offset any residual impacts"[94]

That is to say, architecture as cohabitation needs to offer and account for net positive impact to biodiversity through the architectural planning of conservation, regeneration and stewardship practices.

[94] NPI Alliance (2015). Net Positive Impact for biodiversity: The conservation case. Gland, Switzerland: IUCN.

Architecture as cohabitation is defined with these four fundamentals; continuity, collectivity, adaptability, and accountability to create spaces that foster symbiotic relationships with non-human inhabitants, engage in more broadly collective design acts, adapt to and align with ecosystems, and demonstrate rigid accountability to broader ethical and environmental considerations. For the formerly discussed cases under Chapter 3, these fundamentals have been evaluated in **[**Table 1**]**.



Figure 3.20 Vision of 2054 for Oyster-tecture.

Source: *Orff, K. (2016). Toward An Urban Ecology. Monacelli Press.*

The Oyster-tecture project in Brooklyn classified as *functional symbiosis* encompasses an area of at least 14.60 hectares of the Gowanus Canal shore and is planned to expand further. This eco-infrastructure is focused on oysters, mussels, and eelgrass as its nonhuman subjects. Although it promises a mutualist symbiosis of these three species with the humans, its ulterior completion involves human predation since the oysters and mussels are farmed to be consumed whenever it becomes possible **[**Figure 3.20**]**.

The project for the canal does create interspecies contact space on the waterfront, and it also does involve biotic multi-scalar cultivation. The cleaning of the harbor

water and the creation of new habitats is a process of collective involvement by human and aquatic molluscs. Similarly, it portrays capacity for dynamic transformation, coevolution (howbeit, a hierarchical one to the detriment of the mollusc), habitat compensation, and net positive impact as it is principally a shellfish nursery and a contamination cleanup in one.

Floating University with its 2.25 hectares of land, is described as a *third landscape*[95], identified with the typology *capable architecture*. The self-defined community at Floating is a mutualist and ofttimes commensalist form of symbiosis where human stakeholders partake in several extensive care programmes for over 230 other species and components. In addition, Floating University has held two editions of the Climate Care Festival **[**Figure 3.21**,** Figure 3.22**]** in 2019 and 2021, which is a programme for theory and practice in climate challenges. Once again, Floating portrays interspecies contact space, collective involvement, capacity for dynamic transformation, coevolution, habitat compensation, and undoubted net positive impact. Additionally, the project performs an established rigid ontological heterarchy and consistent maintenance by active stewardship practices.

The *integrated engagement* case for this research, Schumacher Quartier, is the largest in scale thus far with 50 hectares of land on the former Tegel Airport. Described as an urban *holzbau*, translated as an urban timber structure, the project targets 14 key nonhuman species. Schumacher also creates a mainly commensalist, at points mutualist form of symbiosis. This example also fulfills majority of the fundamentals defined on the classification table, with wild-life promoting initiatives as forms of multi-scalar cultivation, but the spatial programme is relatively rather more defined in terms of its capacity for dynamic transformation.

[95] Clément, G. (2004).

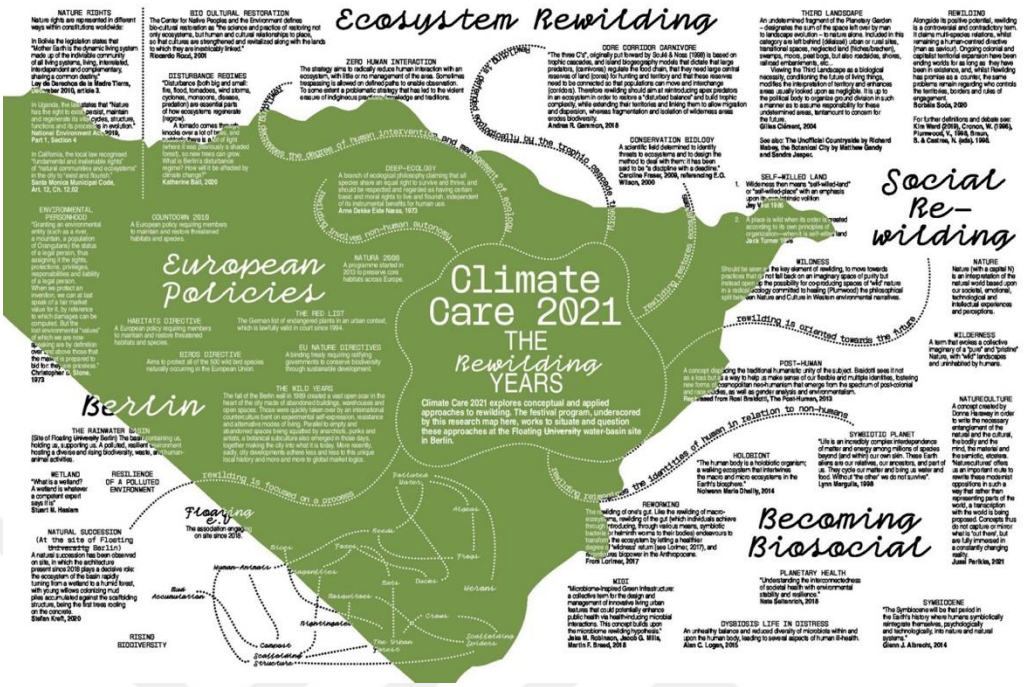


Figure 3.21 Climate Care 2021: The Rewilding Years (September 3-12, 2021).

Source: FLOATING BERLIN. (2021). *https://floating-berlin.org/programmes/climate-care/2021-2/*

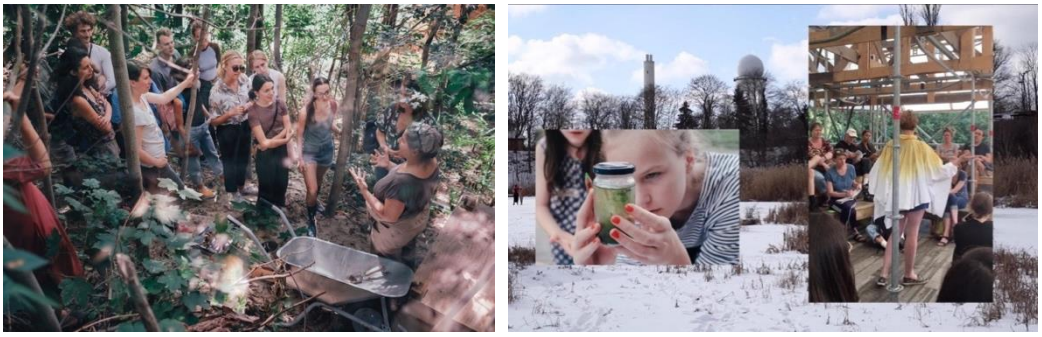


Figure 3.22 Climate Care 2019: A Curriculum for Urban Practice (August 1-10, 2019). "Climate Care brings the affirmative attitude of care discourse into climate topics, tackling not only environmental issues, but caring for the entangled social, political and economical climates that surrounds us today".

Source: FLOATING BERLIN. (2021). *https://floating-berlin.org/programmes/climate-care/2019-2*

CHAPTER 4

STRATEGIZING COHABITATION FOR THE METU CAMPUS

This chapter is shaped around a research-by-design study on the METU Campus as a laboratory of cohabitation for post-anthropocenic architecture. The core objective of this study is to develop a discussion around the observed gap between the scientific research and data, with the ongoing construction practices on the campus, and to discuss alternative architectural strategies accordingly. The campus of METU has an extensively well-studied biodiversity, yet ironically detached construction practices from said studies are de facto being operated on the campus. Cohabitation as a model of an ecologically collective architecture will thus be physically explored on this specific site to develop design strategies that perform synchronically with the ecology of METU, and that can be carried out and sustained in effect on the campus site. The campus of METU has been selected here for a number of reasons; one, for its unique case of urban-nature, its immediate proximity to the city center, not to mention its extensive scale in comparison to all former cases discussed thus far in this thesis, as well as in comparison to the scale of the city in which it is located in. By demonstrating territories of the urban conditions of all three types defined (i.e., densely urban, third landscape, polluted discontinuity), as well as successful forms of cohabitation already emergent only 5 km from the city center, METU holds the potential for an exemplar demonstration of the project of cohabitation with its diverse possibilities.

This research furthermore has profound implications for the existing *Middle East Technical University Ankara Campus Spatial Strategy and Design Guide* in the

annex of the METU Senate's decision dated 24 May 2016 and numbered 2016/4-3[96]. The insights garnered from the Strategizing Cohabitation For The Metu Campus case can serve to enrich and enhance the current spatial strategy, infusing it with a heightened ecological consciousness and collectiveness towards the prospect of architectures of cohabitation. Moreover, the findings might pave the way for the creation of an updated potential new spatial strategy plan, one that specifically emphasizes the principles of cohabitation as an approach to post-anthropocenic architecture. METU has also been selected as one of the 11 "pilot universities" by YÖK within the scope of the "Sustainable and Climate Friendly Campus Project"[97]. Additionally, METU has disclosed a commitment to the UN 17 Sustainable Development Goals (SDGs) and notably, in December 2020, METU introduced its website "Sustainable Campus" open to the public, accompanied by the University's inaugural Sustainability Report[98]. This evolution of strategy aligns with the vision of METU as a sustainable campus, a designation that underscores its commitment to ecological harmony and responsible construction practices on the campus – hopefully– in the years to come.

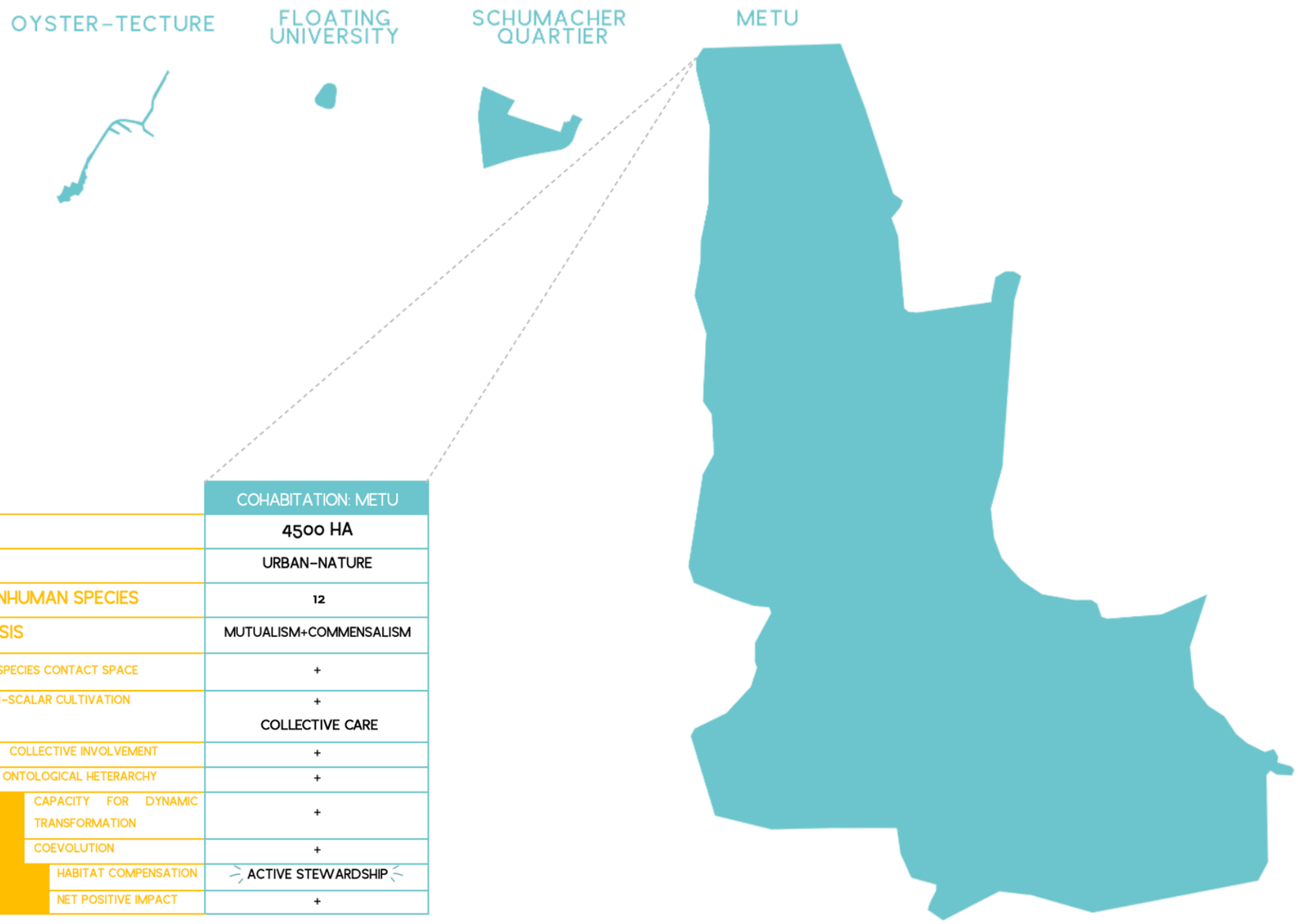
In conclusion, the METU Campus stands as a fertile ground for investigating the cohabitation model within post-anthropocenic architecture. The research-by-design project not only contributes to the existing spatial strategy, but also hints at the prospect of a new strategy that champions coexistence and ecological integration for the campus. This endeavor holds the potential to transform the campus into a living

[96] ODTÜ Mimarlık Fakültesi Mekânsal Strateji ve Tasarım Çalışma Grubu; Büyükcivelek, A. B., Zeytun Çakmaklı, B., Cihanger, D., Alanyalı, E., Babalık Suttcliffe, E., Korkut, F., Temizel, E., Balkanay, E., Baş Bütüner, F., Bilgin Altınöz, G., Çalışkan, O., Akman, S., Parlak, N., & Acar, Y. (2016). *Orta Doğu Teknik Üniversitesi Ankara Yerleşkesi Mekânsal Strateji ve Tasarım Kılavuzu.*

[97] Basında Odtü. (n.d.). *ODTÜ, YÖK tarafından Sürdürülebilir ve İklim Dostu Kampüs Projesi'nde pilot üniversite seçildi*. https://basinda.metu.edu.tr/icerik/odtuden/250

[98] *Sustainable campus: Middle east technical university*. (n.d.). Middle East Technical University. http://sustainablecampus.metu.edu.tr/en

testament of a successful cohabitation and a beacon of inspiration for future architectural endeavors.



		COHABITATION: METU
SCALE		4500 HA
TYPOLOGY		URBAN-NATURE
# OF SELECT NONHUMAN SPECIES		12
TYPE OF SYMBIOSIS		MUTUALISM+COMMENSALISM
CONTINUITY	INTERSPECIES CONTACT SPACE	+
	MULTI-SCALAR CULTIVATION	+ COLLECTIVE CARE
COLLECTIVITY	COLLECTIVE INVOLVEMENT	+
	ONTOLOGICAL HETERARCHY	+
ADAPTABILITY	CAPACITY FOR DYNAMIC TRANSFORMATION	+
	COEVOLUTION	+
ACCOUNTABILITY	HABITAT COMPENSATION	ACTIVE STEWARDSHIP
	NET POSITIVE IMPACT	+

Figure 4.1 Typologies Classification Table with the addition of Cohabitation: METU.

4.1 The METU Campus

The Middle East Technical University Ankara Campus [Figure 4.2] is among the very first university campuses of Republican Türkiye, and it is undeniably a significant representative of modern architecture in the country's building stock. METU is considered a masterpiece of modern architecture in Ankara through the architectural, landscape, aesthetic, ecological and technical value the university campus embodies. The METU Campus is stated to demonstrate a multifaceted value of social, cultural, historical, architectural, functional, material-technical and environmental significance[99] as a powerhouse of modernist innovation and scientific development. Savaş finds,

"Merging the International Style with a local rationalism, the [Faculty of Architecture] building and campus create a "place" in the prairie. With its unique landscape, symbolic architectural elements, local materials and art works, it is more than a Modernist "replica" in Anatolia."[100]

As such, the campus also represents an imperative part of modern cultural heritage for the city and the country alike as an inseparable part of collective memory since its construction in 1960.

The university was first established in 1956 under the name "Middle East Institute of Technology" inside small barracks at the city center of Ankara to later be settled on its current campus grounds on state donated land following a design competition. The campus was designed through the national competition held in 1961, with architect couple Altuğ and Behruz Çinici crowned as the winners by an international jury. Construction began in 1961, starting with the Faculty of Architecture building,

[99] Savaş, A., Derebaşi, B., Gürsel Dino, İ., Sarica, S., İnan, S., Akin, Ş. (2018), pp. 373-375.
[100] *Ibid.,* p. 341.

and the completion of the planned structures continued until the late 1970s[101]. Located proximately five kilometers from the center of Ankara, the campus was built on a 'barren' area of typical Middle-Anatolian steppe characteristics. The initial plan allocated around 4500 hectares of land donated by the Turkish government, with 800 hectares of the site (corresponding roughly to a mere 5%) designated for construction purposes. The project is also an outstanding example of afforestation as an urban and regional planning strategy, as well as of a holistic design program through its landscape, urban planning and architecture programs. Sargın and Savaş additionally affirm that it was evident that the university's identity would be significantly shaped by its relationship with its environment from the outset[102]. Furthermore, the campus has since become quite a prominent force in the later shaping of the urban fabric of Ankara. By the virtue of the diverse architectural, natural, historical, archeological values on the site, the campus has possessed the potential to be recognized as a world heritage site. The Re-Forestation Programme of METU project has received the International Aga Kahn Award for architecture in 1995 for the "added value it has created in our world of rapidly deteriorating ecological values"[103], as well as an award from the TEMA Foundation in support of "the movement to combat desertification and the transformation of a barren land into a green zone"[104]. In 2017, METU received invaluable support from the Getty Foundation through the Keeping It Modern Project, granting assistance for the development of a conservation management plan aimed at guiding the long-term upkeep and preservation policies for the Faculty of Architecture Building. Furthermore, the METU Faculty of

[101] ODTÜ Mimarlık Fakültesi Mekânsal Strateji ve Tasarım Çalışma Grubu; Büyükcivelek, A. B., Zeytun Çakmaklı, B., Cihanger, D., Alanyalı, E., Babalık Suttcliffe, E., Korkut, F., Temizel, E., Balkanay, E., Baş Bütüner, F., Bilgin Altınöz, G., Çalışkan, O., Akman, S., Parlak, N., & Acar, Y. (2016). *Orta Doğu Teknik Üniversitesi Ankara Yerleşkesi Mekânsal Strateji ve Tasarım Kılavuzu*, p. 3.
[102] Sargın, G. A., & Savaş, A. (2016). A University is a society': an environmental history of the METU 'campus. *The Journal of Architecture*, 21(4), p. 617.
[103] Oruç, S., Kırlangıç, K., (2014), *ODTÜ'nün Kuşları,* p. 36.
[104] *Ibid.*

Architecture Spatial Strategy and Design Working Group has published the "Middle East Technical University Ankara Campus Spatial Strategy and Design Guide"[105] in 2016, which is monitored by the advisory commission to ensure that the adopted strategies and principles are observed in practice. The site is also recognized as a Natural Protected Area and an Archeological protected Area[106] as per the decision numbered 316/3895 enacted on 1995.[107]. METU demarcates pivotal accomplishments in Türkiye for modern architecture and architecture pedagogy, especially in considering the country's rather limited construction industry[108] at the time of the 1960s.

[105] *Ibid.* Additional academic scholarship on the campus includes: a thesis on the campus "alley" as the basis of conservation by Sıla Akman (2016), an analysis of the environmental sustainability of the campus by Havva Elif Koç (2014), an archiving of the campus landscape as a space of resistance by Başak Ünsal (2022), a representation of the topological ground formation of the campus by Sara Rraja (2022), another thesis on sustainable water and stormwater management for the academic zone of the campus by Melike Kiraz (2018), and a proposal for the preservation and integrated presentation of archaeological and natural resources on the campus by Sema Bağcı (2010).

[106] There are three archeological sites on the campus plateau; Yalıncak, Ahlatlıbel, and Koçumbeli.

[107] Kültür ve Turizm Bakanlığı, *Ankara İli Kültür Envanter Listesi*, p. 18-25.

[108] ODTÜ Mimarlık Fakültesi Mekânsal Strateji ve Tasarım Çalışma Grubu; Büyükcivelek, A. B., Zeytun Çakmaklı, B., Cihanger, D., Alanyalı, E., Babalık Suttcliffe, E., Korkut, F., Temizel, E., Balkanay, E., Baş Bütüner, F., Bilgin Altınöz, G., Çalışkan, O., Akman, S., Parlak, N., & Acar, Y. (2016). *Orta Doğu Teknik Üniversitesi Ankara Yerleşkesi Mekânsal Strateji ve Tasarım Kılavuzu*, p. 3.



Figure 4.2 METU Site plan

Source: DKM.

4.1.1 The Landscape

The history of the METU campus landscape is notably rich and multifaceted. The area before the landscaping program took place is defined as "a barren pasture of wheat fields once covered in primal forests"[109] (see, [Appendix A]). In 1958, the forestation and landscape planning programmes on the area had begun in an effort of green amelioration due to the heavily polluted air quality in Ankara. Although even more significantly, METU's forestation was the insurance of an enduring green zone in developing Ankara, following the provision by Turkish law that forest land cannot be expropriated, thereby assuring natural preservation to limit urban sprawl[110]. In this regard, the METU Project was considered an environmental revolution[111]. Merely on this aspect alone, the project of METU can be considered a successful project of cohabitation with nature. The forestation project has single-handedly preserved and nurtured the natural richness of Ankara steppe, created new forest and lake habitats with tested-and-proven region appropriate species by restoring the vanished ancient forest, produced a central and large-scale naturally preserved zone, examples of which are rarely seen in metropolitan contexts, constituted an example of advanced forward-looking ecological planning, and engendered a cultural and ecological community for the city's urban culture. The Aga Khan Trust for Culture jury finds that,

"The varied habitats created by the forest and lake-shore areas provide excellent conditions for many species of mammals, birds, and fish. Plant life in great variety abounds. The METU green area helps make Ankara less dry, less polluted, and less humid —a better city to live in."[112]

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[109] Aga Khan Trust For Culture. (2013). METU Reforestation Programme Project Brief. Compiled by Geneva: Aga Khan Award for Architecture, p. 2.
[110] Aga Khan Trust for Culture.
[111] Sargın, G. A., & Savaş, A. (2016). A University is a society': an environmental history of the METU 'campus. *The Journal of Architecture*, 21(4), p. 602.
[112] *Ibid.*

The forestation project was led by the landscaping coordinator Prof. Dr. Alaaddin Egemen, architect Behruz Çinici, the supports of METU Directorate of Afforestation and Landscaping, and the late third rector of the university, Kemal Kurdaş. The greening efforts initiated by Kemal Kurdaş and Alaaddin Egemen in the design of the campus landscape have contributed to the formation of a harmonious natural environment. After the initial planning between 1958-1960, the project was ultimately executed between the years 1961 and 1980. The campus landscape features open green spaces, tree-lined *alle*s along the forum, and harmonious architectural structures that blend with the natural topography. The campus plan has fostered a multifaceted urban space and landscape production with unique topographical, geological, and agricultural features. The area with non-irrigational plantings covers 3,000 hectares of the site and irrigational plants cover 800 hectares of the campus to form landscaped spaces along the METU pedestrian network[113]. The landscape project for the campus is elaborated as follows,

"The land, which does not have a green upper texture in its natural state, has been afforested to support the spatial plan with tree types suitable for the climate structure. The characteristic triangulations of the land have been preserved in terms of land plastic and viewing terraces and have been reserved for the park, grove and excursion needs of students."[114]

The remaining 500 hectares of land consist of lakes and ponds ; namely, Lake Eymir to the south which is a shallow freshwater lake, and the METU DSI Pond (or the METU 50th Year Pond) to the west, which also hosts the METU Depatment of Biology Limnology Laboratory and EKOSAM's mesocosm/aquacosm experiments.

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[113] Aga Khan Trust for Culture.

[114] ODTÜ Mimarlık Fakültesi Mekânsal Strateji ve Tasarım Çalışma Grubu; Büyükcivelek, A. B., Zeytun Çakmaklı, B., Cihanger, D., Alanyalı, E., Babalık Suttcliffe, E., Korkut, F., Temizel, E., Balkanay, E., Baş Bütüner, F., Bilgin Altınöz, G., Çalışkan, O., Akman, S., Parlak, N., & Acar, Y. (2016). *Orta Doğu Teknik Üniversitesi Ankara Yerleşkesi Mekânsal Strateji ve Tasarım Kılavuzu,* p. 5.

The METU DSI Pond is a semi-artifical body of water transformed into a pond by the construction of a dam on the area of the deepest valley within the site. The ecosystem-based research projects by the Ecosystem Research and Implementation Center (EKOSAM) at METU, such as the *Lake Eymir High-Frequency Automatic Monitoring System* project and the mesocosm studies at the METU 50th Year Pond should also be mentioned as important research projects on the campus waterscape.

Over the years, the campus has evolved, incorporating new buildings, facilities, and landscaping elements. Today, the METU campus landscape stands as a testament to the project's commitment to harmonizing human-built structures with nature, creating an inspiring and conducive environment for academic pursuits and community life in Ankara. Howbeit, more recent constructions and interventions on the campus in just over the past two decades has fallen greatly far from the original values and commitments of the original program and its moral heritages.

