



The

ODD  
friends

PROJECT

by: Ailin Leonor Sandlien



# con tent



01 Intro



02 Otherness



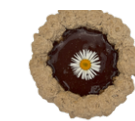
03 The lab



04 The land



05 The Odd friends



06 Recipies



01

# Intro



“The Odd friends” is a speculative art project about relating with the Otherness through biofabrication.

The core of it, is to explore caring and conscious ways to approach the unfamiliar through sculptures crafted with natural matter gathered from unknown territory mixed up with my familiar lab materials. The idea behind these sculptures is to serve as intermediaries in an artistic process that fosters a deeper and loving connection with the concept of otherness.

Through this work I explore the idea of otherness by engaging with unfamiliar territories and its matter, where I, as an artist, encounter and transform the ‘Other’ through biofabrication.

The process begins by immersing myself in unknown environments and collecting natural materials that represent the unfamiliar. Through the creation of handmade sculptures, these materials are transformed and blended with my own craft, serving as intermediaries that bridge the gap between self and other

.

The sculptures represent a dialectic process of transformation, where the alien is not conquered but engaged with and understood.

As I interact with the materials, I develop a deeper connection with the unfamiliar, moving beyond mere recognition to a reconciliation where self and other become intertwined.

# personal conection

This project stems from my personal experience of being in a foreign country and the need to find an authentic way to connect with my surroundings. As an artist and craftswoman, I am seeking to establish a deep relationship with the territory and its materials, overcoming the barriers of unfamiliarity. The "Odd Friends" are a way of connecting with what is different, both physically and emotionally, transforming the strange into something close and understandable. Through this process, I am creating a dialogue with the nature and culture around me, while reconciling my artistic identity in a new context.





# otherness

In Hegelian terms Otherness can be understood as what is different, alien, or unfamiliar. Yet this difference is a necessary counterpart in the process of self-recognition. In other words, self-awareness is only achieved through the encounter with what is different (the otherness).

The most common human reaction to the unknown is fear, reluctance, rejection. Alongside fear, there is an innate curiosity that drives humans to explore the unknown, but sometimes this curiosity is coupled with a tendency to control or dominate what is perceived as unfamiliar or threatening.

What if we found a different way to relate to the unknown, one that embraces curiosity and connection instead of fear and control?

## The Encounter with Otherness:

For this project the subject that embodies "the other" are the forest of Viscaya and my way to start relating is by exploring, collecting and then biofabricating.

As I immerse myself in the foreign land and gather materials from that environment the dialectic of recognition begins.

## Reciprocal transformation:

What happens during the encounter with the other? In the process of biofabrication, the unfamiliar matter is transformed, mixed with familiar materials, and through this interaction, the alien is assimilated and reconfigured into something that I can begin to understand and relate to. As fabrication goes on, a reciprocal transformation begins silently, where the boundaries between self and other begin to blur.

03

the

LAND

## EXPLORE & COLLECT

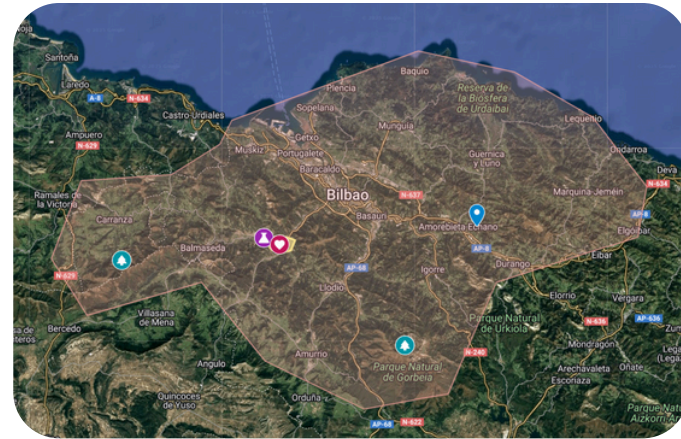
This is the first stage of the process; I immerse myself in an unfamiliar territory, exploring its natural surroundings to gather raw materials.

This process is both physical and emotional, as I engage with the landscape and its elements. By collecting natural matter, I begin to interact with the "Other".