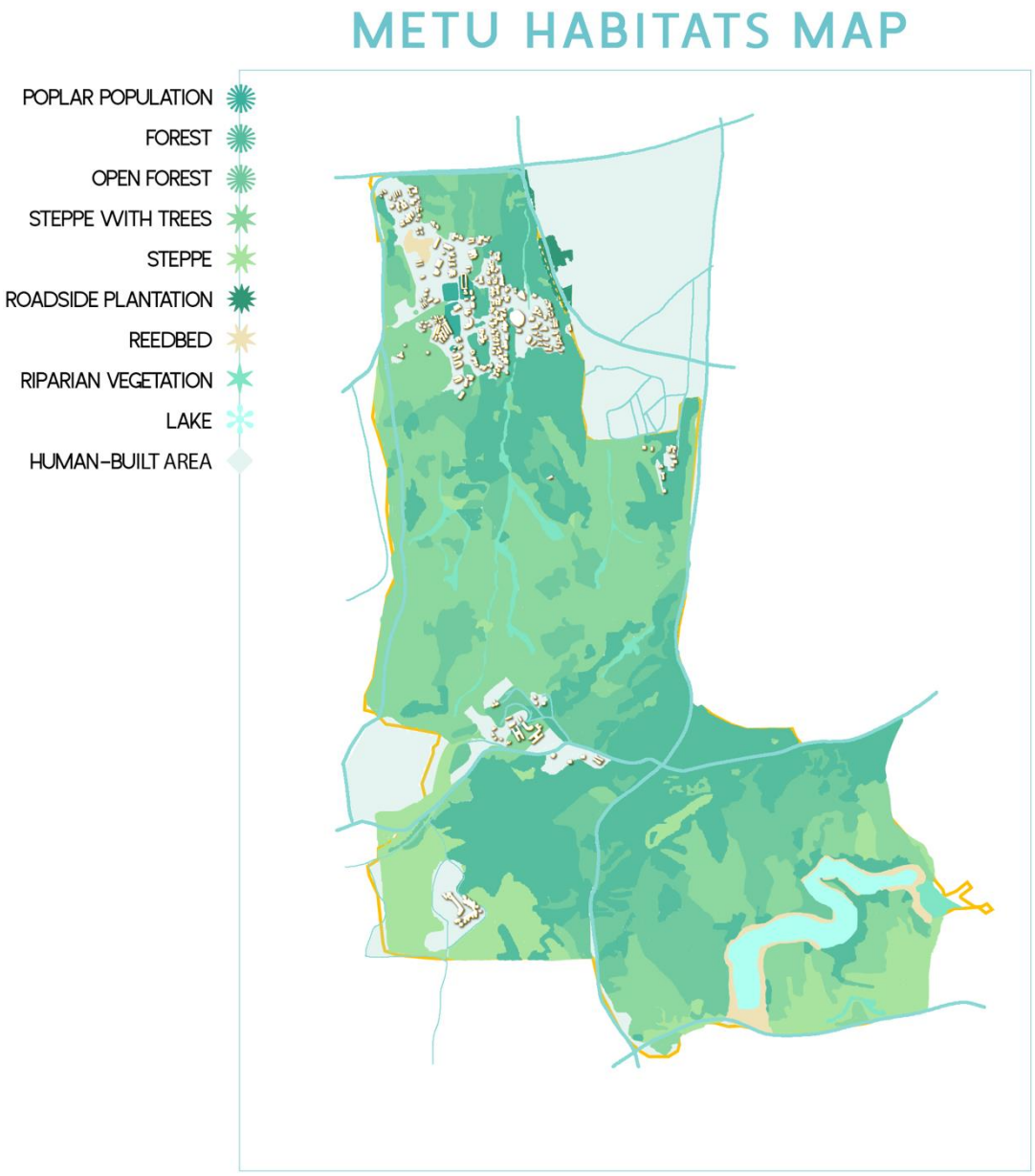


Figure 4.3 METU Habitats Map showing the main habitats of the ecological populations in the campus.

Source: Adaption by author from Genç, G. (2018), METU Nature Map, *Nature for Youth and City* EU Project, DKM (Nature Conservation Centre).

4.1.2 The Scale

The scale of the METU Campus case uniquely distinguishes from other cases explored in this thesis [Figure 4.4] through its vast scale [Figure 4.1]. Although the campus is located at the heart of the densely urban center of the metropolitan city with a population of over 5 million 780 thousand people[115], the vastness of the campus with its green zones creates a distinctive typology of urbannature as a sanctuary for wildlife. The campus itself varies in its different densely urban and other densely wilderness areas, making it possible to discuss a wider range of the cohabitation typologies; and potential combinations of functional symbiosis, capable architecture and integrated engagement based strategies. Moreover, forms of multispecies cohabitation are already observed to emerge within the campus area.

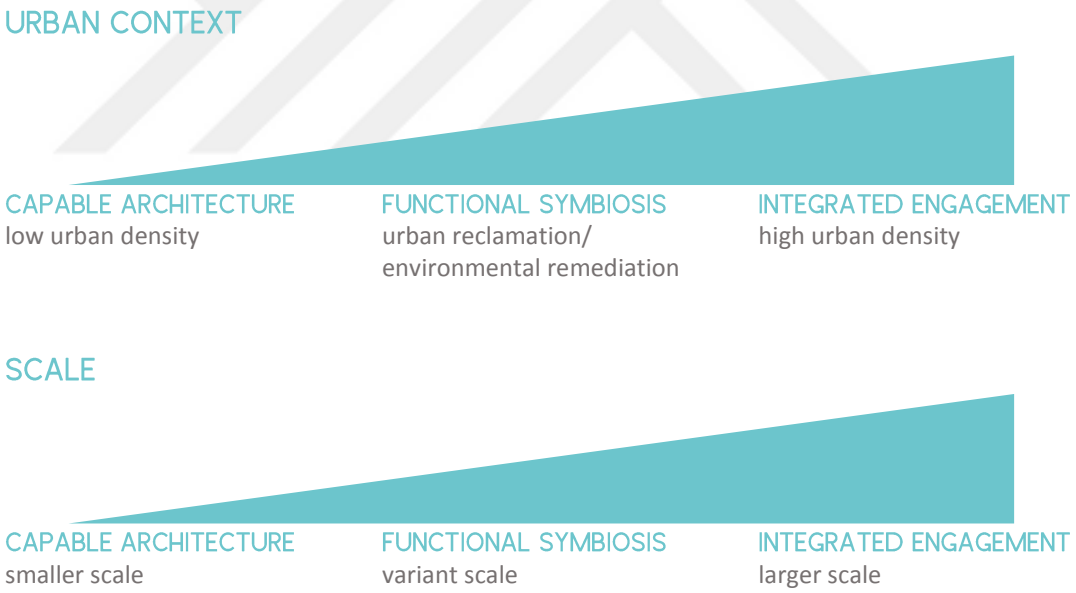


Figure 4.4 The urban contexts and scales of the cohabitation typologies represented on sliding spectrums.

[115] *Adrese Dayalı Nüfus Kayıt Sistemi Sonuçları, 2022*. TÜİK Kurumsal. (n.d.). https://data.tuik.gov.tr/Bulten/Index?p=49685

4.1.3 The Biodiversity

The detailed information regarding the campus' biological diversity is found in three main sources; the book *Birds of METU*[116] with substantial research on the birds and general information on other species on campus, another book titled *Field Guide to Wildflowers of METU Campus*[117] for an elaborate collection of the wildflower population of METU, and the active research and projects conducted by DKM (Doğa Koruma Merkezi), the Nature Conservation Centre. An annual program of citizen science within the scope of the "Nature for Youth and the City" Erasmus+ Strategic Partnerships project organized by DKM titled *TürSay*, in partnership with METU, Butterfly Conservation, Anima Mundi and Thessaly Technological Education Institute[118], is a voluntary study of biodiversity inventory survey in which species living in a certain area are observed and recorded within a certain period of time by a group of volunteers (see, BioBlitz[119]), and the process is fully open to public attendance. TürSay declares,

"It is held in the form of a marathon with the participation of expert naturalists, volunteer nature guides and citizens. Its aim is to attract the public's interest in nature and nature conservation issues, on the one hand, and to reveal the biodiversity of the area to be protected, on the other".[120]

Each year, following the event, an annual report involving the species observed are published by DKM [Table 2, Figure 4.22]. The main aim is for the outputs of the

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[116] Oruç, S., Kırlangıç, K., (2014), *ODTÜ'nün Kuşları.*
[117] Kaya, Z., Zeydanlı, U., Nazlıer, B., Yılmaz, T., (1999), *ODTÜ Kampüsü Kır Çiçekleri Rehberi - Field guide to Wildflowers of METU Campus.* Dönmez Offset. In addition, see also, Bilgin, C. (1995) *Fauna of METU* as well as Kaya, Z. (1995) *Flora of METU*. These sources have later been updated by the works of DKM and are thus excluded here.
[118] *Gençlik ve Kent için Doğa*. Gençlik ve Kent İçin Doğa. (n.d.). https://odtudedoga.org/etkinlikler/tur-say.
[119] A term first coined by Susan Rudy, a U.S. National Park Service naturalist, in 1996. Baker, G. M., Duncan, N., Gostomski, T., Horner, M. A., & Manski, D. (2014). The bioblitz: Good science, good outreach, good fun. *Park Science*, 31(1), 39-45.
[120] *Gençlik ve Kent için Doğa*. Gençlik ve Kent İçin Doğa. (n.d.).

research to be integrated into a public database for the data attained to be shared with the general public. This specific project is remarkable in its collective and community-based framework. In addition, TürSay reports constitute a rich and up-to-date resource for the biodiversity dynamics on the METU campus.

In all four of these resources, especially in the work authored by DKM, the biological community of the campus is referred to have formed "life associations"[121] in parallel to the Deleuzo-Spinozan nonhuman-human assemblages[122], or the 'networks' defined by Latour[123]. The ecological community of METU [Figure 4.5a] is also considered of great significance and as one of the cornerstone aspects of the culture of METU and its human communities. The campus is home to the most intense ecological community populations in its surrounding region [Figure 4.5a]. The intensely populated ecological communities in METU are not bound by the limitations of campus borders, these communities can also expand, extend over, cross, traverse or migrate to other regions in the city, or temporarily sojourn urban adjacencies to fetch food and resources [Figure 4.5b]. Therefore, the campus also acts as a vital basin of ecology for the city of Ankara, for both primary habitats and the migratory routes of diverse species. Considering its potential not only for offering an experience of wildlife, and harboring urban biodiversity, but also for urban heat island effect mitigation, air quality restoration or stormwater management, the various types of spaces it could generate for the city are diversified[124].

The campus ecology is composed majorly of pine forests (i.e., Black pine, Turkish red pine, Scotch pine, and other tree species such as Taurus cedar) [Figure 4.3]. That being said, forests are not the sole ecosystem of METU, the area is "a unique urban nature area that combines untouched steppe remains, semi-natural forests and lake

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[121] TürSay 2022 Raporu, DKM (Nature Conservation Centre), https://dkm.org.tr/, p. 3.
[122] Deleuze, G. & F. Guattari. (1987).
[123] Latour, B. (1999).
[124] On the generative potentials of urban vacancies in Baş Bütüner, F. (2020). Kentsel doğanın (yeniden) keşfi: Berlin deneyimi. *Mimarlık Dergisi*, 38.

ecosystems."[125]. Hence, the site also includes Anatolian steppe and lake ecosystem species (especially around the perimeter of Lake Eymir). The most dominant vegetation species of the steppe, identified generically as a "low mountain tree thyme-*geven* steppe", are the families of legumes, mints, daisies and grasses[126]. Among these three primary habitats, there are over 33 million trees, a total of 800 identified plant species (of which 50 are endemic), around 500 wildflower species, 23 mammal species, 9 lizard species, 126 butterfly species and 231 bird species[125]. In 1995, the Ankara Cultural and Natural Heritage Preservation Board affiliated to The Ministry of Culture and Tourism of the Republic of Türkiye has also declared an around 100- hectare area of the METU Forest, a Natural as well as Archeological Protected Area in the first degree by the decision enacted on 6 March 1995 and numbered 316/3895[126]. All considered, the biological diversity at METU is a highly significant stakeholder in the life around campus.

[125] Zeydanlı, U. (2020) ODTÜ'nün Doğası, Doğa Koruma Merkezi, Can, T. (ed.).
[126] Doğa Koruma Merkezi (2019). *ODTÜ'nün Doğası*. *Nature for Youth and City* EU Project, DKM (Nature Conservation Centre).

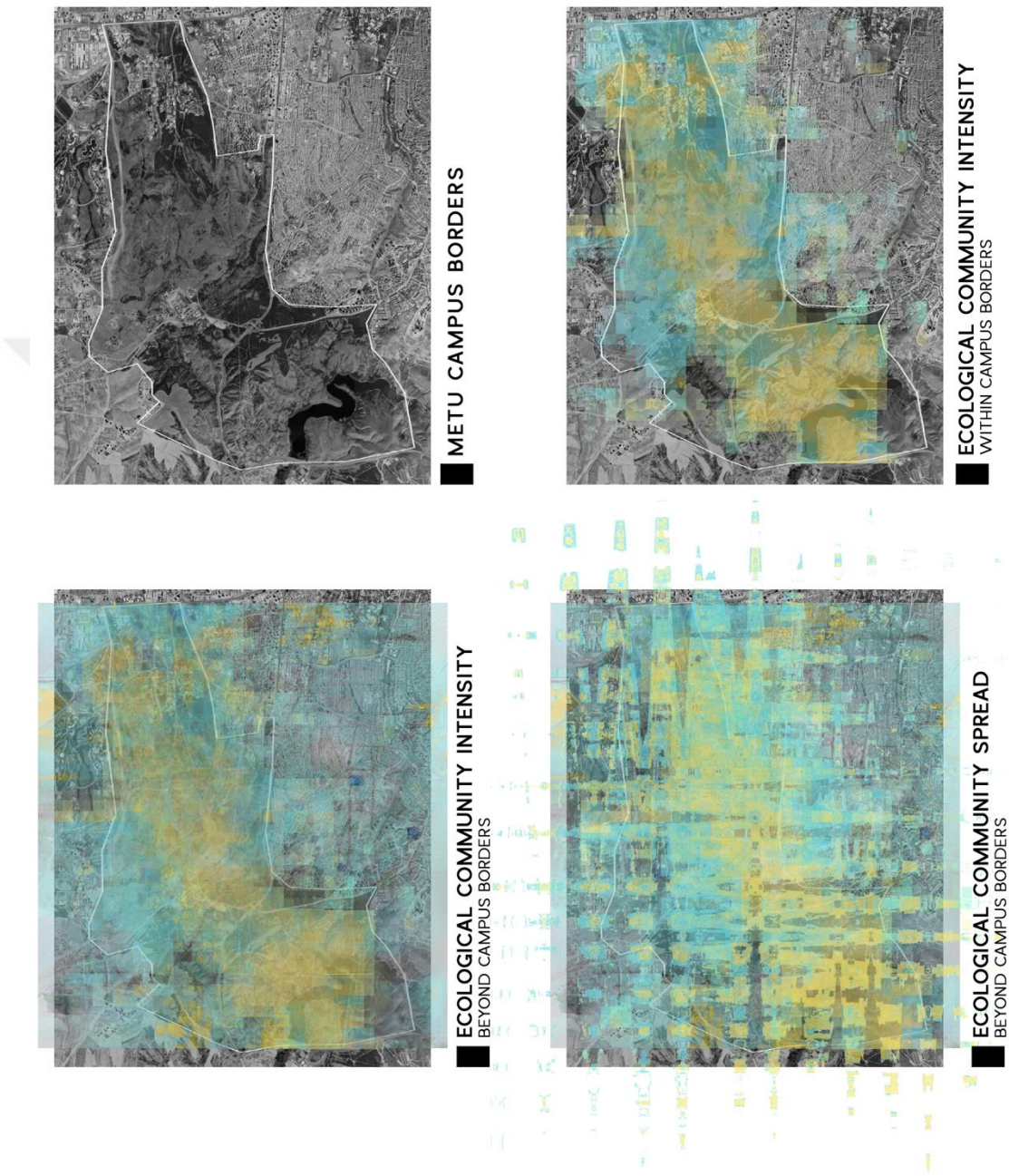


Figure 4.5a Mapping for the network of ecological relations in and around the METU Campus.

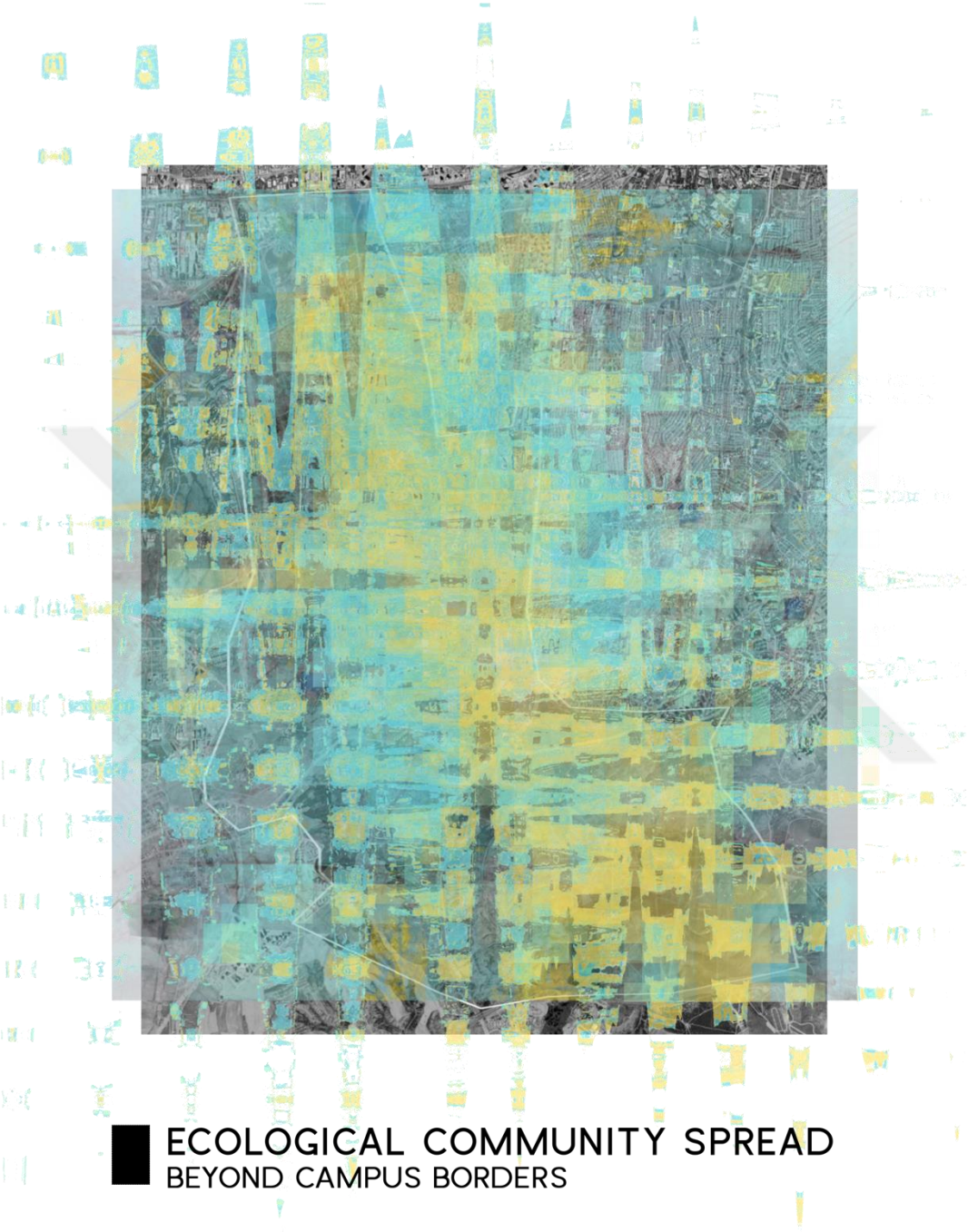


Figure 4.5b Enlarged version of the fourth map in Figure 4.5a, *Ecological Community Spread Beyond Campus Borders*, schematizing the spread of the network of relations to the rest of the city.

4.1.3.1 The Habitant Groups at METU

For the purpose of this thesis, the parliamentary classification format generated by Organisms Democracy[127][Figure 2.5] has been selected and implemented for the classification of the varied-species habitants of the METU campus. This decision is based on the motive to, one, establish a non-hierarchical socio-political basis for the immanent assemblies at campus, and two, to distinguish the argument presented by this thesis from a typical technical assessment report produced by the field of e.g., conservation biology. The habitants' analysis here is an effort to evaluate diverse agents on the site to be able to generate design concepts following the spatial needs of campus habitants, and eventually involve them in the collaborative process of the design. The parliamentary subgroups for the habitant groups at METU are as follows: Trees-Shrubs-Climbers, Herbs-Grasses-Perennials, Vertebrates, Arthropods, Fungi-Mosses-Lichens, Molluscs-Worms, Bacteria-Single Celled Organisms-Viruses, and Neobiota [Figure 4.13].

Trees-Shrubs-Climbers

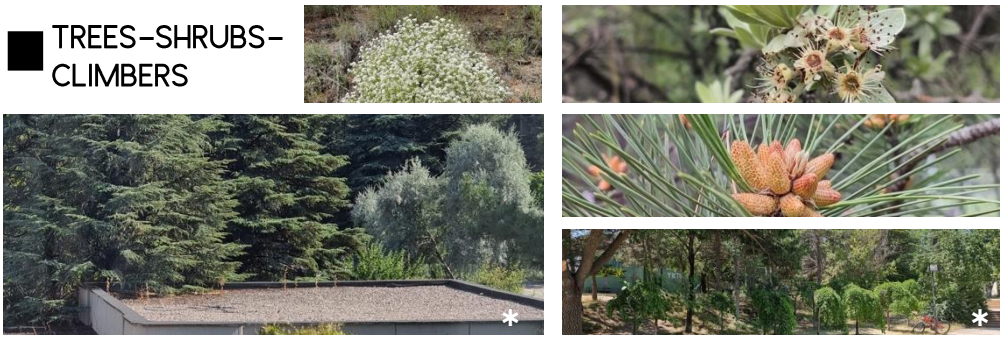


Figure 4.6 Trees, shrubs, climbers from the campus.
Source: *TürSay 2023- Odtü Yerleşkesi, Ankara*. iNaturalist.
(✱) Photos by author.

[127] Organismendemokratie. (n.d.). https://organismendemokratie.org/.

METU Forest is predominantly composed of Black pines, Turkish red pine, Scotch pine, Taurus cedar and Black poplar [Figure 4.3]. The afforestation efforts have introduced ground-covering plants ((tr): *geven*); shrubby trees such as Junipers, Dog-roses, Jasmines, Turkish Bladder Senna, Wild yellow roses, Buckthorn, Oriental Hawthorn; various fruit and nut-bearing trees vital for local wildlife such as Almond, Mahaleb cherries, Wild pear, Crab apple, Mulberry, Oleaster, Walnut; Anatolian oaks such as Hairy oak, Acorn oak and Stemmed oak, as well as Ash, Ash-leaved maple, Lowland elm, White willow, and Oriental plane tree [Figure 4.6].

Herbs-Grasses-Perennials



Figure 4.7 Herbs, grassses, perennials from the campus.
Source: *TürSay 2023- Odtü Yerleşkesi, Ankara*. iNaturalist.

In the natural steppe vegetation, approximately 700 plant species including herbs, grasses and perennials can be found [Figure 4.7], with 50 of them regarded as endemic species to Türkiye[128]. The *Field Guide to Wildflowers of METU Campus*[129] published in 1995 has identified 250 different wildflower species in the METU

[128] Oruç, S., Kırlangıç, K., (2014) & Zeydanlı, U. (2020).
[129] Kaya, Z., Zeydanlı, U., Nazlıer, B., Yılmaz, T., (1999), *ODTÜ Kampüsü Kır Çiçekleri Rehberi - Field guide to Wildflowers of METU Campus.* Dönmez Offset.

steppe, and the research has also predicted this number to reach over 500 as the studies commenced. 16 of the identified species are endemic to Türkiye[130].

Vertebrates

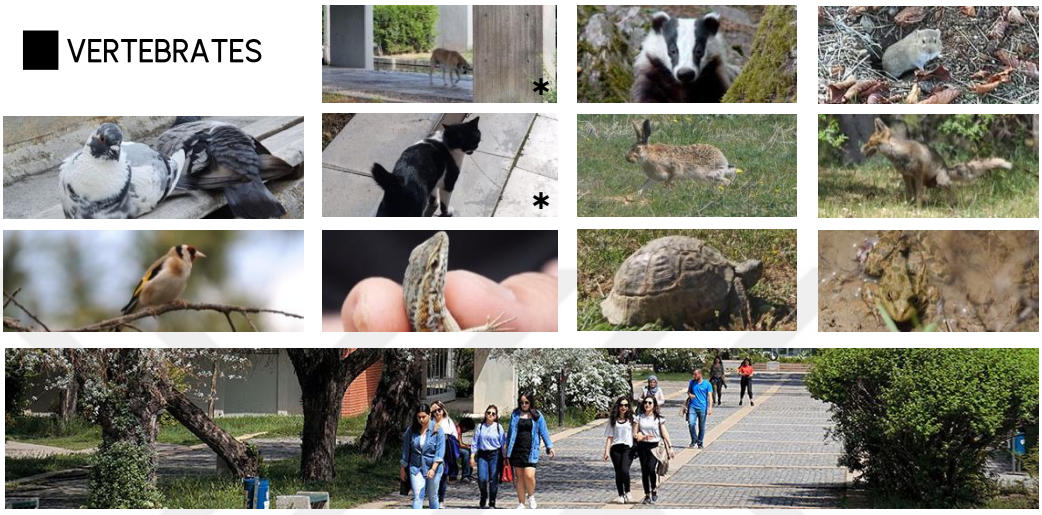


Figure 4.8 Vertebrates from the campus.
Source: *TürSay 2022/2023- Odtü Yerleşkesi, Ankara*. iNaturalist.
(✱) Photos by author.