The focus is on the initial experience of discovery, where curiosity and respect guide my exploration.







## TERRITORY DATA & main characters

sheep  
fungus  
trees

I explored the Humid forests of Bizkaia, focusing on the Hayeros de Balgerri & Otzarreta which are ancient and native forests. Their main characteristics are high levels of humidity, frequent rainfall generating rich biodiversity.

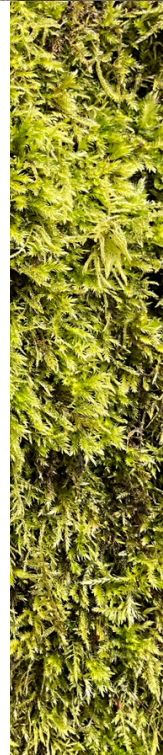
- Dominant Trees: Beech (*Fagus sylvatica*), Oak (*Quercus robur*, *Quercus petraea*), Chestnut (*Castanea sativa*), and some Eucalyptus (*Eucalyptus globulus*).
- Understory Plants: Ferns, mosses, and shrubs such as holly (*Ilex aquifolium*).
- Ground Cover: Thick layers of decomposing leaves and organic matter, creating fertile soil for new growth.
- Fungal Life: Mycorrhizal Fungi (which form symbiotic relationships with trees) like *Boletus edulis* and *Amanita muscaria*. Saprophytic Fungi (decomposers of dead wood and organic matter) such as *Ganoderma lucidum* and *Trametes versicolor*.





# COLLECT

Collecting involves gathering main matter for bio-fabrication but also elements for textures, shape and color inspiration. There is also a digital collect, done with the Policam 3d scanner app, mainly for shapes to create bodies.





# main MATTER



White tree PULP: its pre-decomposed by white rot fungus, which naturally breaks down lignin – the same step the paper industry achieves chemically. This biological process softens the plant fibers, making them easier to work with for papermaking.



Green Tree PULP: decomposed by *Chlorociboria aeruginascens* which produces a blue-green pigment called xylindein, which seeps into the wood fibers and stains them from within => while the fungus digests the pulp, it also dyes it, leaving behind beautifully pigmented, partially decomposed material

Raw wool: Latxa (local breed) raw wool is coarse, durable, and rich in lanolin, making it ideal for insulation and biotextiles => although I didn't gather it myself; the lab where I've been working (Basque Biodesign Centre) collects it from local farmers as it's considered waste material.



Eucalypto's bark: contains natural tannins and pigments that can be extracted to dye fabrics in earthy tones, ranging from soft pinks and browns to deep rusts.

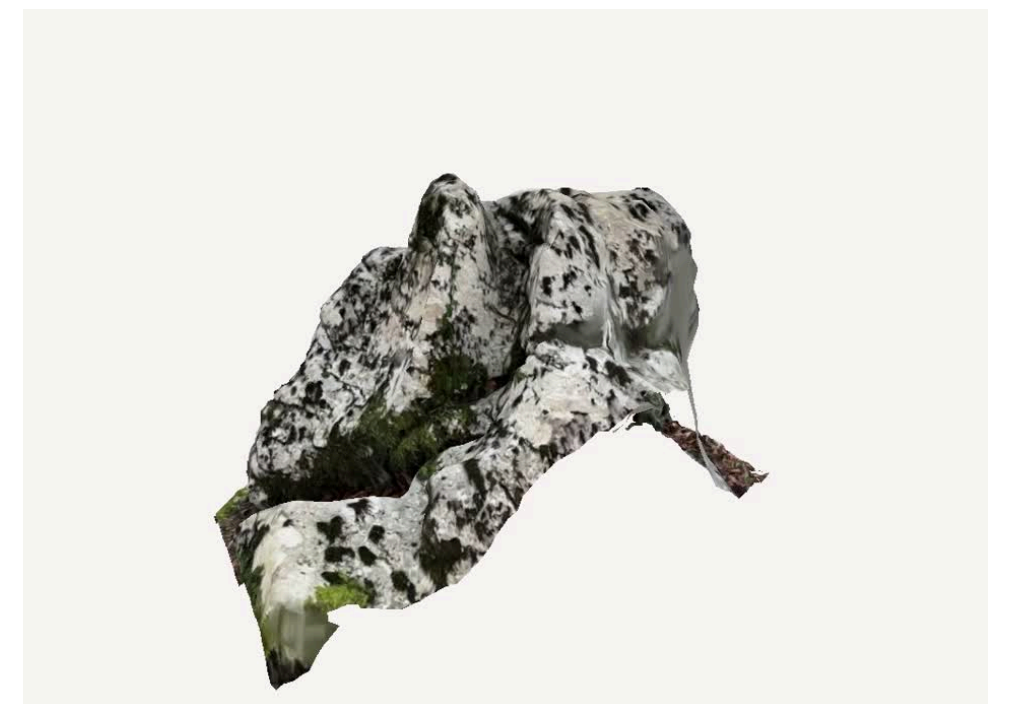
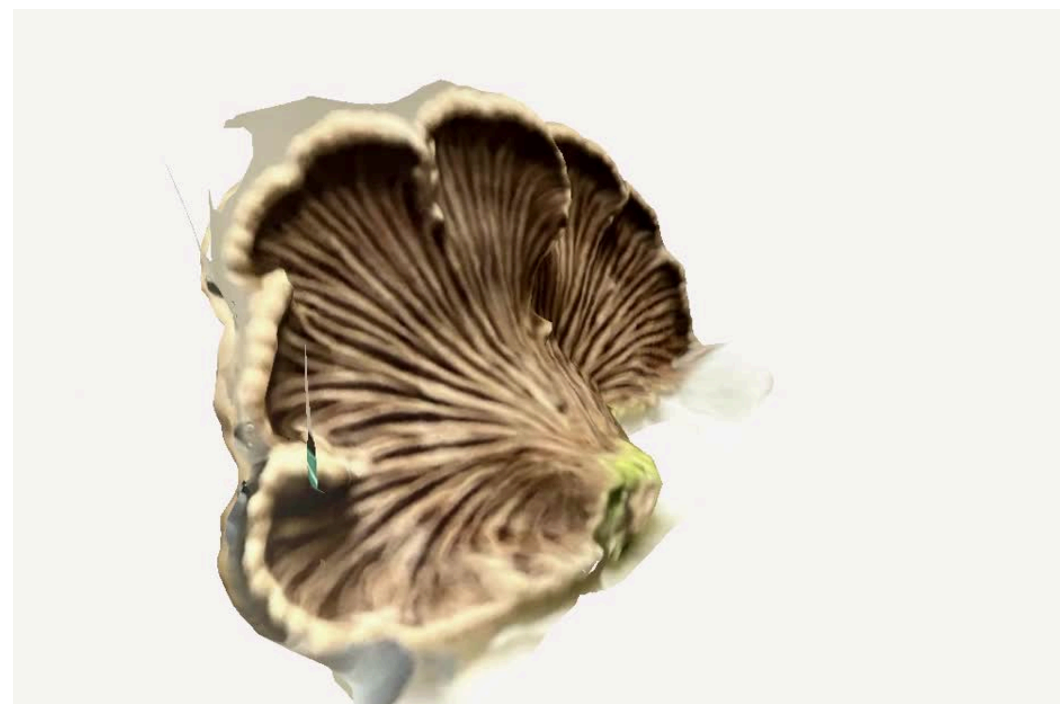
Clay: has binding, plastic, and mineral-rich properties that make it an ideal base for biomaterials. It holds moisture, shapes easily, and hardens when dried or fired. When combined with organic fibers or biopolymers, clay can create strong, breathable, and compostable composites





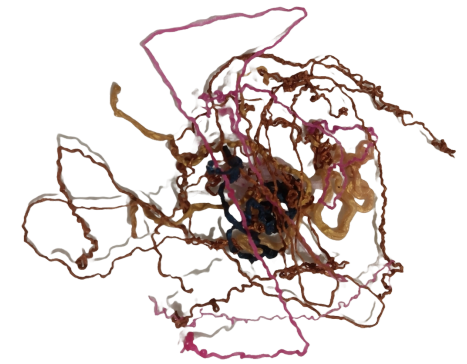
# DIGITAL collect

These are the digital collects that were scanned mainly for shape. I used the Policam 3D Scanner which captures high-resolution 3D surface data using structured light or photogrammetry, creating precise digital models for analysis, design, or replication.