The campus hosts a variety of vertebrates including mammals, reptiles, birds, amphibians, and fish [Figure 4.8]. The campus stands out for its rich avian diversity, with 42 bird species observed all four seasons long in METU, 20 bird species only observed in winter, 80 bird species observed only during the migration period and a total of 76 breeding bird species within the campus boundaries[131]. A total of 231 bird species can be observed on the campus, which accounts for an impressive half of the country's total bird population[132]. The campus is an exceptional breeding,

[130] Oruç, S., Kırlangıç, K., (2014), p. 46.
[131] *Ibid.*, p. 36.
[132] *Ibid.* A total number of 466 different bird species identified in Türkiye as of 2014, the date of the publication.

accommodation and feeding area for birds with its multiple habitat types and vegetation diversity. Commonly seen bird species include Eurasian Magpies, Sparrows, Doves, Common starlings, Tits, Goldfinches, Syrian Woodpeckers, Eurasian Jays and Eurasian Scops-owls. Some species like Ferruginous duck, Semicollared flycatcher, White-headed duck, Egyptian vulture, Cinereous vulture, Corn crakes, and European rollers are prioritized for conservation efforts due to their significance as key or threatened species. Some rare sightings on the campus include Smew, Rough-legged buzzard, Baillon`s Crake, Upcher`s warbler, Olive-tree warbler, Icterine Warbler, Eastern Bonelli`s Warbler, Rustic Bunting, Pine Bunting and the very rare Common Myna (identified as extinct at METU in 2014[133]).

The campus is also the habitat of a total of 27 mammal species including; 3 insectivores such as hedgehogs (*erinaceus concolor*) and shrews (*crocidura spp.*), 5 bat species, 6 carnivores, 1 hare (*lepus europaeus*), 9 rodent species, domestic stray dogs and cats, and humans, *homo sapiens*. Herbivorous species on campus include the greek turtle (*testudo graeca*), european hare (*lepus europaeus*), guenther's vole (*microtus guentheri), s*ibling vole (*microtus levis*) along grasslands and roadsides, the steppe field mouse (apodemus witherbyi) in shrubby fields, migratory hamster (*cricetulus migratorius)* and Turkish hamster *(mesocricetus brandti*), Tristram's jird (*meriones tristami*), Caucasian squirrel (*sciurus anomalus)* and the local Anatolian ground squirrel (*spermophilus xanthoprymnus*) in open fields. Additionally, ecologists have identified the Nehring's blind mole rat (*nannospalax nehringi)* as a keystone species that plays a critical role in the METU ecosystem.[134] Red fox (*vulpes vulpes*), European badger (*meles meles*), beech marten (*martes foina*), marbled

[133] *Ibid.*, p. 296.
[134] Doğa Koruma Merkezi (2019). *Bitkiler Katılımcı El Kitabı*. (Binbaşaran Tüyzsüzoğlu, B., & Arslantaş, F.; B. Nazlıer & U. Zeydanlı, Eds.), Gençlik ve Kent İçin Doğa Projesi, www.odtudedoga.org.

polecat (*Vormela peregusna*), and least weasel (*Mustela nivalis*) are some of the main predatory species present on the campus[135].

Arthropods

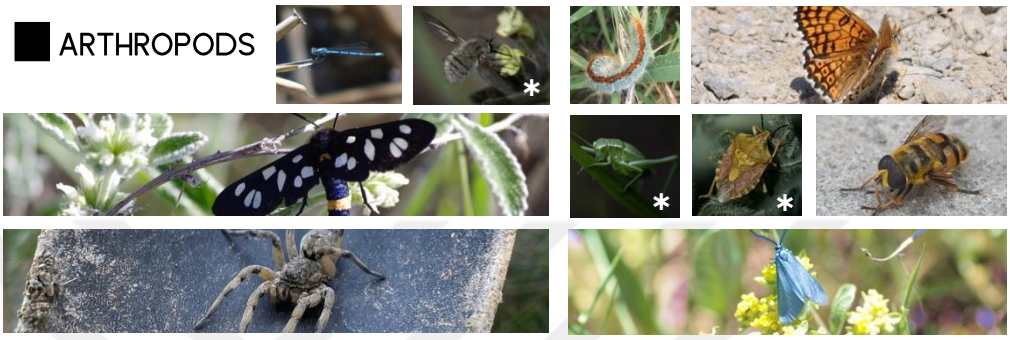


Figure 4.9 Arthropods from the campus.
Source: *TürSay 2022/2023- Odtü Yerleşkesi, Ankara*. iNaturalist.
(✱) DKM.

The arthropod community on the campus includes several insects, bees, arachnids, and 126 different identified butterfly species [Figure 4.9]. The campus is also considered one of the 65 Priority Butterfly Areas in Türkiye[136] with 3 endangered and near endangered, 5 endemic butterfly species on campus.

[135] *Ibid.*, p. 5.
[136] The campus butterfly biodiversity includes 33% of the total butterfly species observed in Türkiye. Oruç, S., Kırlangıç, K., (2014), p. 48.

Fungi-Mosses-Lichens



Figure 4.10 Lichens and fungi from the campus.
Source: Photos by author.

Although the exact number unidentified; fungi, mosses and lichens compose irreplaceable members of the ecosystem at METU. A vast number of fungi, lichens and ground moss can be observed in the forested and damp areas of the campus including the academic zone [Figure 4.10], and an abundance of freshwater algae can be observed near Lake Eymir and the METU 50th Year Pond.

Molluscs-Worms



Figure 4.11 Molluscs from the campus.
Source: *TürSay 2022/2023- Odtü Yerleşkesi, Ankara*. iNaturalist.

There is an abundance of molluscs and worms around the different habitat types on the campus [Figure 4.11]. Many gastropod species such as the Turkish snail (*helix lucorum*), zebra snail (*zebrina detrita*) or chocolate-band snail (*eobania vermiculata*)

have been identified by TürSay. The community of worms and molluscs are irreaplaceable members of the ecosystem at METU.

Bacteria-Single Celled Organisms-Viruses



Figure 4.12 Cyanobacteria from Lake Eymir.
Source: TRT Haber. (2021, August 18). Retrieved from https://www.trthaber.com/foto-galeri/eymir-golundeki-asiri-siyanobakteri-artisi-anbean-takip-ediliyor/37805/sayfa-1.html.

Although the exact number unidentified; bacteria, single celled organisms and viruses compose irreplaceable members of the lake [Figure 4.12], steppe, and forest ecosystems at METU.

Neobiota-Newly Established Species

Neobiota are identified as the newly established species introduced to a habitat by the human species.[137] In the case of METU, we may identify a large portion of the biodiversity here as neobiota following the forestation programme of the university campus since its build.

[137] "In German the term *Neobiota* describes species who have spread to new habitats through global human activity, especially since the "discovery" of the Americas by Columbus in 1492. In English there does not seem to be a correlative term –"Invasive Species" referring only to a certain subgroup of "Neobiota"– so we have decided to name ourselves: "Newly Established Species"." Organismendemokratie. (n.d.). https://organismendemokratie.org/.

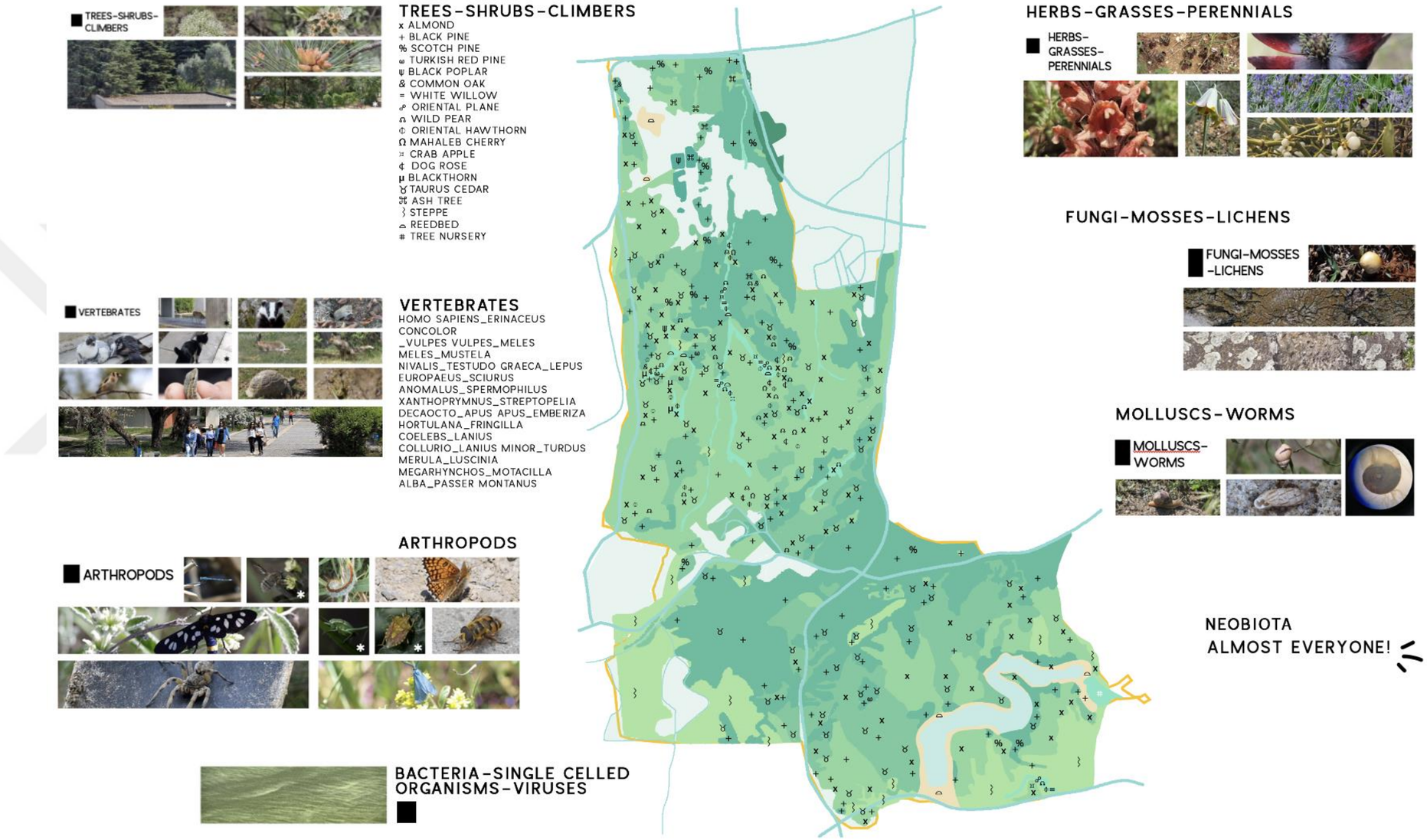


Figure 4.13 METU Parliamentary Habitants Map showing the ecological populations in the campus.

Source: Adaption by author from Genç, G. (2018), METU Nature Map, *Nature for Youth and City* EU Project, DKM (Nature Conservation Centre).

Table 2 Table of the most observed species in campus as documented by the TürSay 2022 Report.

Source: TürSay 2022 Raporu, DKM (Nature Conservation Centre), https://dkm.org.tr/.

MOST OBSERVED SPECIES							
2018		2019		2021		2022	
SPECIES	#	SPECIES	#	SPECIES	#	SPECIES	#
Melanargia larissa	31	*Rosa canina*	23	*Euphydryas aurinia*	12	*Glaucium corniculatum*	25
Linum hirsutum	23	*Euphydryas aurinia*	17	*Zygaena purpuralis*	11	*Crambe tataria*	25
Onobrychis hypargyrea	23	*Carduus nutans*	16	*Rosa canina*	10	*Salvia absconditiflor*	25
Genus Scabiosa	21	*Zygaena purpuralis*	15	*Securigera varia*	9	*Carduus nutans*	21
Issoria lathonia	15	*Cerinthe minor*	15	*Carduus nutans*	8	*Cerinthe minor*	18
Teucrium polium	14	*Crambe tataria*	15	*Berberis aquifolium*	7	*Chrysojasminum fruticans*	18
Echinops pungens	11	*Potentilla recta*	14	*Salvia verticillata*	6	*Adonis aestivalis*	17
Coccinella septempunctata	10	*Anchusa azure*	14	*Convolvulus arvensis*	5	*Salvia viridis*	17
Cichorium intybus	10	*Coccinella septempunctata*	13	*Papaver rhoeas*	5	*Anchusa leptophylla*	17
Cota tinctoria	10	*Sanguisorba minor*	13	*Genus Verbascum*	5	*Rosa canina*	16
Melitaea didyma	10	*Adonis aestivalis*	13	*Ajuga chamaepitys*	5	*Moltkia coerulea*	16
Artedia squamata	10	*Lathyrus cicera*	13	*Potentilla recta*	5	*Cruciata taurica*	15
Anchusa leptophylla	9	*Testudo graeca*	12	*Genus Lythria*	5	*Veronica pectinata*	15
Galium verum	9	*Cupido osiris*	12	*Helix lucorum*	5	*Prunus amygdalus*	13
Salvia virgata	8	*Chrysojasminum fruticans*	12	*Genus Omophlus*	5	*Acanthus hirsutus*	13
Stachys cretica	8	*Vicia cracca*	11	*Linum hirsutum*	5	*Onosma taurica*	13
Genus Isophya	8	*Helix lucorum*	11	*Bellis perennis*	4	*Vinca herbacea*	12
Dipsacus laciniatus	8	*Polygala anatolica*	11	*Thomisus onustus*	4	*Polygala anatolica*	12
Crataegus orientalis	8	*Ornithogalum oligophyllum*	11	*Echium italicum*	4	*Moltkia aurea*	12
Centaurea carduiformis	8	*Salvia absconditiflora*	11	*Cerinthe minor*	4	*Amata phegea*	11
Pyrus elaeagrifolia	8	*Ajuga chamaepitys*	10	*Oxyopes heterophthalmus*	4	*Anchusa azurea*	11
Genus Hedysarum	7	*Pyrus elaeagrifolia*	10	*Polyommatus amandus*	4	*Rosa hemisphaerica*	11
Glaucium corniculatum	7	*Orobanche anatolica*	10	*Gypsophila venusta*	4	*Senecio vernalis*	11
Securigera varia	7	*Glaucopsyche alexis*	9	*Family Formicidae*	3	*Ornithogalum oligophyllum*	11
Consolida raveyi	7	*Rosa foetida*	9	*Silene vulgaris*	3	*Veronica multifida*	11
Salvia absconditiflora	7	*Anchusa leptophylla*	9	*Melilotus officinalis*	3	*Ajuga chamaepitys*	10
Testudo graeca	6	*Melitaea cinxia*	8	*Ailanthus altissima*	3	*Pyrus elaeagrifolia*	10

4.1.4 Current Construction Practices

At the center of the argument for this thesis and also in the selection of the case of Middle East Technical University, lays an intrinsic critique of the ongoing and past construction practices at METU for the past two decades, and their inconceivable disconnect from the extensive ecological research and solid data academicians at METU have produced and continue to produce on the nature of the campus.

In the tumultuous history of the problematic construction practices at METU, and the public reactions and ecological movements they have induced, there are two significant milestones to consider: the METU Poplar Grove Resistance and the *Rant* Road Resistance. Additionally, the "METU Conservation Master Development Plan" prepared by the Ankara Provincial Directorate of Environment and Urbanization dated 30.09.2013, has introduced the 1071 Malazgirt Boulevard completed in 2014 [Figure 4.16], and several touristic facilities at Lake Eymir and its surrounding area which has caused a significant amount of fragmentation on the site[138]. On a part of the METU Forest land belonging to the national post and telegraph directorate (see, [Appendix A]), the Constitutional Court building and the 480.000 square meter Supreme Court building [Figure 4.16] has been built in İncek, which has further severed the spatial integrity of the habitats. These developments have garnered public reaction, as well as legal objection processes carried out by the TMMOB Chamber of Architects and Chamber of City Planners[139].

The Poplar Grove [Figure 4.14], also known as "ODTÜ Kavaklık" in Turkish, is a cherished natural area on the METU campus, characterized by a lush grove of poplar trees. However, it has faced the threat of being destroyed due to construction plans

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[138] TMMOB Şehir Plancıları Odası Ankara Şubesi. (2014, July 21). ODTÜ KORUMA AMAÇLI İMAR PLANI DEĞERLENDİRMESİ. *TMMOB Şehir Plancıları Odası Ankara Şubesi*. Retrieved from https://www.spo.org.tr/detay.php?sube=1&tip=1&kod=5875.
[139] *Ibid*. & TMMOB Mimarlar Odası Ankara Şubesi-ŞPO Ankara Şube. (n.d.). *177. ODTÜ KORUMA AMAÇLI NAZIM İMAR PLANI II*. Mimarlar Odası Ankara Şubesi. http://www.mimarlarodasiankara.org/index.php?Did=7548



Figure 4.14 The Poplar Grove Resistance, METU (left). Over a hundred trees cut down despite the protests, after protesting students were forcibly removed by the police (right).

Source: (2021, February 2). *Bianet*., Independent Türkçe. (2019, August 8).

that aimed to convert the area into a building site for a state dormitory after the "tenure of the area was handed over to the Higher Education Student Loans and Dormitories Institution (KYK) for 49 years"[140]. The university administration's decision to proceed with these construction activities triggered a strong public outcry, and opposition from various environmental groups and concerned community members. In response, a spirited resistance movement emerged, with students, faculty, and environmental activists coming together to protect the beloved Poplar Grove from being lost to urban development. The resistance efforts not only raised awareness on the necessity of collective practices of resistance and spatial decision-making, but also highlighted the need for ecological development practices in urban planning and the lack thereof in Ankara. The Kavaklık Resistance also paved the way for the upcoming upheavals and organized reactions to the political events that followed.

[140] Dalaklı, S. (2019, July 15). *62ND DAY OF KAVAKLIK RESISTANCE: A Brief History of METU Forest: From a Steppe to an Oasis in Central Anatolia.* Bianet. https://m.bianet.org/english/environment/210422-a-brief-history-of-metu-forest-from-a-steppe-to-an-oasis-in-central-anatolia

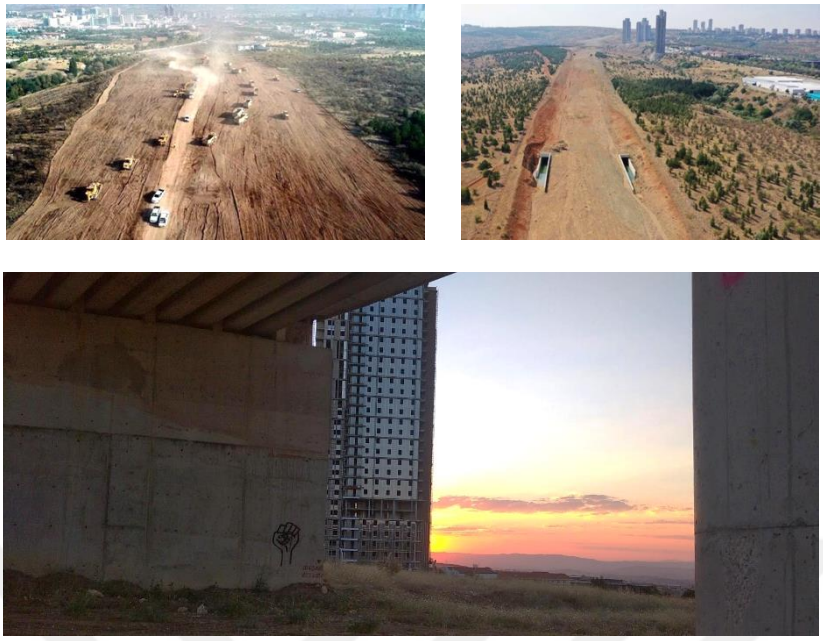


Figure 4.15 “Rant Road” construction area (top left) and new development projects awaiting (top right). Raised fist graffiti on the abandoned construction (bottom).

Source: Yeşil Gazete (2022, August 15 & November 1)., Ankara Metropolitan Municipality.

The “Rant” Road Resistance [Figure 4.15] is another, and still ongoing as of 2023, crucial event in METU community’s history. This incident involves the proposed construction of a road commenced in 2017 during the rule of highly-opposed former Ankara Metropolitan Mayor Melih Gökçek, that prioritized economic interests (referred to as "*rant*" in Turkish, which roughly translates to rent-seeking, ill-gotten gain or greedy gain) over ecological, environmental, or social concerns. The planned road, namely the Bilkent-Incek Boulevard Freeway Connection Project, was supposedly intended to facilitate traffic mitigation, nevertheless, the No To The Road of Rent-Seeking Initiative (Rant Yoluna Hayır İnisiyatifi) which also includes academicians from METU, has forewarned that the construction threatened to harm and potentially destroy sensitive ecosystems on the campus by disrupting the ecological continuity of campus grounds. The then Mayor Melih Gökçek at the time boasted on social media stating, “We have broken a record by opening a 4.5-

kilometer road in a single night" and in response, the Association for Research on Rural Environment and Forestry Problems have filed a criminal complaint against the Ankara Metropolitan Municipality officials, the related officials of the Directorate General of Forestry of Türkiye, and the METU rector Verşan Kök[141]. This constructional act not only held severe threats to the unity of the nature of METU, but it also foretold the disintegration of the last standing unified and preserved ecological zone in the city center of Ankara. The transportation plan itself was not socially sustainable, functional, beneficial nor required as there was no emergent need for such freeway, furthermore, the vehicle-oriented plan would only condense and exacerbate traffic in the area. Considering that there was no existing infrastructure or settlement in the naturally lush region, the housing projects by investors personally close to the municipality that were launched concurrently with the road project[142] only served to pave the way for further development in the area, transparently laying bare the intrinsic motive of financial profit. On this repetitive pattern of urban development pressures for METU from the municipality, Oruç and Kırlangıç also find that,

"Being the most concrete move of gradually dividing METU and tearing off pieces from it, this road also opened the door to new plundering projects one after another. We are concerned that this trend will lead to the end of Ankara's only untouched area, the breath of Ankara residents, and the soul of METU. Humanity is on the verge of destroying a paradise, a limb that it has created with its own hands"[143]

And inevitably, this prediction has remained relevant as of 2023. There was also a distinctly more fundamental cause behind this resistance, forasmuch as the region in question was not just patch of wild nature, but an example of urban wilderness created by human hand and directly by the hands of METU community members.

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[141] Dalaklı, S. (2019, July 15).
[142] To note, even if a necessity for a road had hypothetically emerged, the method should nevertheless have been development through prioritizing mixed-use programs.
[143] Oruç, S., Kırlangıç, K., (2014), pp. 37-38.

On the objective behind the resistance, a news article on the lawsuit propounds, “Wasn't the METU campus, which is in the middle of a huge forest in Ankara today, constructed by cutting down trees in the first place? The answer to [this] question is a big "No""[144]. Environmental activists, ecologists, concerned citizens, academicians, alumni, architects and planners with the TMMOB Chamber of Architects Ankara Branch[145] and Chamber of City Planners Branch rallied together to challenge the road construction plans and to advocate for the endurance of the community at METU[146]. The resistance movement succeeded in garnering significant public support, howbeit, despite an opposition party mayor change at the municipality, municipality authorities have thus far refused the cancellation of the project nevertheless[147].

In both cases, the METU Poplar Grove Resistance and the Rant Road Resistance, the collective efforts of the campus community and environmental activists played a crucial role in raising a critical awareness about ecological conservation and the -both natural and cultural- values of METU amidst political urban development pressures. These milestones continue to inspire future scenarios of public engagement and collective practices in ecology-based urban development.

When generalized, over the years, various construction practices and prospective architectural or infrastructural projects that bear no holistic or ecological basis; have

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[144] *Ibid.*

[145] TMMOB Mimarlar Odası Ankara Şubesi. (2019, August 27). *Ankara Büyükşehir Belediyesi ODTÜ yolu yürütmeyi durdurma kararına itiraz etti mahkeme reddetti*. Mimarlar Odası Ankara. http://www.mimarlarodasiankara.org/index.php?Did=10260. See also, TMMOB Şehir Planlamacıları Odası Ankara Şubesi. (2017, Eylül 10). *İktidarın Karanlığı Tekrar ODTÜ'nün Üstünde. Basın Bildirileri.* https://www.spo.org.tr/genel/bizden_detay.php?-kod=8432.

[146] Deniz, E. (2022, November 25). 146 Kurumdan Ortak Açıklama: ODTÜ Rant Yolu İptal Edilsin. *Bianet*. Retrieved from https://m.bianet.org/bianet/genclik/270553-146-kurumdan-ortak-aciklama-odtu-rant-yolu-iptal-edilsin.

[147] İskit, C. (2023, January 3). METU road construction continues despite protests from students. *Bianet*. Retrieved from https://bianet.org/5/196/272323-metu-road-construction-continues-despite-protests-from-students.

disrupted the integrity and continuity of the campus area, damaged the continuity of the campus landscape, posed important tissue loss, habitat and archeological loss in equally important regions, and ideologically contradicted with the Kurdaş ideal, has held serious threats to a healthy and continuous coexistence in the campus area.