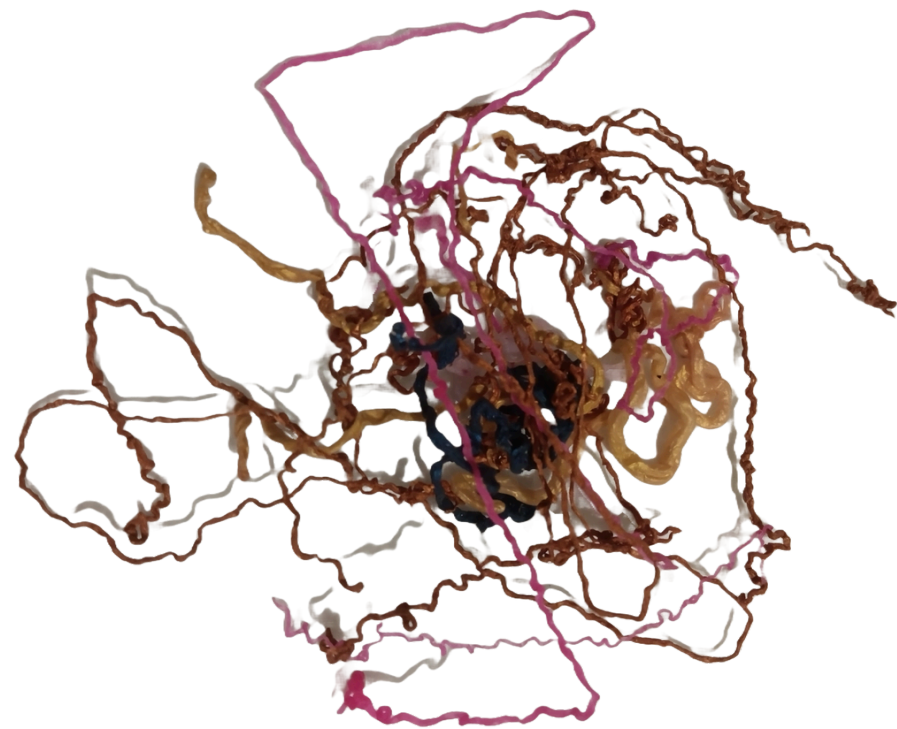
04

# the LAB



## DESIGN & BIO-FABRICATION

“As fabrication goes on,  
a reciprocal transformation begins silently,  
where the boundaries between self and other begin to blur”