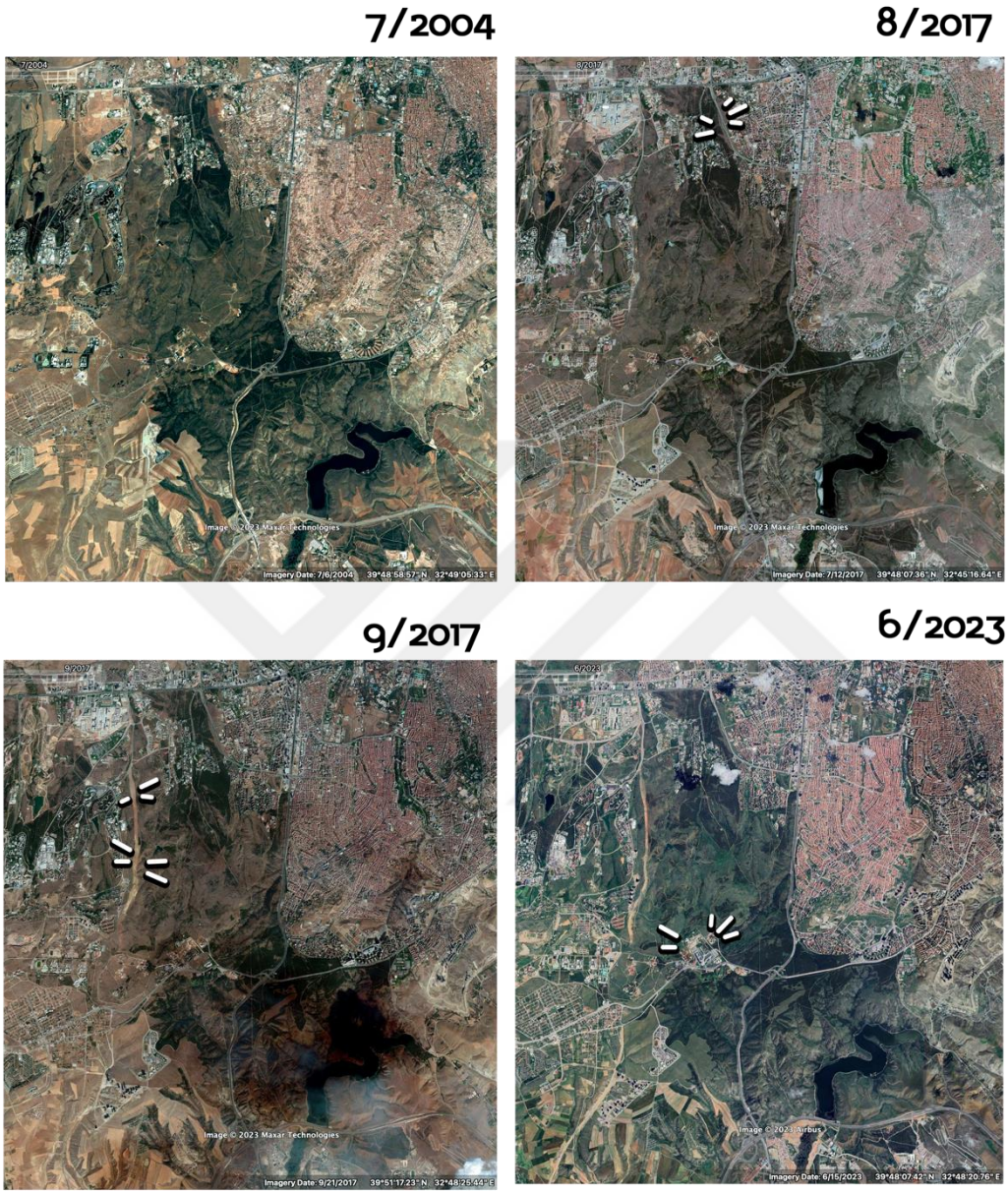


Figure 4.16 The METU Campus and urban development pressures through the years. In 2014, the 1071 Malazgirt Boulevard appears, in less than a month time in 2017, the Rant Road area is grubbed, in 2021, the new Supreme Court building appears.

Source: Google Earth.



Figure 4.17 Selected areas.

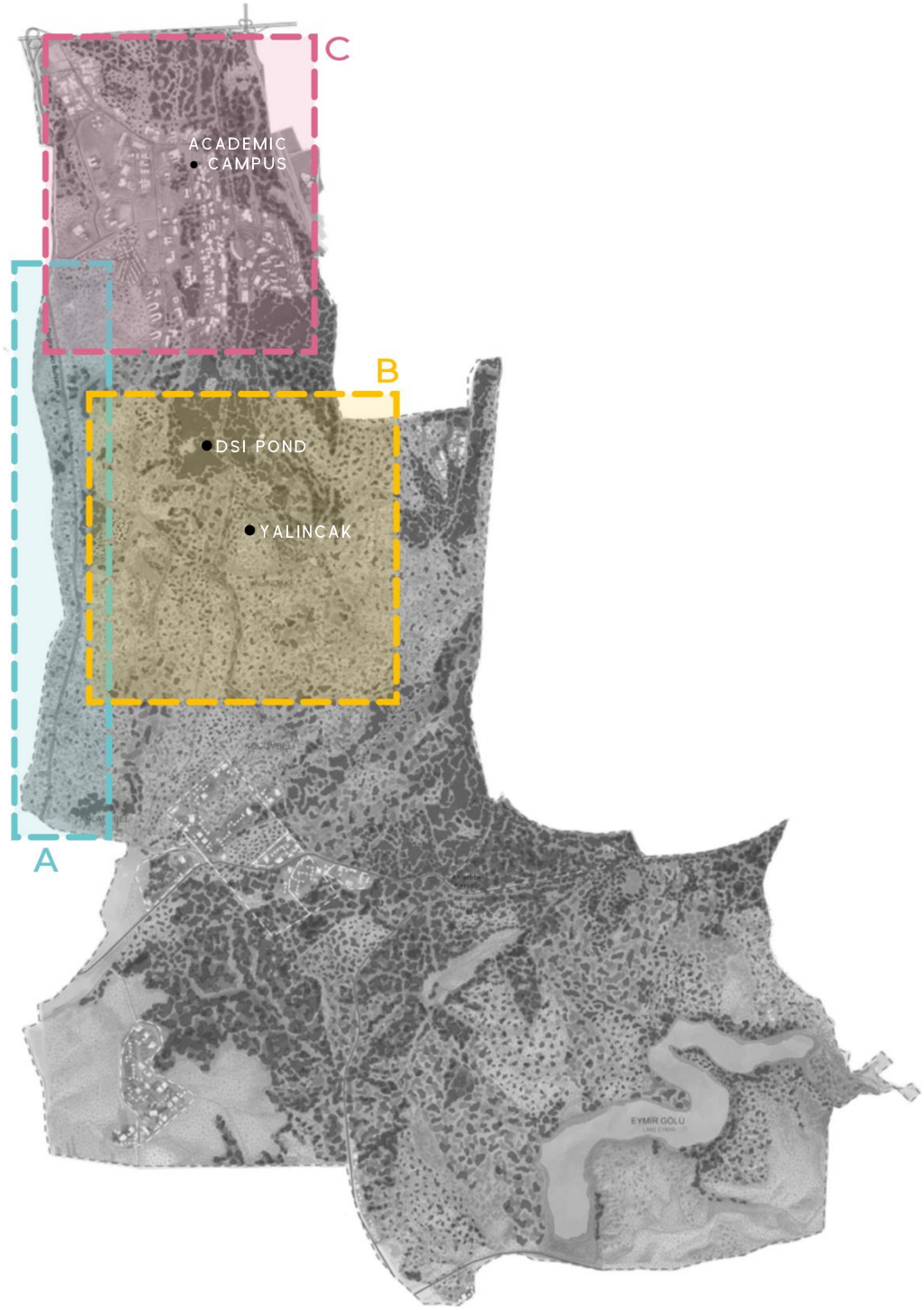


Figure 4.18 Selected areas map.

4.2 Selected Areas

For the framework of the final chapter, specified zones within the campus of METU will be targeted to be able to discuss the three design acts elaborated for the disparate urban field conditions introduced under Chapter 3 [Figure 3.1]. The decision will be informed by the Urban Field Condition/Possible Design Act matrix; within the site, examples of the conditions 1) polluted discontinuity, 2) third landscape, and 3) densely urban will be identified to propose the associated design acts 1) functional symbiosis, 2) capable architecture, and 3) integrated engagement respectively. In this regard, three primary zones have been selected within the METU Campus for the design acts discussed for cohabitation under the section 3.1 Strategizing Cohabitation for the METU Campus.

Per functional symbiosis, the first urban field condition listed, the diagnosed area of polluted discontinuity (see Chapter 3) is the unfinished construction site of the Bilkent-Incek Boulevard Freeway Connection Project shown with A [Figure 4.18, Figure 4.19]. This area's ecological continuity has been severed by the clearing, grubbing, and felling of trees due to the polemic road construction in the 4.8 km area [Figure 4.23]. According to the professional opinion, the project is an entirely idle investment and a palliative cosmetic solution that does not provide public benefit, and is not necessary nor beneficial for human circulation. Furthermore, the completion of the project accommodates the pedestal risk of the fragmentation and destruction of what is described as Ankara's last ecologically preserved urban area[148].

[148] See; Rant Yoluna Hayır İnisiyatifi. (2021). *ODTÜ #RantYolunaHayır Diyor!.,* Rant Yoluna Hayır İnisiyatifi. (n.d.). *Rant Yolu Bilgilendirme Broşürü*., Kasap, A. (2021, November 13). 'ODTÜ yolu'nun arkasındaki asıl plan ne? *Diken*. Retrieved from https://www.diken.com.tr/odtu-yolunun-arkasindaki-asil-plan-ne/., Tuncçelik, İ. (2022, August 15). Ankara'nın hortlayan kabusu odtü yolu projesi: neler oluyor? *Yeşil Gazete*. Retrieved from https://yesilgazete.org/ankaranin-hortlayan-kabusu-odtu-yolu-projesi-neler-oluyor/., Mimarlar Odası Ankara Şubesi. (2019, August 27). *Ankara Büyükşehir Belediyesi ODTÜ yolu yürütmeyi durdurma kararına itiraz etti mahkeme reddetti*. Mimarlar Odası Ankara. http://www.mimarlarodasiankara.org/index.php?Did=10260. Şehir Planlamacıları Odası Ankara Şubesi. (2017, Eylül 13). ODTÜ Yollarına İlişkin Hazırlanan Protokol

The area is indeed in an un-functioning state for both human and nonhuman occupiers, as result of the discontinuity and -both environmental and urban- damage provoked by poor urban planning and directly through the Bilkent-Incek Boulevard Freeway Connection Project. The area is thus in need of remediation (it is observed that natural processes of remediation has already begun in the area [Figure 4.20]), and a reforestation project in line with the Kurdaş plan will be the main proposed method of cohabitation on this case.

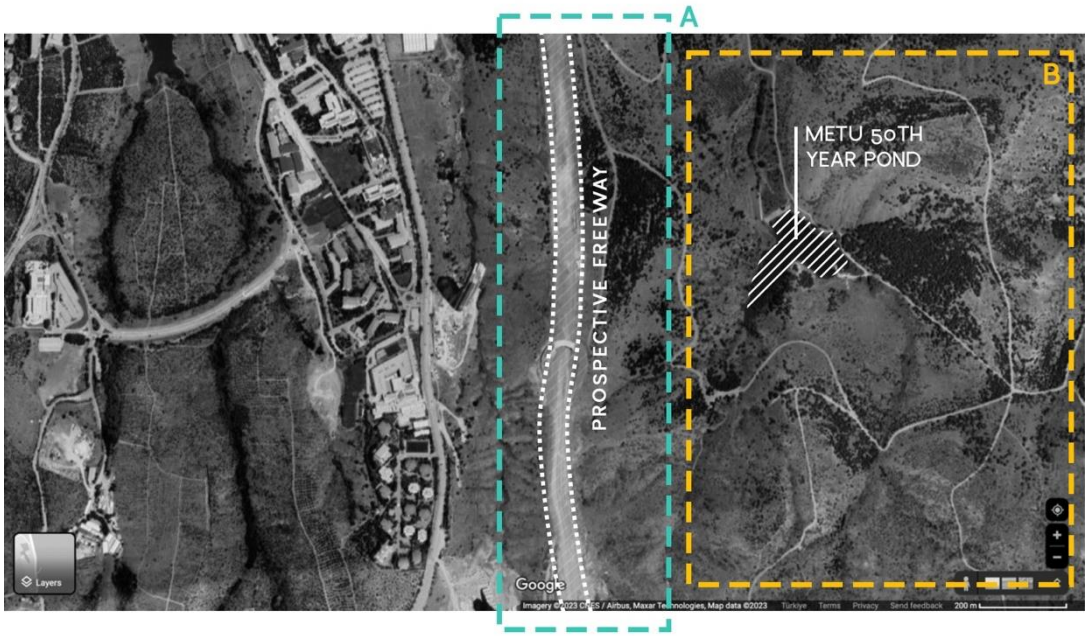


Figure 4.19 Satellite view of the Yalıncak/Bilkent-Incek Boulevard Freeway Connection Project relationship, 2023.

Source: Google Maps.

Hakkında Bilgilendirme. Basın Bildirileri. https://www.spo.org.tr/genel/bizden_detay.php?kod=8433, https://www.spo.org.tr/genel/biz-den_detay.php?kod=8433&tipi=3&sube=1, https://www.spo.org.tr/genel/bizden_detay.php?kod=8433&tipi=3&sube=1”tipi=3, https://www.spo.org.tr/genel/bizden_detay.php?kod=8433&tipi=3&sube=1, https://www.spo.org.tr/genel/bizden_detay.php?kod=8433&tipi=3&sube=1.



Figure 4.20 Photos from Area A, 2022-2023.

Source: Yalçın, S., & Yavuz, Z. F. (2023, April 1). *Bir Rant Yolu Örneği: Bilkent-İncek Otoyol Projesi'nin Ekolojik Etkileri*. *TERRA*. https://www.terrabiyogen.org., Hasanoğlu, U. (2022, September 16). *Odtü Rant yolu projesi'nin ekolojik etkileri*. Bianet. https://m.bianet.org/bianet/kent/267187-odtu-rant-yolu-projesi-nin-ekolojik-etkileri

For the second design act of cohabitation, i.e., capable architecture, the area surrounding Yalıncak Village within the campus boundaries shown with B is selected [Figure 4.18]. As observed in maps [Figure 4.13] and [

Figure 4.22], the most populated and diversified biodiversity zone in the campus appears to be the areasurrounding Yalıncak Village and the METU DSI Pond. "Nature for Youth and the City" project by DKM also declares,

"Yalıncak, located to the south of the campus, is the area that preserves its naturalness the most; Along with the steppe, it contains coniferous trees, stream beds

and cliffs. The pond on Yalıncak road was established to prevent floods. The pond is one of the important water sources for many species."[149]

Yalıncak area will be tackled under the capable architecture design act to seek ways to preserve and care for the rich biodiversity that exists in the area, and to seek ways of positive impact for human communities to be included to perform these actions of active stewardship collectively.

The third design act of cohabitation, Integrated Engagement will be deployed around built areas on the campus shown with C [Figure 4.18], mainly the human-populated university zone made up of the academic zone, center, and non-academic zones as defined by the Çinici Plan [Figure 4.21].

[149] Doğa Koruma Merkezi (2019). *Bitkiler Katılımcı El Kitabı*. (Binbaşaran Tüyzsüzoğlu, B., & Arslantaş, F.; B. Nazlıer & U. Zeydanlı, Eds.), Gençlik ve Kent İçin Doğa Projesi, www.odtudedoga.org, p. 5

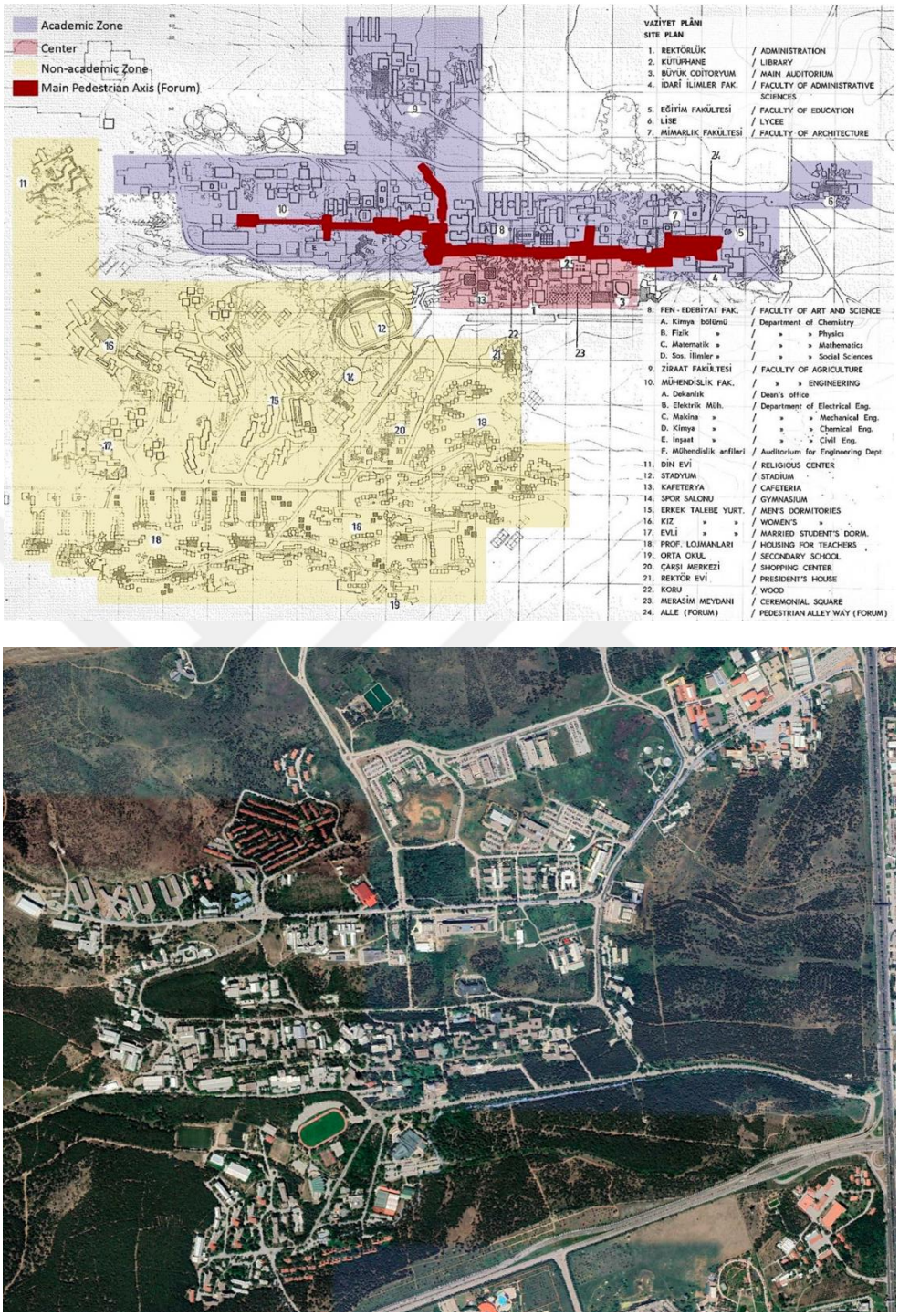


Figure 4.21 Altuğ-Behruz Çinici Plan, 1961 (top). Satellite view of the area, 2023 (bottom).

Source: Çinici, A.-B. (1964), "Middle East Technical University, Ankara, May 1964 (Fanzin)., & Google Earth.

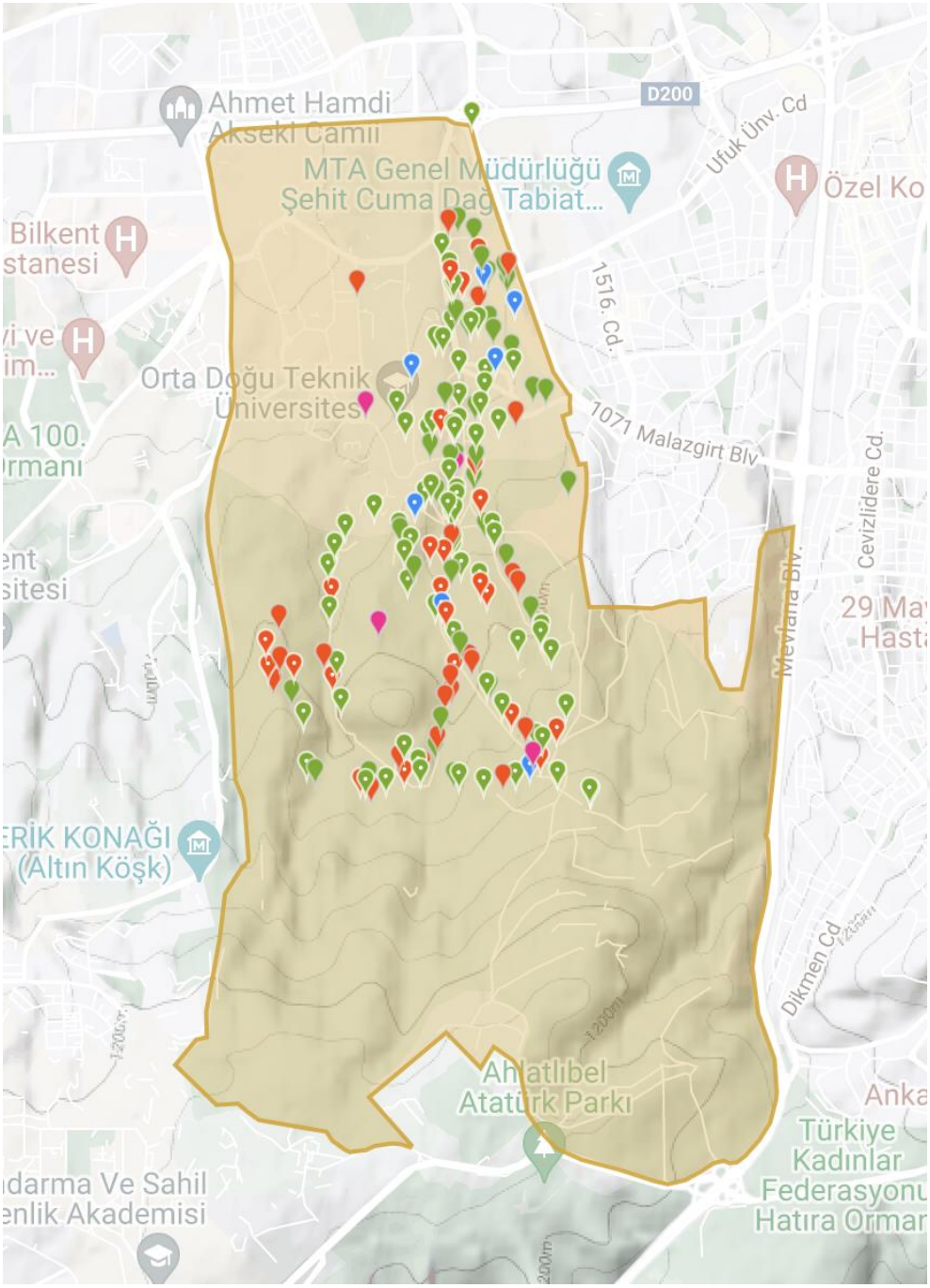


Figure 4.22 Map of Observations for TürSay 2023.

Source: *TürSay 2023 - Odtü Yerleşkesi, Ankara*. iNaturalist. (n.d.). https://www.inaturalist.org/projects/tur-say-2023-odtu-yerleskesi-ankara.

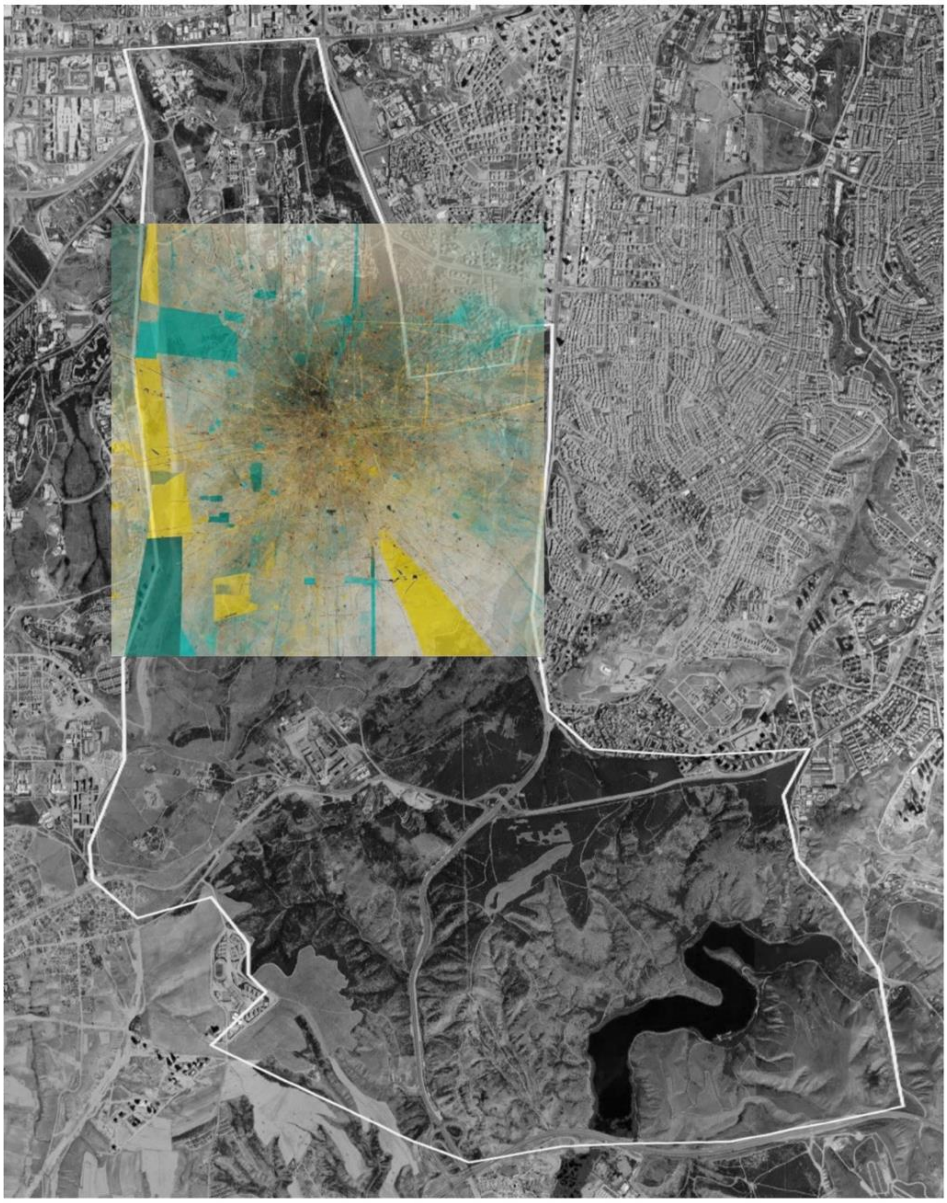


Figure 4.23 The ecological network and the disruption between areas A and B.

4.3 AAD Method Applied to the METU Campus

Under this section, the Animal-Aided Design Method created by the Animal-Aided Design Studio will be implemented to the Middle East University Campus by referring back to the AAD method explained under *3.1.3* by following a step-by-step application of the method for integrated engagement.

The site of METU currently falls at the post-occupancy monitoring stage since it has remained a completed and in-use living space for over 60 years. Consequently, the phases required for the AAD method have been customized accordingly for the Strategizing Cohabitation for the METU Campus project [Figure 4.24].

In this regard, the first phase A for the AAD Method will involve both A1 Monitoring and Evaluation and A2 Analysis and Concept phases combined, with monitoring, analysis, evaluation, and design concept as synchronous and enmeshed processes. After this evaluation, in phase B, design strategies will be discussed for cohabitation as a model of post-anthropocenic architecture for the campus area. The scope of this thesis involves the discussion of these proposed design strategies. In the following phases, community and expert involvement into the project should be established for phase C, the execution phase in the co-production of space in METU. Following the execution of the project, the monitoring and evaluation phase D is repeated continually to monitor and update the changing needs and conditions, and new emergent forms on the campus, to be carried over to care programmes and future projects in awareness of the dynamic processes taking place.

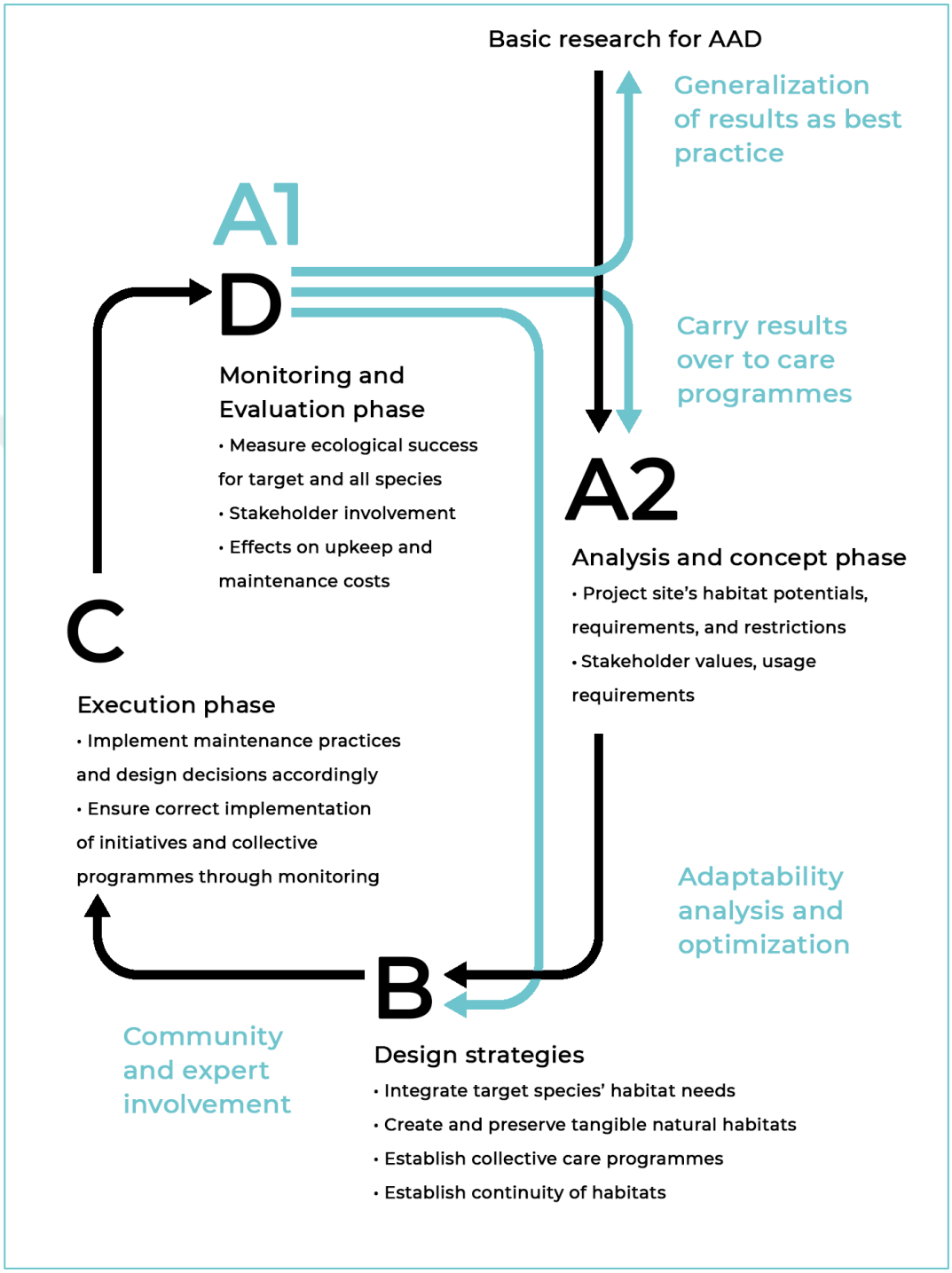


Figure 4.24 Proposed AAD Method Adaptation for METU.

Source: Adaptation by author from Hauck, T. E. & Weisser, W.W. (2015).

4.3.1 Target Species and Species Portraits

For phase A, constituted by the *A1 Monitoring and Evaluation* and *A2 Analysis and Concept phases*, target species are selected to discuss specific habitat needs for nonhuman METU habitants [Figure 4.25]. In the context of AAD, a target species refers to a species chosen for specific reasons to actively fulfill the specific habitat-related requirements of by architectural design. The relevant term "target species" used in natural conservation also aligns with this term, howbeit, AAD's criteria of selection for target species is not limited to rare, endangered, or legally protected status or conservation value, it can also be based upon cultural, social, or aesthetic value[150]. Three main considerations for target species selection [Figure 4.27] are as follows: the ecological characteristics of the species, socio-cultural considerations and species occurrences frequency in the city (or the potential barriers for dispersal in a case of lack thereof).

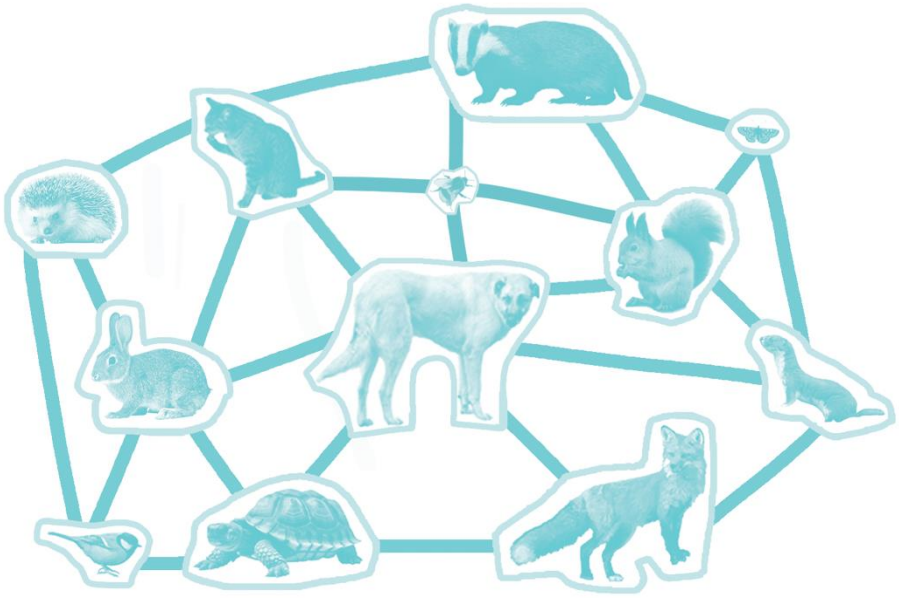


Figure 4.25 The target species.

[150] AAD (2020), pp. 10.

For the purpose of this thesis and for METU, priority has been given to species that were most frequently observed on campus, frequently mentioned in scientific sources, frequently identified and documented in densely populated human areas by human members of the METU community, and have naturally formed established spatial relationships and interactions with humans already. These species are primarily, the Southern white-breasted hedgehog (*Erinaceus concolor*), Red fox (*Vulpes vulpes*), European badger (*meles meles*), Least weasel (Mustela nivalis), Greek turtle (*Testudo graeca*), European hare (*Lepus europaeus*), Caucasian squirrel (*Sciurus anomalus*), 5 bird species that nest near human settlements—not narrowed to a single species due to their diversity in numbers, similar occurrence rates and similarity in habitat behaviors; Common swift (*Apus apus),* Black redstart *(Phoenicurus ochruros),* Great tit *(Parus major),* Eurasian tree sparrow *(Passer montanus),* Ortolan bunting *(Emberiza hortulana),* and the endemic Steppe fritillary (*Euphydryas orientalis*), Domestic dog (*Canis familiaris*) and Domestic cat (*Felis catus*), and the Bumblebee (*bombus sp.*).



Figure 4.26 Hedgehog sightings (top row), and fox sightings on campus (bottom row).

Source: *TürSay 2019/2022- Odtü Yerleşkesi, Ankara*. iNaturalist. (n.d.).
(✱) *ODTÜ'de Doğa* Instagram Account.

There has been a significant number of red fox sightings in particular, near the academic and residential zones within the campus; baby foxes feeding on kibble left out by campus residents for stray cats and dogs, or a mother fox nursing her cubs in a forested borderland near human settlement. Similarly, on several occasions, hedgehogs have been spotted on the main campus axis, the *alle*, in other words, right at the heart of human circulation and the most populated zone on campus by human traffic [Figure 4.26]. Additionally, bumblebees are nearly constantly observed on varied campus areas such as the flower shrubs between the Department of Physics and METU Cafeteria buildings.

The steppe fritillary ((*tr*) güzel nazuğum; (*lat*) euphydryas orientalis) is defined as an IUCN Global Red List category endangered and near endemic butterfly species[151], and the METU land also shelters one of the most important known populations of the globally threatened Steppe fritillary[152]. According to the *Red Book of Butterflies in Turkey*, while the expansion of land under cultivation has been the main habitat risk for the steppe fritillary from the 1940s forward, the primary challenges to the limited remaining habitats now stem from anthropogenic activities such as road construction, residential expansion, industrial growth, recreational pursuits, and the establishment of amenity forests. The expert opinion on this species has been the primary basis of its selection as a targeted species.

On the other hand, this thesis does not fall within the scope of the disciplines of ecology, biology, or the field of natural conservation, but it rather concerns the

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[151] Karaçetin, E., & Welch, H. J. (2011). *Red book of butterflies in Turkey*. Nature Conservation Center, Ankara. pp, 53-54. For additional research on the conservation of steppe habitats involving the steppe fritillary, see Ambarlı, D. (2012). Factors affecting steppe biodiversity in central part of the Anatolian Diagonal and their use in conservation, and, Ambarlı, D., Zeydanlı, U. S., Balkız, Ö., Aslan, S., Karacetin, E., Sözen, M., ... & Vural, M. (2016). An overview of biodiversity and conservation status of steppes of the Anatolian Biogeographical Region. *Biodiversity and conservation*, *25*, 2491-2519.

[152] METU Nature Map (2018), *Nature for Youth and City* EU Project, DKM (Nature Conservation Centre).

discipline of architecture, thereby domestic species i.e., stray cats and dogs have also been included in the biodiversity and target species lists in a custom uncommon to these disciplines in question. Moreover, additional design formulas for the domesticated semi-wild species living in close proximity or association with human communities (e.g, domestic dogs and domestic cats) should need to be formulated.

For the concern of adaptability, the identification and analysis of nests by the target species already used or built on buildings or built environment elements should be analyzed and respective design adaptations should be implemented based on the analysis. Following the analysis, additional target species may need to be discussed if an abundance of nests from an additional species is recorded. For the future, there is always the possibility to discuss additional target species as informed by future studies.

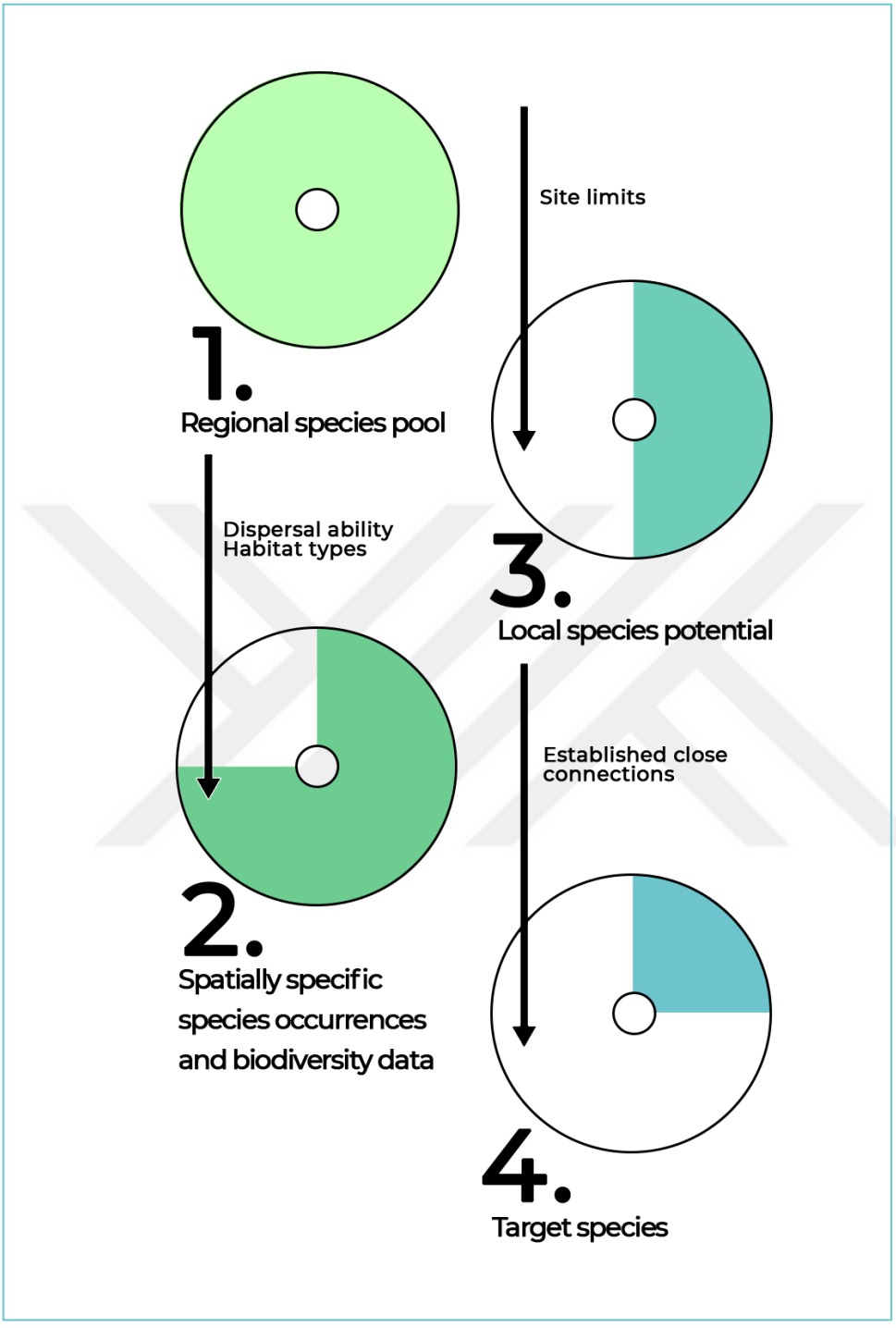


Figure 4.27 Target species selection.

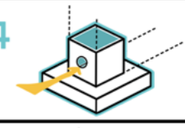
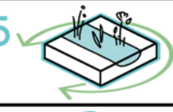
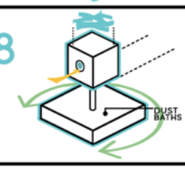
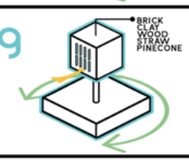
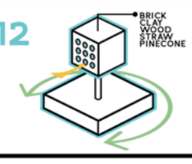
Source: Adaptation by author from Hauck, T. E. & Weisser, W.W. (2015). Weisser, W.W. (2015).

4.3.1.1 Target Needs and Functions

The target species present an array of diverse specific habitat requirements for their individual survival and well-being as demonstrated in [Table 3]. Some species, such as hedgehogs and turtles, seek shelter in organic material covered confined spaces and require minimal human disturbance. There are certain species that should be noted as requiring zero human interaction spaces as opposed to interspecies contact spaces; foxes, badgers, turtle and squirrels require low human disturbance, whereas hedgehogs, weasels, and hares need limited human disturbance. It can be concluded that most species thrive in rich vegetation diversity and connected habitats. Both open habitats and lowland vegetation such as the steppe are essential to the wellbeing of several species. Although all species require stable and reliable water sources to survive, for some species such as the White-breasted hedgehog and the Greek turtle it is of added significance. Herbivorous species such as Greek turtle (*Testudo graeca*), European hare (*Lepus europaeus*), Caucasian squirrel (*Sciurus anomalus)* and the Steppe Fritillary (*Euphydryas orientalis*) rely on the plant communities, fruit and nut-bearing plant species and the wellbeing of the landscape for sustenance, meanwhile domestic species that are in more reliant symbiotic relationships with human communities would need human initiated feeding points in densely urban zones of the university. For domestic dogs and cats, overhead protected shelters near human settlements offer safe spaces for them to survive and thrive [Figure 4.28].

By integrating these architectural solutions, a harmonious environment that addresses the habitat needs of these target species and promotes their coexistence can be produced. To achieve this, implementing low human disturbance for some species and vegetation diversity for others is crucial in the overall design programme.

Table 3 Table for the species portraits.

SPECIES	HABITAT NEEDS	
SOUTHERN WHITE-BREASTED HEDGEHOG *ERINACEUS CONCOLOR* 	DRY BRANCHES. WEED OR LEAF COVERED SHELTER SPACE. HIBERNATION SITES. LIMITED HUMAN DISTURBANCE	1 
RED FOX *VULPES VULPES* 	EARTHS/DENS. SEMI-UNDERGROUND EXCAVATIONS. HOLLOWED OUT CHAMBERS AND DENSE VEGETATION ZONES. LOW HUMAN DISTURBANCE	2 
EUROPEAN BADGER *MELES MELES* 	UNDERGROUND TUNNELS/SETTS. SETT PROTECTION. CONNECTED HABITATS. VEGETATION DIVERSITY. LOW HUMAN DISTURBANCE	3 
LEAST WEASEL *MUSTELA NIVALIS* 	HOLLOW NESTING CHAMBERS. E.G: TREE HOLLOWS, ROCK PILES OR UNDER A BUILDING. OPEN HABITATS. LIMITED HUMAN DISTURBANCE	4 
GREEK TURTLE *TESTUDO GRAECA* 	SOFT. WARM BURROWS. HUMID AND CONNECTED HABITATS. LOW HUMAN DISTURBANCE	5 
EUROPEAN HARE *LEPUS EUROPAEUS* 	SHALLOW BURROWS/WARRENS COVERED WITH GRASS. LEAVES. ETC.. OPEN AND CONNECTED HABITATS. VEGETATION DIVERSITY. LIMITED HUMAN DISTURBANCE	6 
CAUCASIAN SQUIRREL *SCIURUS ANOMALUS* 	TREE HOLLOWS. NUT-BEARING TREES. LOW HUMAN DISTURBANCE	7 
BIRDS: COMMON SWIFT-BLACK REDSTART-GREAT TIT-EURASIAN TREE SPARROW-ORTOLAN BUNTING *APUS APUS. PHOENICURUS OCHRUROS. PARUS MAJOR. PASSER MONTANUS. EMBERIZA HORTULANA* 	TREE TRIMMING AND DEADWOOD COLLECTION SPOTS. OPEN AND SEMI-OPEN HABITATS. VEGETATION DIVERSITY. NESTING SITES ON TREES.	8 
STEPPE FRITILLARY *EUPHYDRYAS ORIENTALIS* 	OPEN AND CONNECTED HABITATS. HOST PLANTS AND VEGETATION DIVERSITY. MATING AND OVERWINTERING SITES	9 
DOMESTIC DOG *CANIS FAMILIARIS* 	OVERHEAD PROTECTED SHELTER	10 
DOMESTIC CAT *FELIS CATUS* 	OVERHEAD PROTECTED SHELTER. CONFINED. SMALL SPACES	11 
BUMBLE BEE *BOMBUS SP.* 	OPEN AND CONNECTED HABITATS. HOST PLANTS AND VEGETATION DIVERSITY.	12 

DEAD-WOOD EARTH

INTEG-RATION MATERIAL/FAÇADE/ROOF ELEVATION FREESTANDING UNITS

ENTR-ANCE LANDSCAPE CONNECTIVITY

HUMAN SCALE

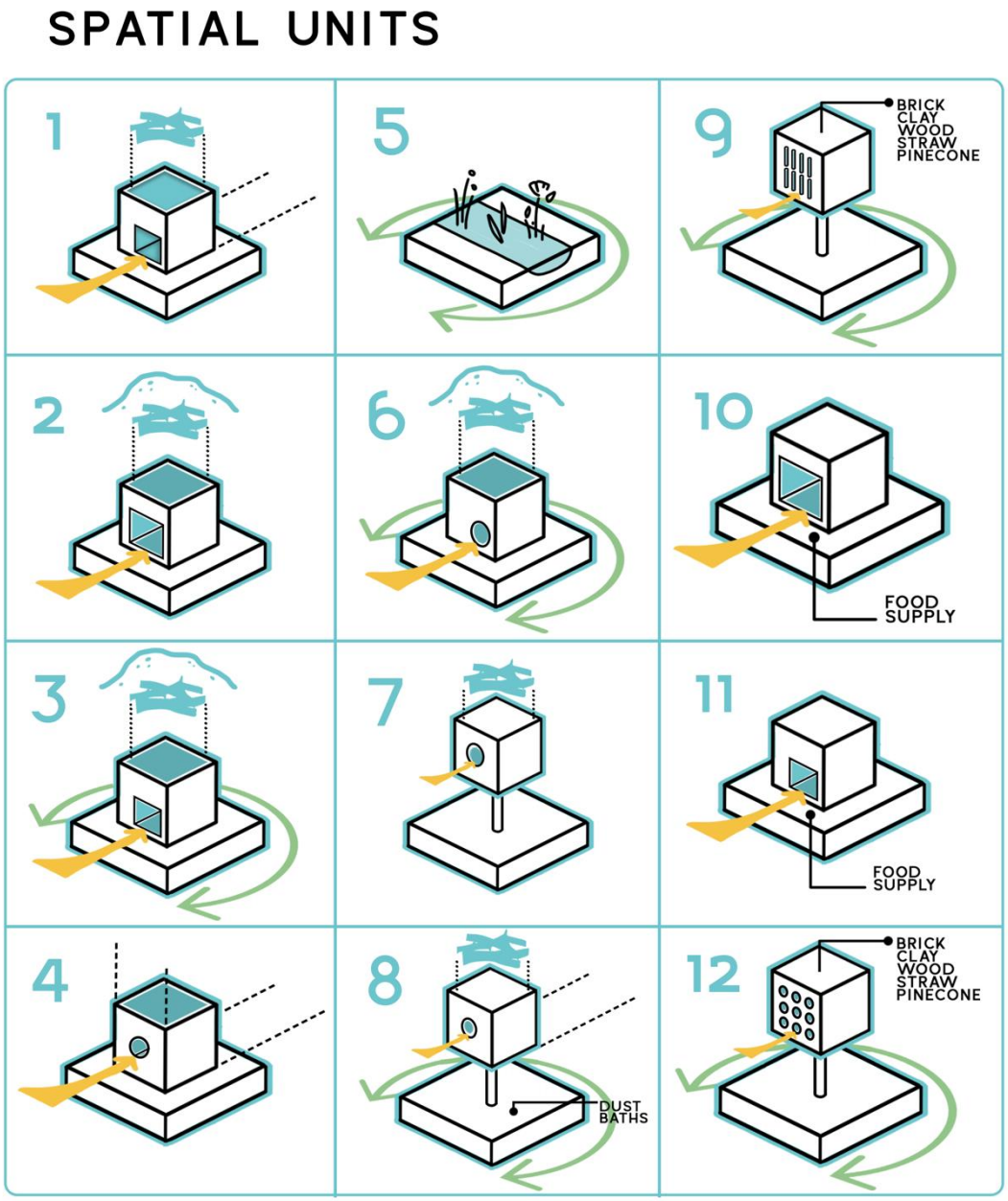


Figure 4.28 Diagram for spatial units for the target species according to their respective habitat needs.

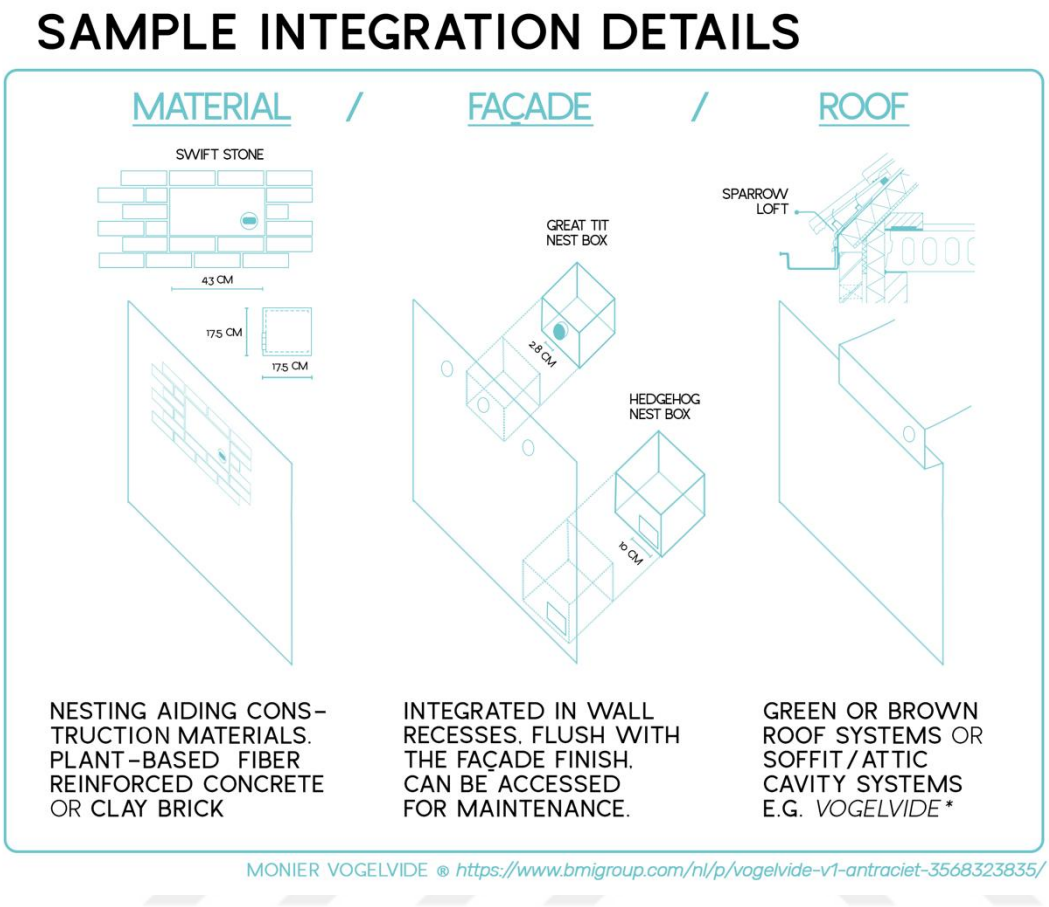


Figure 4.29 Sample integration details for the spatial units in Table 3.

4.3.2 Ecological Objectives

This section follows ecological objectives that can lead the architectural program for the design brief—or in this case, the strategical design brief. In order to meet the objectives for the 12 target species, measures and structures that can be implemented will be elaborated. For the 12 target species described, the general target categories of the ecological objectives for species' needs and required functions are organized as follows:

- water sourcing (rainwater collection, inflow canals, multispecies fountains)
- shelter

- nesting aids
- extreme condition shelters

- implementation issues (eg., façade soiling)

4.3.2.1 Water

The construction of rainwater harvesting systems, rainwater vessels or small reservoirs in varied habitats, especially for species such as Apus apus (Common Swift), Phoenicurus ochruros (Black Redstart), *Testudo graeca* (Greek Turtle) and *Sciurus anomalus* (Caucasian Squirrel) should be prioritized. Some examples of rainwater harvest systems already implemented into the design can be observed within the Faculty of Architecture building and other locations on campus. These structures will be vital for the habitants of METU specifically as they can provide reliable water sources during dry periods. Additionally, creating shallow inflow canals or channels that direct water into specific areas, as well as rain gardens as landscape elements that can supply humid environments (e.g., near areas inhabited by the Greek turtle) can help ensure a stable water supply for the target species.



Figure 4.30 Nesting aids for hedgehogs by AAD.

Source: Hauck, T., Weisser, W. W., Mühlbauer, M., Bischer, R., Meyer, S. T., Fairbairn, A., ... & Weber, S. (2023). Animal–Aided Design in der Brantstraße.



Figure 4.31 Nesting aids for birds by AAD.

Source: Hauck, T., Weisser, W. W., Mühlbauer, M., Bischer, R., Meyer, S. T., Fairbairn, A., ... & Weber, S. (2023). Animal–Aided Design in der Brantstraße.

4.3.2.2 Shelter

Shelters are tackled in two main groups: 1-nests, 2-extreme condition shelters.

Nesting Aids:

Installing human-produced artificial nesting aids -examples of which have been designed and produced by Animal-Aided Design Studio [Figure 4.30, Figure 4.31] (see [Appendix B] for details)-, in suitable locations can provide safe and protected nesting sites for birds like *Apus apus, Phoenicurus ochruros, Parus major, Passer montanus, Emberiza hortulana* (see [Appendix C] for blueprint drawings of bird nests) and also for hedgehogs, hares and squirrels. *Apus apus* and *Phoenicurus ochruros* are cavity nesters that nest in rocky ground and buildings, can be easily

provided with human initiated nesting aids. *Emberiza hortulana* nests on the other hand are to be placed in lower elevation, as they mostly nest close to the ground, in low bushes or small trees. For *Parus major* who are secondary cavity nesters[153], provided cavities thickly lined with plant material as part of the nesting programme are highly favored habitats. *Passer montanus* use domed nests of grass, feathers and other material, and they are accustomed to habiting human-made holes and crevices within buildings and free-standing nest boxes. Nesting aids can be integrated into façade or roof systems, integrated through construction materials, or they can be free-standing units independent from the main building masses [Figure 4.29]. The cavity dimensions, and the entrance openings to the cavities should be regulated in accordance with the targeted user's anatomical proportions and scale, and the openings should be narrow enough to not allow involved predators to enter the nesting space. In addition, habitants that forage and collect organic material for nests can be easily provided with material from deadwood collection points, which can become part of the regular landscape maintenance processes that can yield lower financial costs. These design elements can be integrated at the edges of the human-populated zones to provide different degrees of privacy for inter-species contact spaces and zero human interaction spaces. For a thriving urban wildlife, nest building can become an interspecies practice by the provision of nesting aids for the collective creation of a place[154]. In alignment with adaptability, these nesting aids are not the adamant habitats for the species members targeted; instead, they should function as

[153] Goodfellow, P. (2011). *Avian architecture: How birds design, engineer, and build.* Princeton University Press, p. 22.

[154] Such historical practices can be observed from several examples from Asia Minor. On the place of bird-houses in Turkish architecture, see Bektaş, C. (1994). *Bird-houses: A symbol of love for all created things*. Kültür Yayınları., for a detailed collection of bird houses in residential buildings, palaces, mosques, synagogues, schools, shops, tombs, hamams and many other architectural structures in Anatolia through classical, baroque, neoclassical and other periods. These structures were also significant in that they were not built for any additional functional purposing, such as stock farming or agricultural fertilization as was the case with examples from Italy or Egypt. Bektaş notes that he cannot recall any other examples of a cultural architecture of bird-houses outside of Turkiye (pp. 31-35).

processes of systems making[155], subject to periodic optimization to suit the changing needs of species over time, and they must remain responsive to potential transformations initiated by nonhuman agents.

Extreme Condition Shelters:

Additional and more equipped/resilient shelter solutions [Figure 4.32] will need to be provided for various species to refuge in overwintering periods or under extreme weather conditions as the climate in Ankara has also begun to display irregular weather events such as heavy rainfall, hailstorms, flooding and drought as result of global climate change. These refuges will have durable qualities such as water and fire resistance, and they will also require to be placed at higher elevations or elevated platforms for the risk of flooding. As such, these nesting spaces can be allocated in closer proximity and direct connection to human occupied building systems.

[155] Another example of such practice is the Animalesque Nest, a prototype for the co-production of space, "where no final form was previously defined, but on the contrary, emerged from a coherent process of systems making". Animalesque. (n.d.). *The nest*. https://animalesque.aaschool.ac.uk/archive2019/the-nest/



Figure 4.32 Overwintering sites for bees, insects and birds. Winter quarters for insects and other creatures from leftover brick, straw, and wood at Floating University (left). Bird bricks by Feral Partnerships, San Mei Gallery, 2022 (middle). Bee and insect hotel at The System Garden, University of Melbourne (right).

Source: *Spatial Experiments 2022• floating berlin.* FLOATING BERLIN. (2022)., Darmour-Paul and Soanes referenced in Roudavski, S., Soanes, K., & Parker, D. (2023, July 24). *Design for (all) life*. Pursuit. https://pursuit.unimelb.edu.au/articles/design-for-all-life.

4.3.2.3 Drawbacks

Major concerns by campus residents, authorities, and other stakeholders that can be listed as issues of façade soiling, increased costs, possible resistance from residents, heritage conservation requirements, hygiene problems and problems with wildlife[156] should be addressed and optimized during the execution phase.

One factor that will inevitably become significant in regard to all of these concerns combined is the collectivity of all processes. By involving all stakeholders and

[156] Most common issues in execution as researched and identified by AAD (2020), pp. 16-19.

habitants, nonhuman and human, in all stages of design as much as possible, and fostering the flexibility for emergent forms, the resolution process can be engendered naturally and collectively. Additionally, potential advantages of the project should also be shared and discussed with the public as solutions such as designed nesting aids in alternative to emergent façade nesting can mean lesser soiling and damage to the built property; and most landscape, maintenance and infrastructure solutions discussed within the scope of the project can offer lower financial costs in the long and short terms.

It's important to note that these measures should be implemented with consideration for local regulations as well as the specific threats posed for each species. In addition, the necessary expert collaborations and involvement (principally from the university academicians and units) should be established to avoid a lack of internal/external expertise. Furthermore, involving the local communities, wildlife experts, student societies, related university units and non-governmental organizations in the planning and execution of these initiatives can help ensure their effectiveness and long-term success in the future of the campus. To sum, the overall objective of the project is to create an ecologically-sustained and harmonious environment that meets the spatial needs of the target species and supports the local biological and cultural community of METU through collective action.

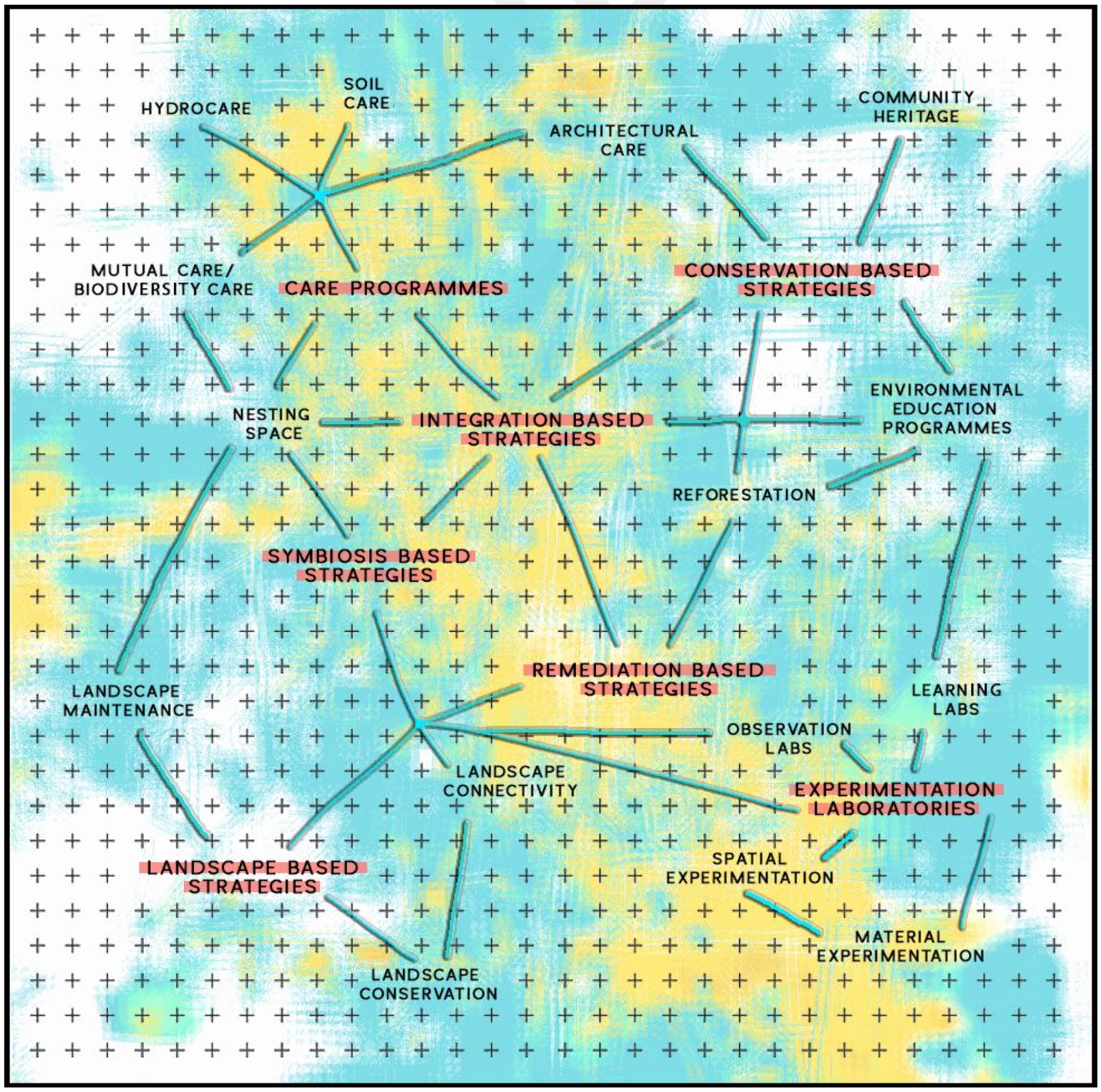


Figure 4.33 Strategies map. “Strategizing Cohabitation For The METU Campus”.

4.4 Conclusive Design Strategies

The unique urban-nature of METU generates the potential to carry out all three design acts into action. There are both areas with the potential of urban reclamation and environmental remediation (functional symbiosis), of urbannature engagement (integrated engagement) and of designated coexistence (capable architecture). In this concluding section, the overall design strategies proposed for METU [Figure 4.33] will be elaborated under separate headings for the strategies. Howbeit, the strategies are also involving of enmeshed, overlapped, and interconnected processes with each other in different ways as they are postulated as respondent to the immanent ecologies and ecological agents as exponded in Chapter 2 [Figure 2.2, Figure 2.3].

- Conservation Based Strategies

In the Getty Report for the Research And Conservation Planning For The METU Faculty Of Architecture Building Complex, the main concerns for the campus are elaborated as follows,

"Sustaining the forestation project and the flora and the fauna it accommodates, have always been the highest priorities, while Modernism, its ideology and architecture are still the guiding instructions for the University "community""[157].

Both ecological and architectural conservation are extremely vital to the habitants and heritage of the METU Campus. Conservation efforts should thus involve architectural heritage, natural heritage, archeological heritage, cultural heritage and community heritage collectively. Conservation plans should be designated following the general principle "minimum visual interventions that have the maximum performative potential"[158] as proposed by the Keeping It Modern Project Report. Additionally, it is essential that the new design elements introduced for nonhuman

[157] Savaş, A., Derebaşi, B., Gürsel Dino, İ., Sarica, S., İnan, S., Akin, Ş. (2018), p. 333.
[158] *Ibid.* p. 305.

habitants (such as, the nesting aids) should be reducing and eliminating the damage and threaths posed to architectural heritage, rather than exacerbating it.

- Remediation Based Strategies

For the selected area of polluted discontinuity, i.e., Area A, the proposed solution is a reforestation project that corresponds to the original Afforestation Programme in the original landscape programme of METU. That being said, there is a certain dilemma with afforestation in regard to natural conservation; while human-initiated forestation does remove the natural steppe species and replaces them with forest species, it also provides protection for steppe areas against the pressures of urbanization. In this regard, Area A can be approached with a mixed-method design programme [Figure 4.34] that combines: steppe conservation –in areas where perennials and herbs have already begun to reproduce, non-irrigational reforestation –strategically on urban edges and threatened patches that carry the risk of being opened to urban development, and cultural integration/art programmes –such as land art[159] (see, [Appendix D] for examples from the art initiative at Lake Eymir) or site-specific sculpture, utilized to increase the spatial value and experience of the area from human perspectives to provide augmented protection for natural conservation. These three remediation-based strategies will be used to reinstate landscape connectivity, where non-irrigational forest vegetation and art are both utilized as a form of *functional symbiosis* to ensure remediation and conservation in the area. The design act proposed here will not be instating a predetermined final form for the plan of the area, as the process of the design act should involve experts of ecology, artists, and community members. For the art programme, a call for artists can be issued by the METU Senate and the University Administration. The reforestation programme

[159] On this account, a useful example would be the land art initiative at Lake Eymir called *Let Eymir be Natural*, organized by the commission of "Eymir and The Conversation of METU Nature" within the METU Alumni Organization. Bilir, A. (2020). Doğa-Kent-Sanat İlişkisi Bağlamında Eymir Gölü'nde Arazi Sanatı Uygulamaları. Sanat ve Tasarım Dergisi, 10 (2), pp. 378-394.

can also be organized through the METU Annual Planting Festival that traditionally takes place in the spring, after the expert plan for forestation has been finalized.

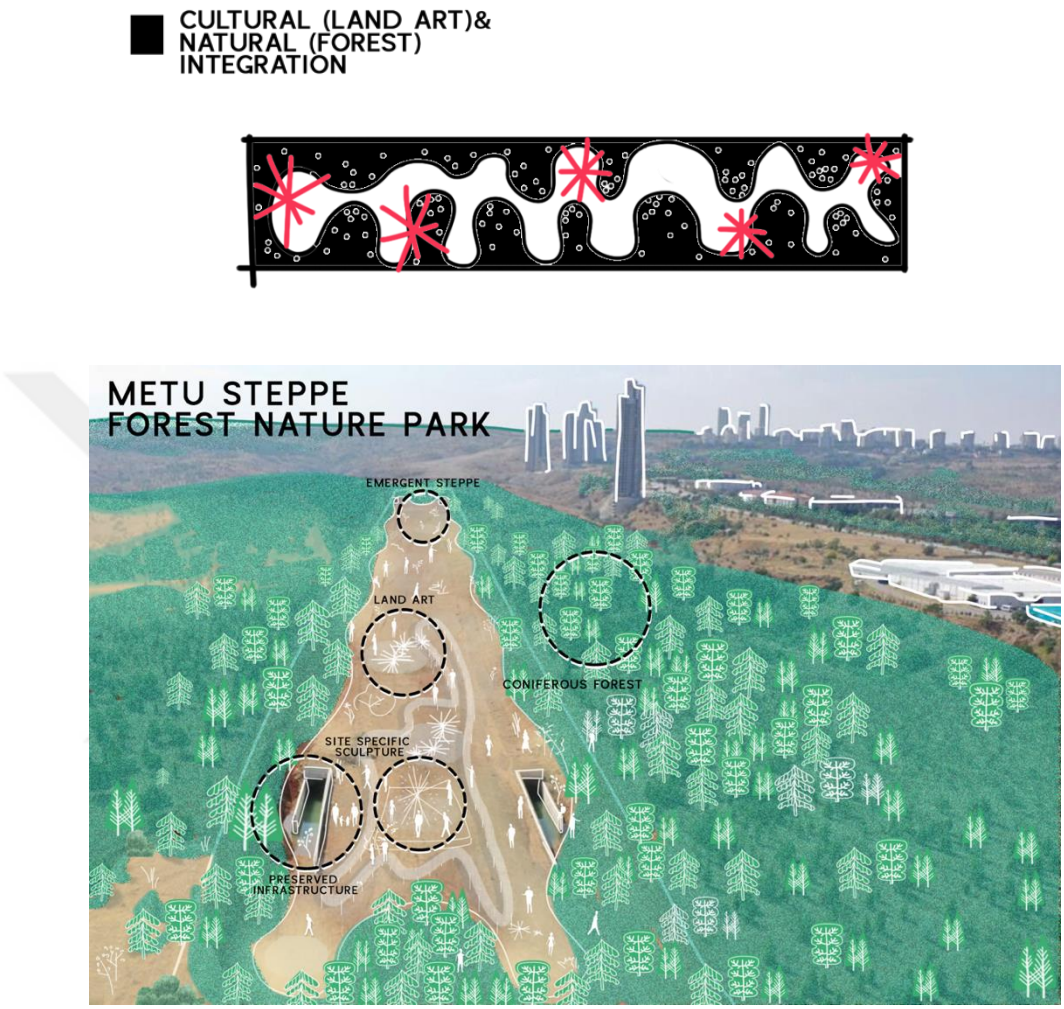


Figure 4.35 Functional symbiosis scenario at Area A.

This area of polluted discontinuity condition can thus become a Steppe Forest Natural Reserve Park by functionalizing natural and cultural elements in the symbiotic remediation of the area [Figure 4.35]. In place of the existing development plan currently debated for the area that proposes inadequate (i.e., little to no) habitat compensation through ecological corridors (in other words, two concrete bridges covered with cosmetic vegetation), the nature reserve park creates a reverse

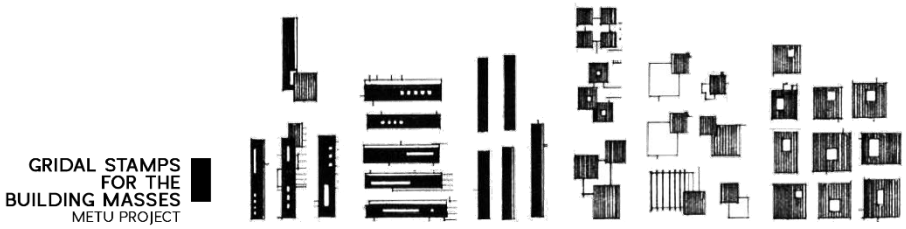
ecological corridor, where the main users of the space are nonhuman animals, plants and many creatures, and humans are given restricted and secondary access to the park.



Figure 4.36 AI Generated renders for the proposed Natural Reserve Park.

- Landscape Based Strategies

The landscape based strategies for the METU campus include measures for landscape continuity and connectivity, landscape conservation, and symbiotic approaches to landscape maintenance. The symbiotic cycles proposed for landscape maintenance such as deadwood collection, rainwater irrigation, and collective care are to be elaborated under the symbiosis based strategies category. Conservation based strategies are also closely interconnected to landscape based strategies, as the main objective of conservation for areas A and B are the plant communities on campus. Most importantly, landscape continuity and connectivity are pedestal interests for the booming cohabitation of METU communities and the 12 target species identified.



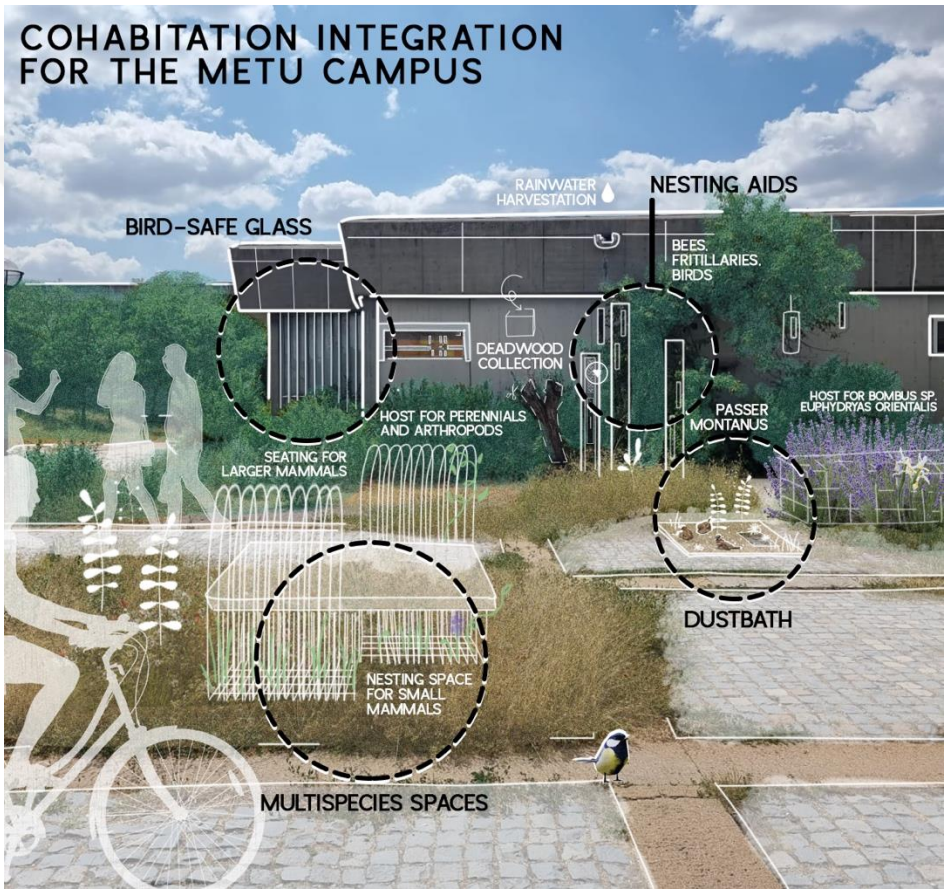


Figure 4.37 Integrated engagement scenario at Area C.

Source: Savaş et. al. (2018), p. 93, (top), and by author (bottom).

- Integration Based Strategies

Within the scope of the integration based strategies, the design act elaborated as *integrated engagement* is the primary course of action specifically in the academic and residential zone within the campus. This includes the habitat needs of METU residents expounded under section 4.3.2, primarily as: multispecies water infrastructures, nesting spaces, and refuges [Figure 4.37]. These supplementary systems can be implemented and integrated into the campus using the existing spatial organization grids used in the original project. Multispecies water infrastructures involve multispecies fountains and stormwater management/rainwater harvesting systems that can store and direct rainwater to areas of need throughout the campus. The intentional integration of green infrastructure systems over grey infrastructure systems in water management should be prioritized and established. Refuges are also partially related to this strategy; in addition to the freestanding, structural material integrated, façade integrated, roof system integrated or building programme integrated nesting spaces provided for nonhuman habitants, extreme-weather-proof nesting spaces that can offer insulation, elevated ground and water-proofing (as well as weather-proof water reservoirs) should be considered for habitants. Super adobe for the warm season, or mycelium/mycelium bricks for the wet season can be examples for material experimentation for these structural studies. The proposed designated coexistence for the dense urban zone at METU is also to involve collective care programmes that involve water, soil and mutual care programmes, as well as the symbiotic cycles of cohabitation as expounded in strategies in the next categories to follow.

- Care Programmes

For the Yalıncak area categorized under third landscape, the proposed solution involves a careful natural preservation and modes of cohabitation similar to that of the architectural community created at Floating University, Berlin. Primarily for this dense biodiversity zone, i.e., Area B, care programmes are to be the method of cohabitation through post-anthropocenic architecture [Figure 4.38]. These collective

programmes for the METU community involve –but do not need to be limited to–; hydrocare, soilcare, mutual care, and architectural care.

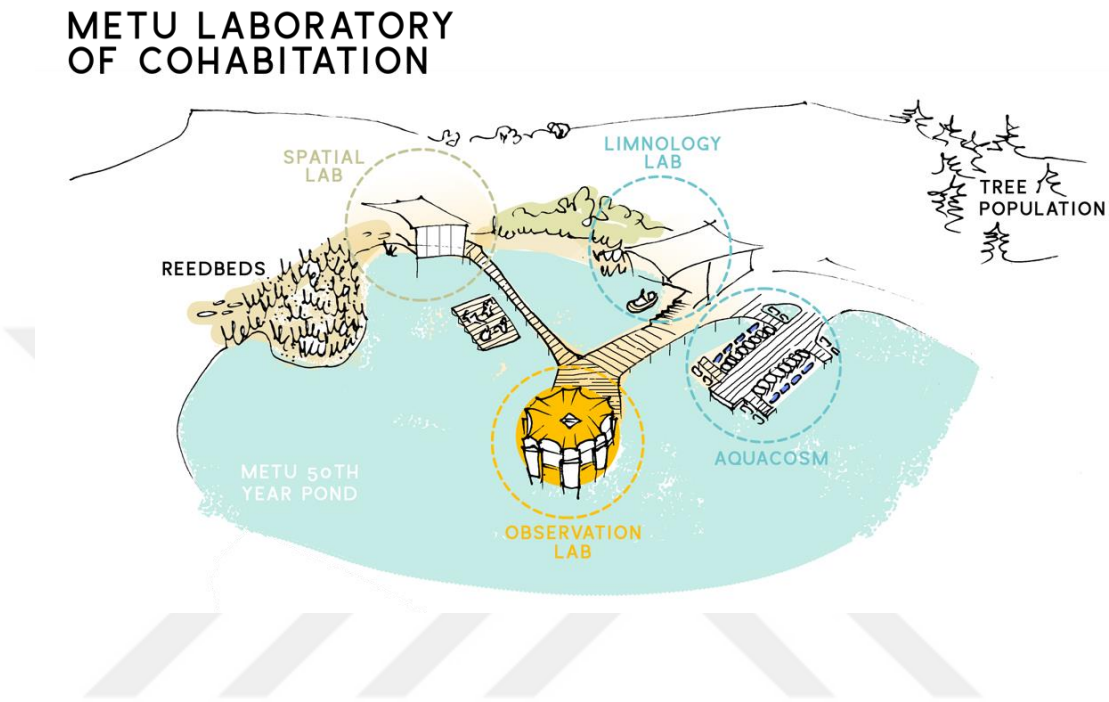


Figure 4.38 Capable architecture scenario at Area B.

The hydrocare programme can involve, wastewater treatment, greywater recycling, stormwater management and rainwater harvestation for campus areas [Figure 4.43]. Within the scope of the Initiative for Renewable Energy, Ecosystems and Sustainability (I-REES), a multidisciplinary Scientific Research Project titled "METU: Sustainable Campus" (Project No: BAP - 08 -11 - KB2014K120600-2)[160] led by Environmental Engineering faculty member Assoc. Prof. Dr. Emre Alp, has evaluated the environmental performance of METU and proposed practices and work packages related to stormwater, water, and solid waste management for the

campus. Maps showing the water infrastructure of the campus including the stormwater pipeline provided by Kiraz (with reference to the data from the METU Water and Heat Management Department) can be acquired from the scope of this project (see, [Appendix A]).[161] As a result, the project has suggested green roofs, rain barrels (i.e., stormwater harvesting), rain gardens and permeable concrete (i.e., on roads, parking lots, etc.) for METU. Some of these strategies have been applied to several buildings on the campus; at the Ayaşlı Research Center, rainwater from the roof is collected, stored in the basement, treated, and then utilized for toilet flushing and irrigating the garden through greywater recycling[162], and the Faculty of Architecture building has rainwater collection systems connecting from the gutters of the roof and the potable water dispensers in the interior space. These systems can be multiplied and programmed as common typologies for the campus. As a general strategy for water care, in place of the infrastructural treatment systems which comperatively fall on the more costly side, phytoremediation systems through landscape elements that perform biological filtration can be implemented. Prioritizing the deliberate incorporation of green infrastructure systems should take precedence over grey infrastructure systems in water management. For Area B, the water laboratories created by Floating University can easily be a framework for hydrocare as the practices conducted at the Limnology Laboratory at the METU 50th Year Pond (as well as the METU Mesocosm Systems I and II on the experimental lake less than a km far) are also transfigured in a similar nature of actively engaging with the water. Moreover, Lake Eymir is also conceived as a live lake research laboratory through periodical monitoring projects and a real-time automatic monitoring system by the *Lake Eymir High-Frequency Automatic Monitoring System* project. In addition to these laboratories that perform water quality care,

[161] Kiraz, M. (2018). *Sustainable water and stormwater management for METU Campus*. Middle East Technical University. Although in 2014, Koç finds that there is no stormwater management plan for the campus in Koç, H. E. (2014). *Environmental sustainability of university campuses: a practical assessment tool*. Middle East Technical University.

[162]

mechanisms that permeate water back into nature, and cyclic systems that consider water continuity and the water needs of other species should be the main policy of these strategies [Figure 4.43].

The soilcare programme can involve similar monitoring and analysis research on campus soil for the betterment of community habitats. Composting systems are a fundamental part of care programmes for soil that ensures the cycle of returning the organic waste produced on the campus into soil, where care for soil is practiced by decomposers and humans collectively [Figure 4.42].

The mutual care programme involves networks of care between the nonhuman habitants and human habitants by the acts of active stewardship and collective care as elaborated further under the symbiosis based strategies. Similarly, the architectural care programme can be conceived as part of the conservation plan for the architectural values of campus, carried out in collective care and continuous maintenance.

These care programmes can be established as part of the ecological education programmes that are vital in effectuating the ecological literacy of the community to increase human habitants' participation in nonhuman communities and to maintain the community awareness necessary for sustaining conservation. In this line of work, there are some existing workshops, nature tours and seminars on environmental education organized by the METU Society And Science Application And Research Center and various student societies. These educational programmes can be endorsed and encouraged by the university administration and university communities. By actively tending to the architecture, the water, the soil and nonhuman habitants through these care programmes, both the production and habitation of space becomes collective acts of cohabitation.

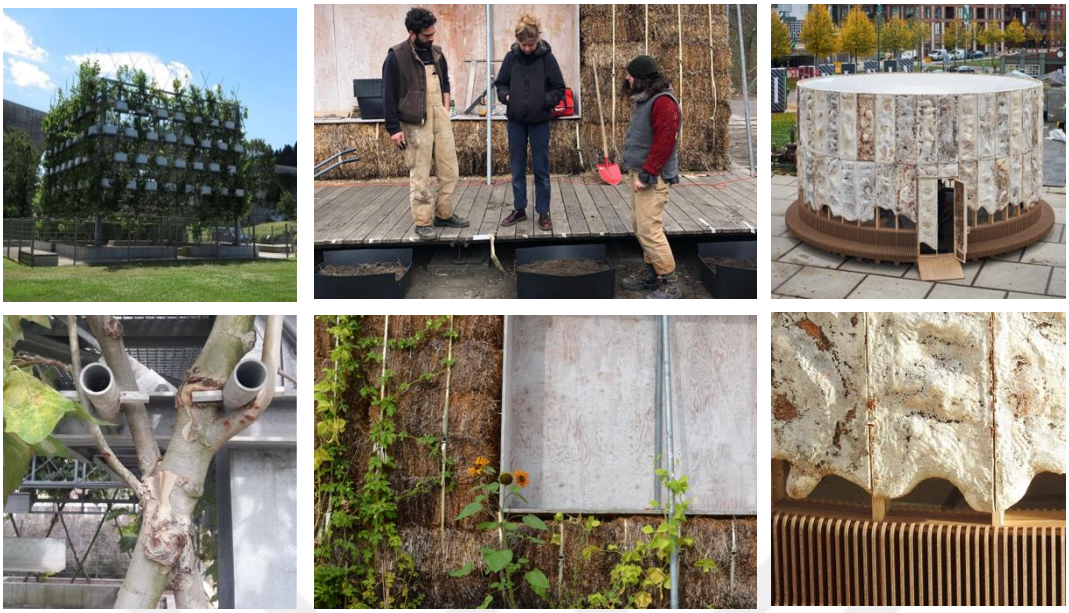


Figure 4.39 Plane Tree Cube by OLA, a long-term Baubotanik (technique of fusing trees with architecture) experiment (left row). Rewilding architecture building workshop at Floating University, where "straw walls become a meeting place for plants and fungi" (middle row). The Growing Pavilion by Pascal Leboucq and Biobased Creations, mycotecture constructed from mushroom mycelium on timber frame.

Source: *Office for Living Architecture*. Plane Tree Cube · OLA (n.d.). https://www.o-l-a.eu/project/platanenkubus-nagold/, FLOATING BERLIN. (2022). *https://floating-berlin.org/site/spatial-experiments*, The Growing Pavilion. (2022, May 30). https://thegrowingpavilion.com/

- Experimentation Labortaries

One of the most productive potentials of cohabitation as a model of post-anthropocenic architecture is to opportunity it offers in experimenting with space and spatial ontological relations to the environment. Cohabitation creates the potential for the campus of METU for spatial experimentation, material experimantation and field laboratories for observation that can enhance interspecies production. The site holds the potential to be conceived as, as Baş Bütüner defines, "an experiential

learning space or a living laboratory"[163]. Designing with and for nonhuman communities engenders a laboratory on spatial experience, permeability, depth, and scale. The campus *third landscape* can be used as a real-time spatial production laboratory for the faculty of architecture in pedagogical experimentation with participatory design and collective construction workshops. In this regard, the site can become a laboratory of cohabitation for experiments in living architecture, architecture as ecosystem or rewilding architecture [Figure 4.39, Figure 2.6], for designing together with agencies from other species, and material experimentations of architecture of diverse agencies with; earth (e.g., super adobe, adobe bricks), straw (e.g., strawbale, slip straw, cob), wood, mycelium[164], microbiomes, and the production-application potentials of other agentic biomaterials that can host other species instead of discluding them.

- Symbiosis Based Strategies

The symbiosis based strategies relate to the active participation of nonhuman habitants through the active role and agency other species play in the production of the physical environment of mutual habitats. These agencies can include pollination, production, recycling, filtration, cleaning, transformation, building or oxygenation among many others.

In the context of symbiotic cycles of cohabitation, the implementation of deadwood collection and nesting aid spots is crucial [Figure 4.40]. The deadwood, tree trimmings, dry leaves and branches emerging in the forest constitute nesting material for an important majority of nonhuman species. The outputs of the periodical processes of landscape maintenance on campus including; forest maintenance – transportation of pruned dry branches of coniferous trees and the humus layer on the

[163] Baş Bütüner, F. (2020). Kentsel doğanın (yeniden) keşfi: Berlin deneyimi. *Mimarlık Dergisi*, 38.
[164] See also, Leboucq, P. (2019). *Material Atlas*. (J. van den Berg & B. Konings, Eds.). The Growing Pavilion.

forest floor (organic debris on top of the top soil) currently collected for mulch, and the periodic green area maintenance procedures of aesthetic and functional pruning can be redirected to deadwood collection points to provide designated points for nest building material. These protected areas should have entrances with different scaled openings that will allow the entry of different species and provide security by not allowing the entry of others. In addition, permanent labels (some of which that pinpoint names and significances of tree species are in use on campus grounds) should be designed to indicate which type of habitat the point constitutes in order to provide human awareness and consciousness. These nesting aid points should be strategically positioned at the edges of open human-public spaces or at a distance from human populated zones, simultaneously providing an enhanced experience of wild nature for human habitants and allowing the proximity for human care while ensuring the prolonged safety of nonhuman habitants. Deadwood collection points and nesting aids positioned at the habitat peripheries can be implemented as permanent parts of the landscape maintenance process to perform continuous cycles of care.

Additionally, habitat compensation becomes a significant aspect of accountability, ensuring that the impact of human activities is restored through design for nonhuman habitants. To promote continuity and foster nature-experience based interactions between species, the landscape strategy should encourage collective care by the incorporation of the already existing fruit-bearing species at campus such as oriental hawthorne, almond, wild pear, dog rose, or crab apple as urban community gardens [Figure 4.41]. The METU Orchard (ODTÜ Bostanı), initiated back in 2015 in campus on the METU Dormitories Area through collaboration with the Buğday Association, stands as a living model of ecological urban gardening, consistently yielding collective production since its inception. The community garden programme at the university orchard includes composting, seed collecting, seedling and seed planting festivals, nature walks, workshops and ecological agriculture courses organized by the student club [Figure 4.42]. These initiatives should be

promoted and expanded in larger scales and larger community participation as a mode of post-anthropocenic multispecies care for the campus.

Creating a combination of interspecies contact spaces, and zero human interaction spaces further facilitates harmonious habitats, while optimizing human circulation and minimizing human imprint on the habitats for species that need low human disturbance to ensure the healthy and sustained coexistence of diverse species within the METU ecosystem.



Figure 4.40 Cyclic process of cohabitation, demonstrating most common flora species found in the METU Campus. The maintenance of the landscape is used to generate nesting aids for small mammals and other species.



Figure 4.41 Cyclic process of cohabitation, involving the collective care programme for campus flora.



Figure 4.42 Cyclic process of cohabitation, demonstrating the collective care programme for soil.

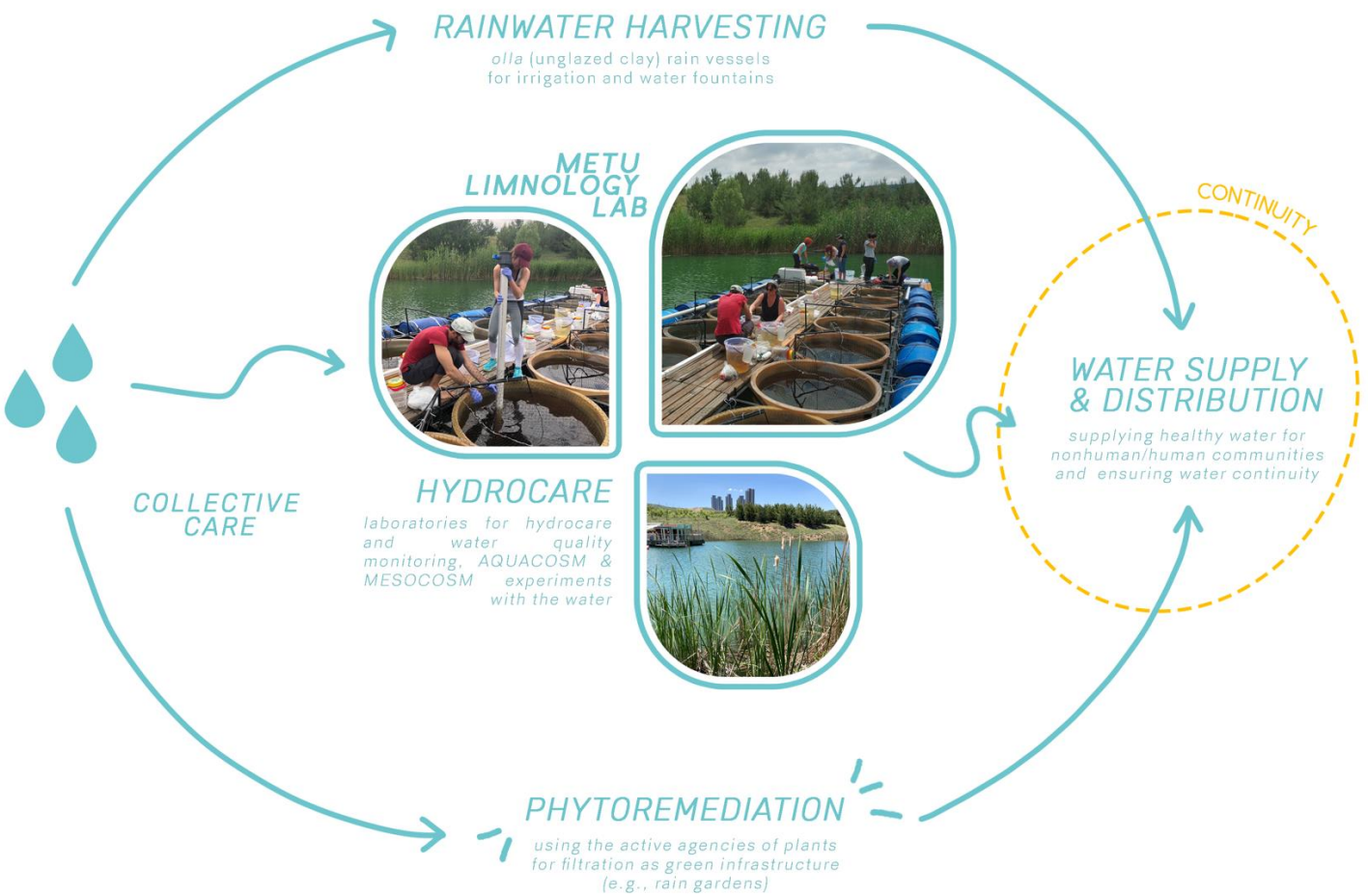


Figure 4.43 Cyclic process of cohabitation, demonstrating the collective care practices for the hydrocare programme.

CHAPTER 5

CONCLUSION

In a human-governed era marked by unprecedented ecological change, climate-change ecology and a consequent, profound, reevaluation of humanity's place within the earth we inhabit, post-anthropocenic discourse in architecture emerges as a transformative call to redefine the very essence of architectural practice. Within this milieu, by stitching together the realms of nature and culture through strategic negotiations between natural and artificial systems, cohabitation outlines an untrod path towards a harmony of coexistence.

By defining the immanent agency of architecture within extensive networks of other agencies, and by delineating cities directly as nature, as dynamic ecological systems within nature, architecture is no longer defined as a human-exclusive affair. The possibility of recognizing nonhuman place-making as processes of architecture, and the propulsion from designing *for* nonhuman citizens to designing *with* them, institute an entirely new paradigm for an entirely new era of architecture.

The political nuances of this notion, cohabitation, as a theoretical framework necessitate more egalitarian –democratic as we make of it, but cosmocratic in very deed– space-production practices for human urbanism. Ecological egalitarianism proceeds by challenging humanity to transcend modernist norms and to overthrow hierarchical power structures embedded within human systems, reinvigorating the essence of public space, and delegating architecture to reshape our shared futures and habitats in collective collaboration with other species previously marginalized and excluded from human systems.

Through tangible case studies, each of which have culminated in diverse and heterogenous forms of coexistence, not same as the other, cohabitation takes form as the embodiment of continuity, collectivity, adaptability, and accountability as

fundamental commonalities. From functional symbiosis to capable architecture and integrated engagement, these acts cultivate continuous, collective, adaptive, and accountable space making for future architectural realities. This framework of architecture primarily generates the necessary space for emergent forms and emergent agencies. By acknowledging the immanent agency of architecture within the intricate web of systems, and by recognizing cities as the dynamic habitats that they are, intimately entwined with other natural systems, the very fabric of architectural discourse is rewoven in the uncharted territories of post-anthropocenic architecture.

The application of the cohabitation model of architecture to the METU Campus in this sense serves as a laboratory for the transformative power of interspecies architectures. METU is a perfect research site for this argument in many aspects; the urban development pressures and construction plans involving the site is a highly up-to-date, polemical and heated subject, in addition, the fact that the site has been studied exhaustively with a rich database available on the campus ecology, by itself fulfills the multidisciplinary condition of the study, evolving it into a study of data processing. Furthermore, within the context of METU as a habitat, a distinctive and potent sense of community which surpasses human agencies is seen to have organically formed on the site. These conditions were effective and lucrative in the selection of METU for the research-by-design conduct operated through this thesis. Through the project, these emergent forms of coexistence are made deliberate and sustained through the programme of architecture as collective care. The campus hence evolves into a living hub of mutual agencies, where the coexistence of species, ecologies, and possibilities is vividly experienced through systems in perpetual flux. This manifestation provides a blueprint for a future of architecture as a conduit for

life, making space-making into a practice of interaction-making[165] through the medium of place.

From a practical point of view, the proposals and design strategies produced by this thesis can inform and shape future spatial strategy plans for METU in the years to come. Additionally, the selection of urban fields and related design acts introduced with this thesis can be expanded, and conglomerated in an open repository of knowledge transfer for nonhuman urbanism, functioning as a database framework for future design and research practices in post-anthropocenic architecture. For future studies and future expansions of this research, the research on the mediation with artificial systems can be flourished more for more productive outcomes.

This thesis argues that current perspectives in our ecologically informed design practices, including the most progressive ecology-based design theorizations such as ecological urbanism that proposes small-scale acupunctural interventions[166], as opposed to a factual radical approach that calls for a disciplinary paradigm shift in architecture, once again seem to favor a quantitative, technocratic, and bureaucratic objective rather than a qualitative one for ecological welfare. This thesis propounds, that the shift absolutely necessitates radical thinking and radical action as demonstrated by the case studies analyzed, and it necessitates a complete reformation of our ethos for a healthy, safe and sustainable environment to be realistically attainable at any point in the future of the planet. Cohabitation as a project for post-anthropocenic architecture propounds a shifted trajectory for architecture and urban practices, and contends that we critically strategize for an urban symbiosis of "compossibility. If we are to define cohabitation as the shared condition of coexistence par excellence—with the incentive of effectively and democratically sharing place, then the capacities of *sharing* and *care* via architectural space can be

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[165] Alternately *intra-action*-making. Barad, K. M. (2007). *Meeting The Universe Halfway: Quantum Physics and The Entanglement of Matter and Meaning.* Duke University Press.
[166] Mostafavi, M.; Doherty G. & Harvard University. (2010). *Ecological urbanism*. Lars Müller.

organized and developed through architecture, which reformulates the discipline of architecture altogether as a strategy of existence. In closing, the journey of this thesis redefines not only architecture's purpose and position, but also the narrative of our collective future. Cohabitation stands as an embodiment of equality for all existence, and a testament to the profound change that is possible through the catalysis of architecture.

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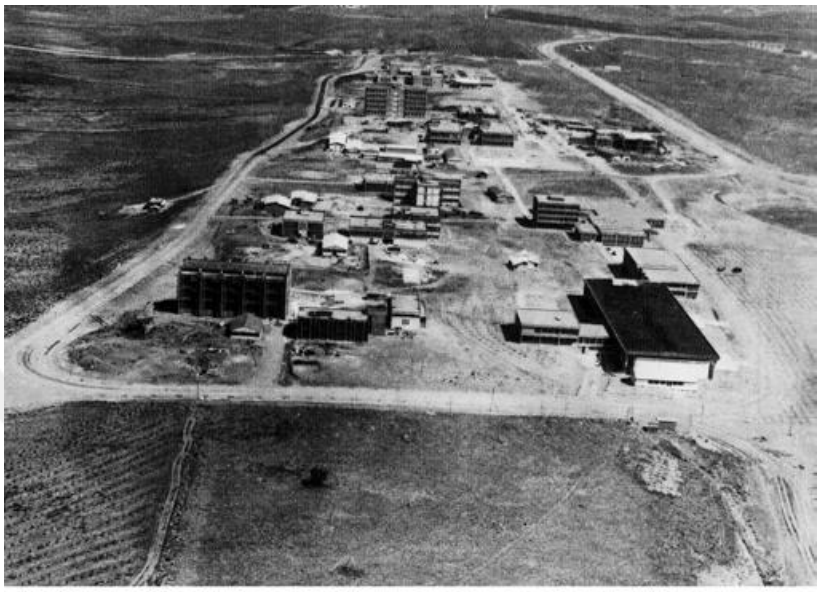
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APPENDICES

A. The METU Campus



General view from the built environment of the campus in **1964**



... in **1987**

Re-Forestation Programme of METU, Ankara, Turkey

Reforestation Programme at METU, 1987. Aga Khan Trust for Culture.

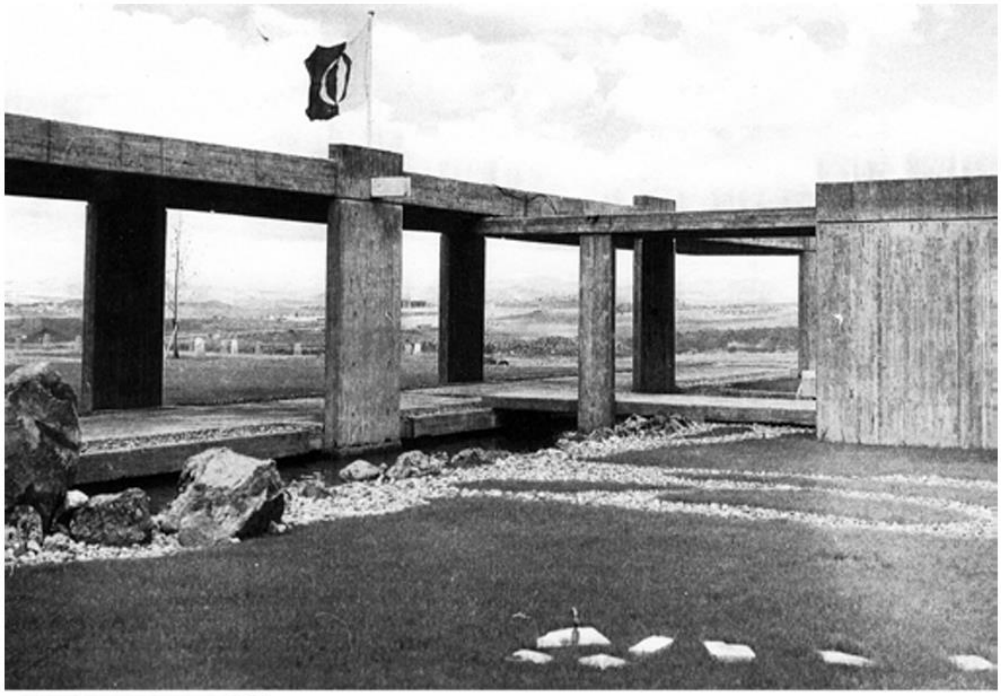


Electrical Engineering Dep. in **1970**

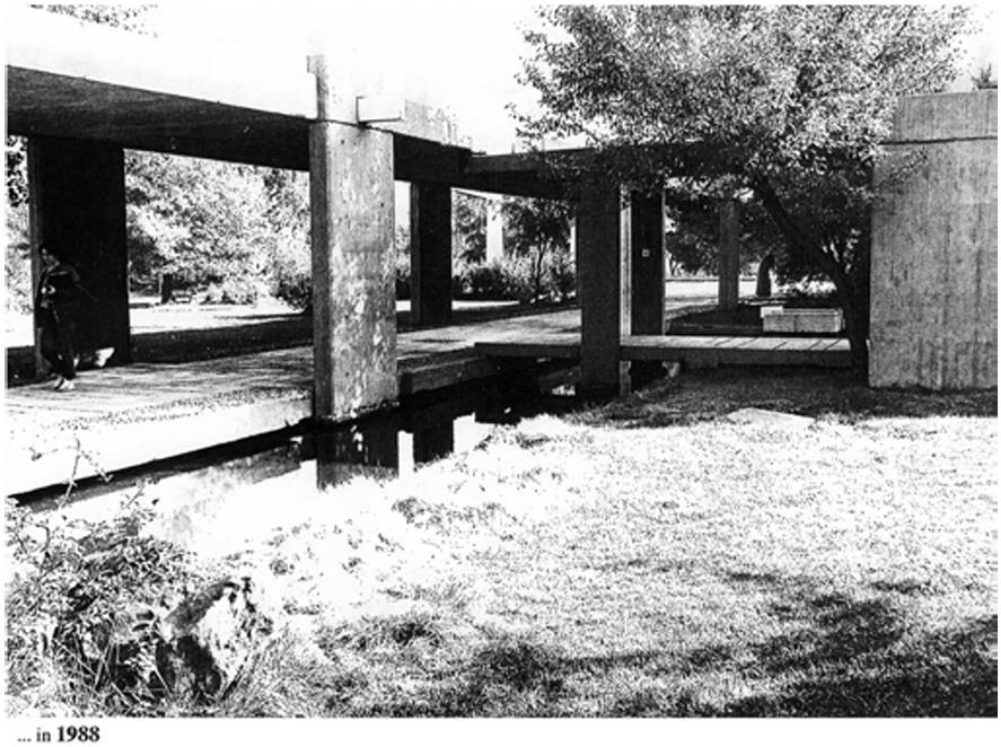


... in **1988**

Reforestation Programme at METU, 1987. Aga Khan Trust for Culture.

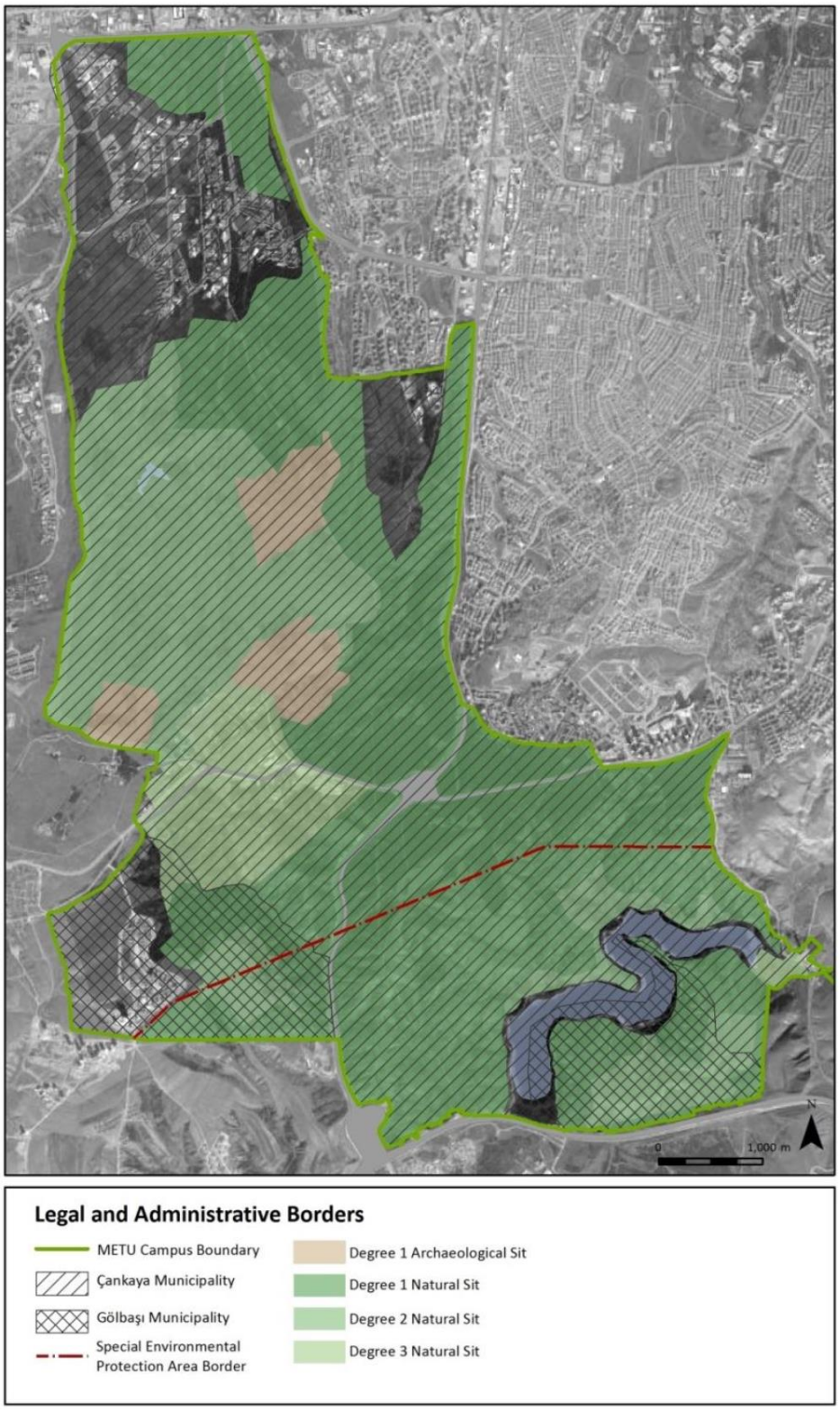


Faculty of Architecture in **1966**

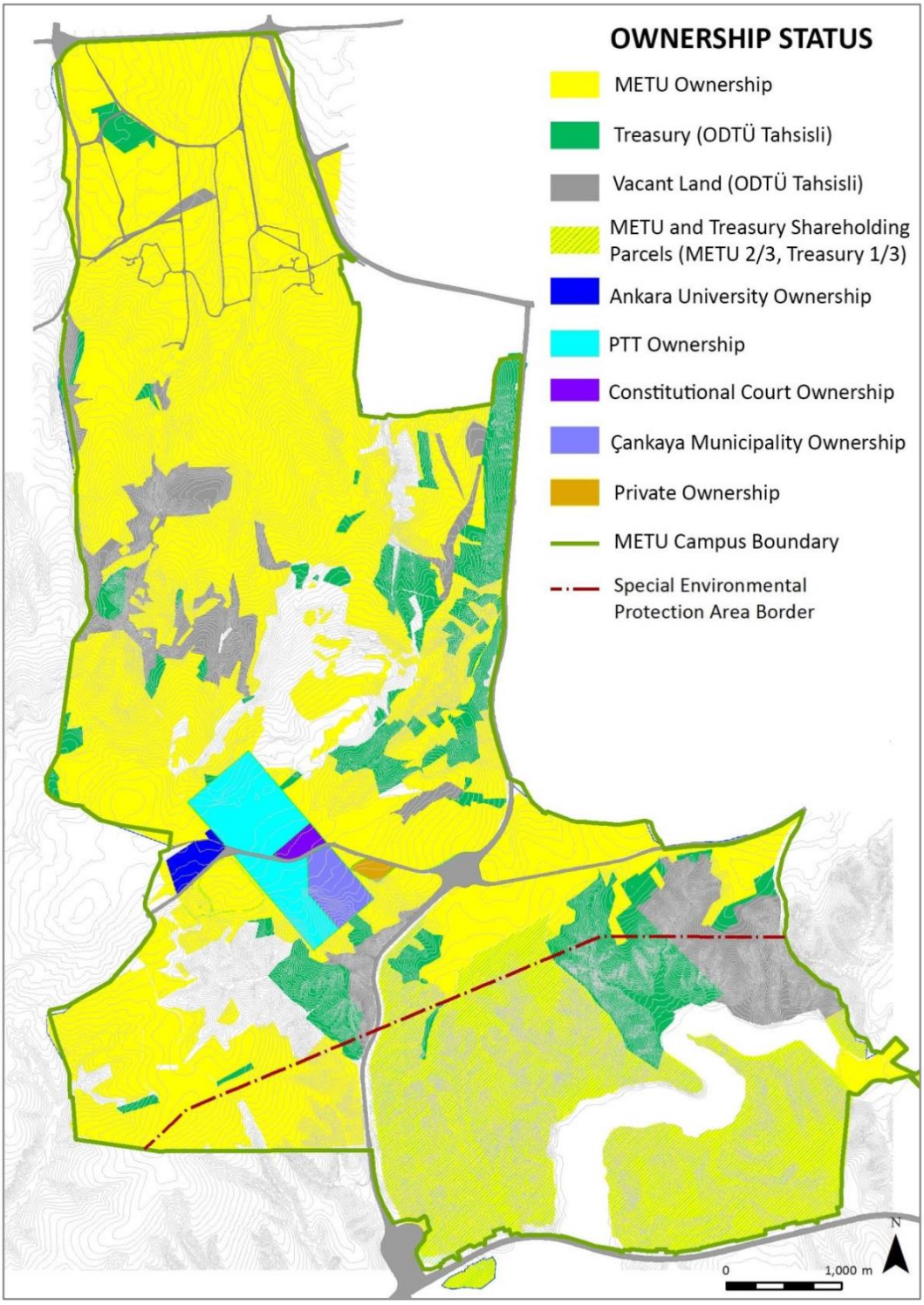


... in **1988**

Reforestation Programme at METU, 1987. Aga Khan Trust for Culture.



Legal and Administrative Borders of the METU Campus. Akman (2016), p. 50.

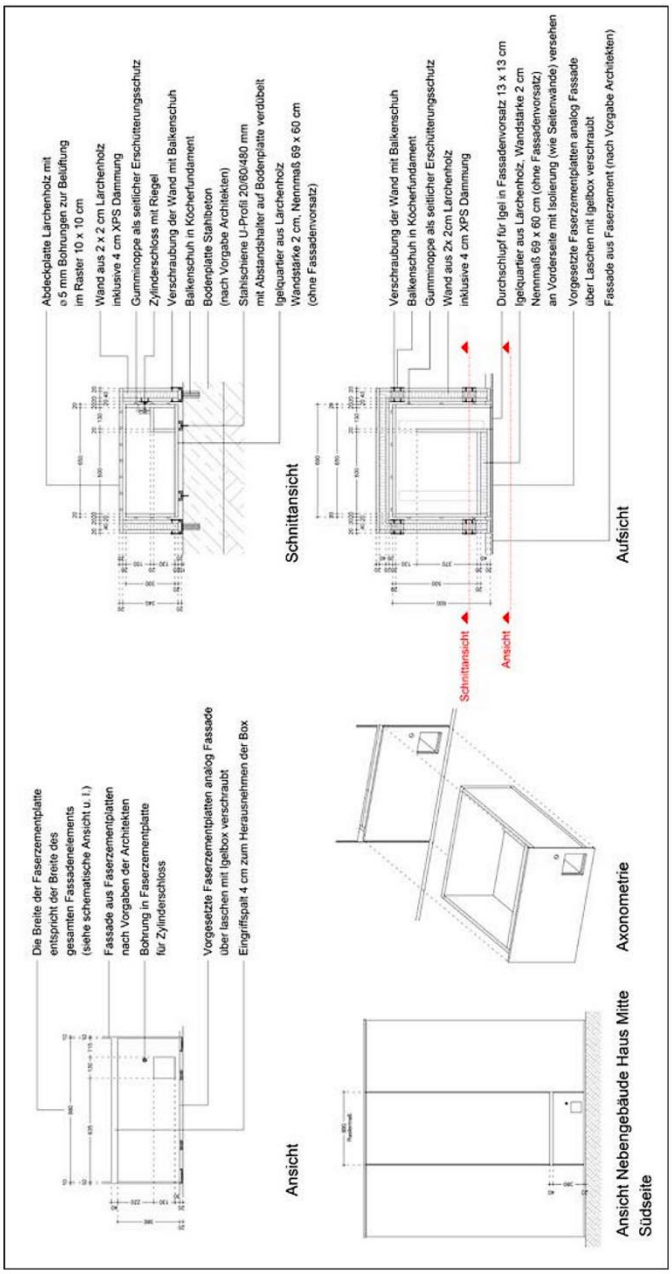


Ownership status of the METU Campus. Akman (2016), p. 51.

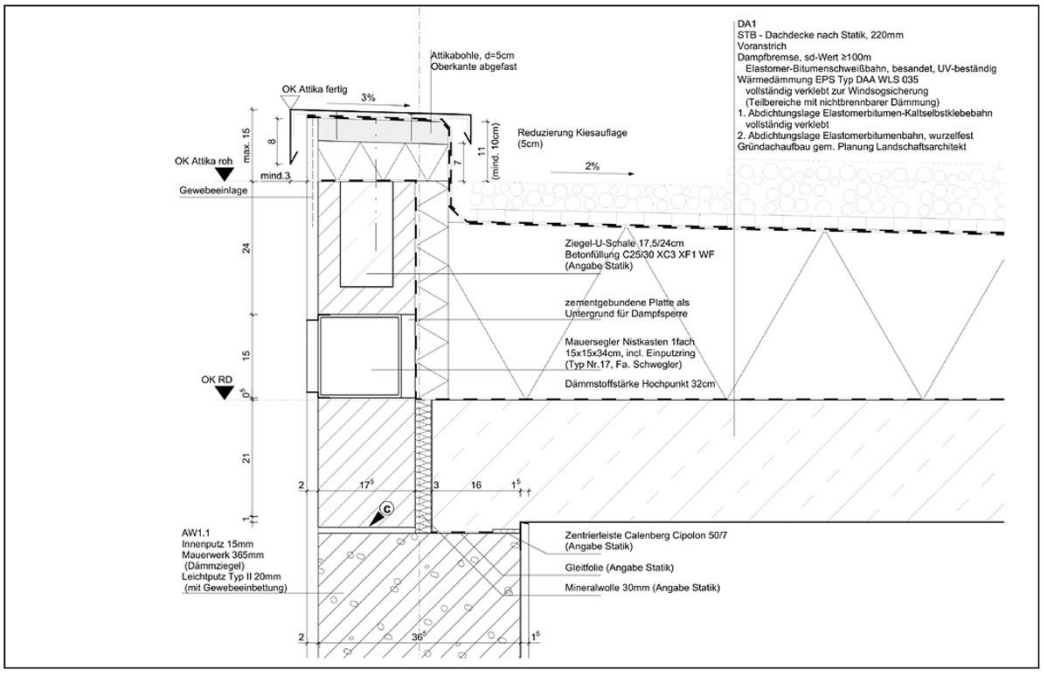


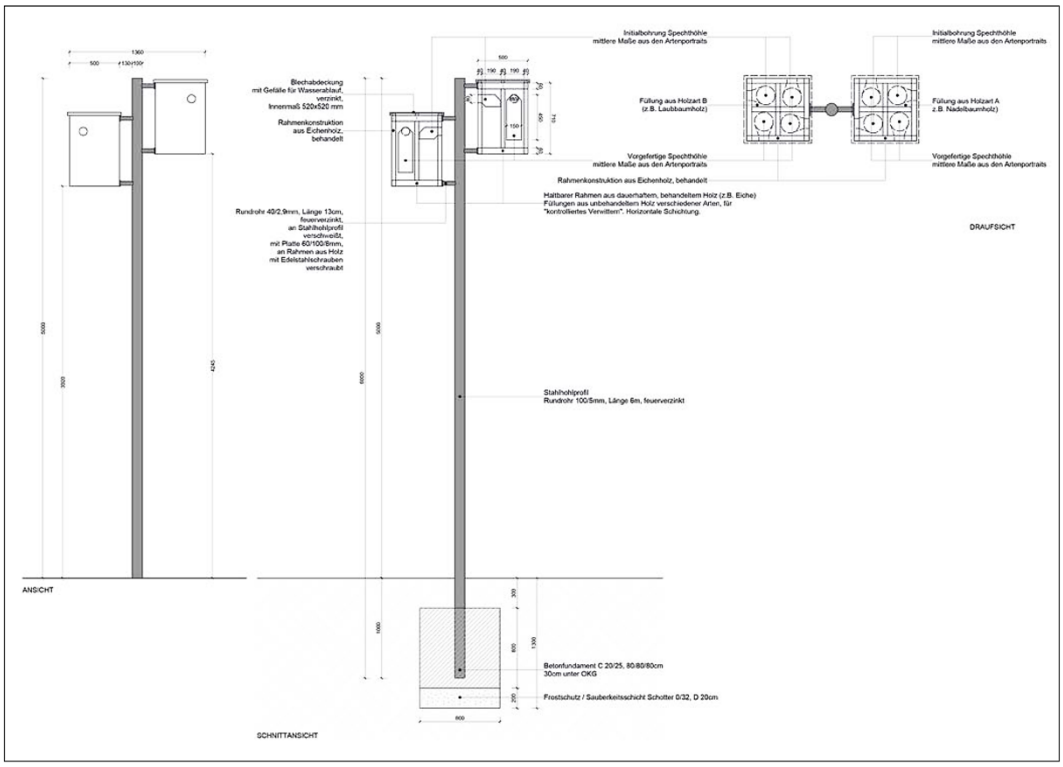
Stormwater and Sewer Pipeline Maps of the METU Campus. Kiraz (2018), p. 162.

B. Technical Detail Drawings by AAD



Hedgehog nesting aid drawer by AAD. Hauck, et. al. (2023), p. 36.





Bird nesting aids by AAD. Hauck, et. al. (2023), p. 22-35.

C. Avian Architecture Blueprints

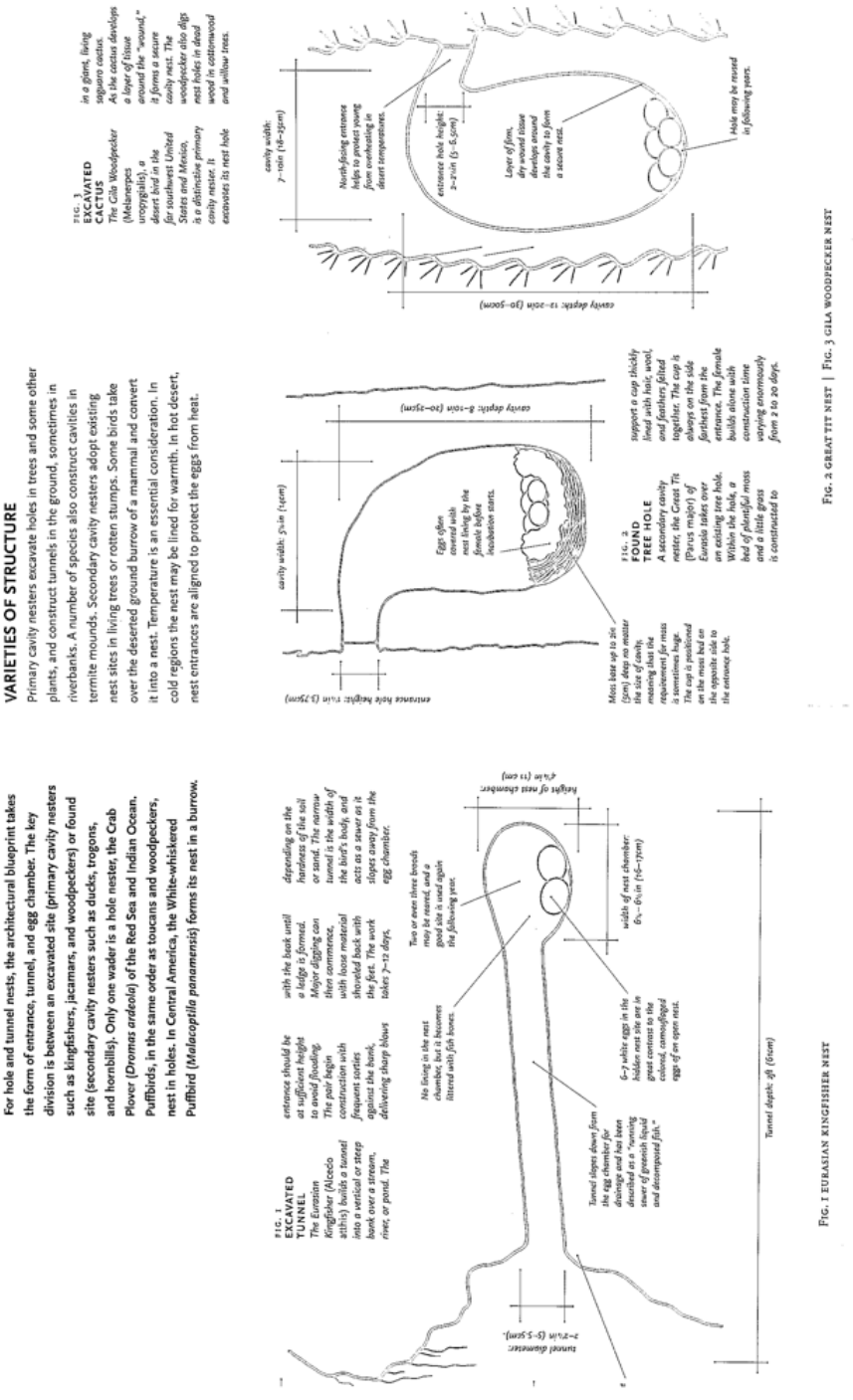


FIG. 1 EURASIAN KINGFISHER NEST

Bird nest blueprints, "Hole and Tunnel Nests". Goodfellow (2011), pp. 24-25.

The basic blueprint for the domed nest is a cup nest that is extended and enclosed. However, domed nests vary greatly in size and appearance—from a small sphere to the Hamerkop's (*Scopus umbretta*) enormous construction. Families that construct domed nests include the magpies, wood warblers, leaf warblers, wrens, scrub birds, castle builders, some swifts, and dippers. The Long-tailed Tit (*Aegithalos caudatus*) creates one of the most skillfully constructed dome nests; it is oval with a round entrance, and is attached using spider silk and the impressive Velcro technique (see pages 76–77).

VARIETIES OF STRUCTURE

The dome may be an extension of sticks over the cup, as in the Common Magpie's nest; a sphere of grass and feathers, as built by the Common Chiffchaff (*Phylloscopus collybita*); or an untidy dome of thorny twigs, as formed by the Verdin (*Auriparus flaviceps*). A typical leaf warbler's nest is built by the migrant Wood Warbler (*Phylloscopus sibilatrix*). As shown on page 71, it creates a slight depression in the ground and builds a completely domed nest. Some species use lavish amounts of lining materials.

FIG. 1 COMMON MAGPIE NEST

FIG. 2 COMMON CHIFFCHAFF NEST | FIG. 3 VERDIN NEST

Bird nest blueprints, "Domed Nests". Goodfellow (2011), pp. 72-73.

The architectural blueprint for a scrape nest includes the shallow indentation on a ground site; precise depth to achieve optimal egg temperature; simple lining materials; and strong camouflage features. Species with scrape nests include game birds (pheasants, grouse, partridges); ducks; waders (shore-nesting plovers); the Short-eared Owl (*Asio flammeus*); and, the Ostrich (*Struthio camelus*).

VARIETIES OF STRUCTURE

Sites include open ground, boggy ground hidden by growing vegetation, and slightly elevated platforms. The Short-eared Owl makes a scrape in heather moors, tall grass, dead reeds, and marram grass on dunes. Scrapes are sometimes lined with materials including plant stems, leaves, grass, shell fragments, and pebbles. Eggs may be camouflaged or buried for protection.

FIG. 1
ELEVATED SCRAPE
Across Europe and Asia, the male Northern Lapwing (Vanellus vanellus) makes scrapes in open country in dunes, stubble, rough pasture, grassy moors, or damp riverside meadows. A number of scrapes may be constructed over several days, during which time the orange under-tail coverts of the rotating male are conspicuous. The female chooses one scrape, which is enlarged by both birds and lined with a variable amount of plant stems and leaves. The scrape is usually built on a slight elevation, which gives the incubating bird a good view of any approaching danger.

FIG. 2
HIDDEN SCRAPE
The Arctic-breeding Red-necked Phalarope (Phalaropus lobatus) constructs a scrape on boggy or marshy ground by pools or water-filled ditches. The nest becomes more hidden as the vegetation grows. Both sexes make several scrapes together, one of which is chosen by the female. The cup-shaped depression is lined with leaves, dry grasses, and growing stems pulled over into the depression. After laying the eggs, the female has nothing more to do with the family. The male incubates the four well-camouflaged eggs and cares for the chicks.

FIG. 3
OPEN SCRAPE
The Snowy Plover (Charadrius alexandrinus) breeds on five continents but is declining wherever there is human disturbance. It nests on open gravel, sand, or dry mud by the sea, lagoons, or riversides. The male makes several scrapes from which the female chooses one. The shallow scrape may then be lined with shell fragments, bits of vegetation, and small pebbles. In sand, the eggs may be half or almost wholly buried, with points downward.

FIG. 1 NORTHERN LAPWING NEST

FIG. 2 RED-NECKED PHALAROPE NEST | FIG. 3 SNOWY PLOVER NEST

Bird nest blueprints, “Scrape Nests”. Goodfellow (2011), pp. 12-13.

D. Land Art Applications at Lake Eymir



"Saklı Yaşam", yaprak sapları, yaklaşık 100x150 cm.



"Yaprak Ve Suyun Dansı", Yapraklar, Uzunluk 5-6 metre.



"Geçit", 300x50 cm.



"Yaşam Sarmalı",150x80 cm.



"Arayış…", 7-8 m.



"Yaşama Tutkusu", çam kozalakları



"Şölen", Çam kozalakları, Çap 200 cm.



"Döngü", Kurumuş yapraklar, Çap 300 cm.

The *"Let Eymir be Natural"* initiative land art applications at Eymir. Figures 10-20 from Bilir, (2020).