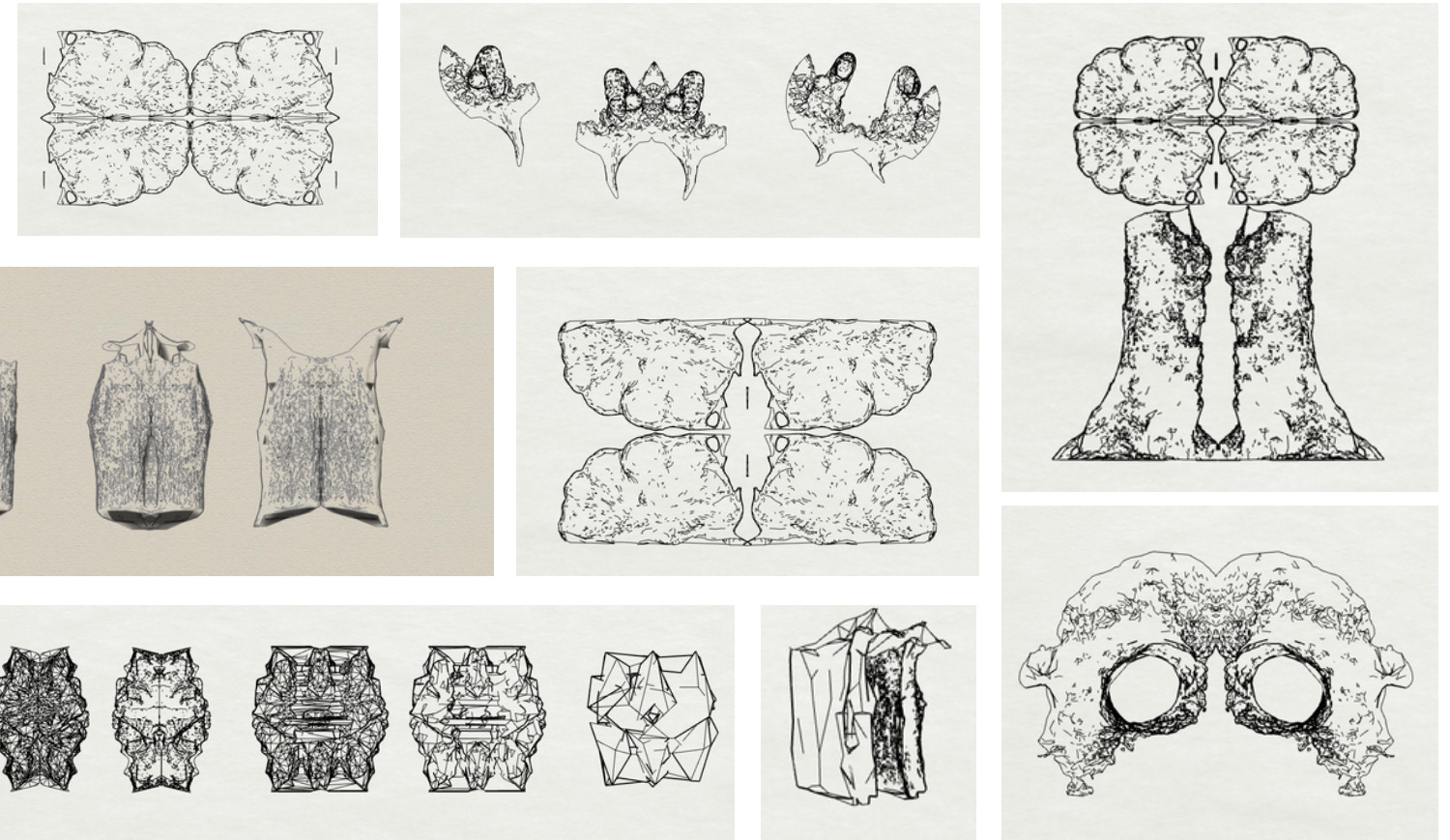


The second stage takes place in the lab (at the Basque Biodesign center) where I experiment with the collected raw materials through processes of design and biofabrication. Biofabrication allows me to bring the land and nature into my familiar space. Natural matter is transformed using techniques like molding, dyeing, and material blending to develop the forms and textures of the final sculptural piece



# PLAYING WITH DIGITAL DESIGN

RHINO



I used the bodies from the digital collect and started to play with shapes and forms with Rhino to have a general idea of how the "Odd friends" could be. Combining it with pictures and making collage helped the purpose.





# BIO FABRICATION

Same as with digital design, in fabrication I started to do a general research of what materials could be elaborated with the matter gathered at the woods.





# tree PULP

It is made by fungus that decompose wood by breaking down lignin and cellulose (main structural components of plant cells).  
=> White rot fungi, in particular, digest lignin, leaving behind softened cellulose fibers -> turning wood into a natural pulp.

This biological process mirrors the paper industry, which chemically removes lignin to produce clean pulp => using this pre-decomposed fungal pulp, the papermaking process is shortened, as much of the breakdown work is already done naturally

Possible materials that can be fabricated are a bio-mass similar to papier maché, handmade paper and a composite.





# bio MASS

The bio-mass you can obtain with the tree pulp is similar to papier-maché, but without using plastic glue. Instead I prepared a glue made from flour sugar and water. The material is really nice to handsculp but also for 3D printing, you only need to make sure to blend really well the pulp to avoid the mix getting stuck on the printer's hose.



hand sculp



3D print



boil

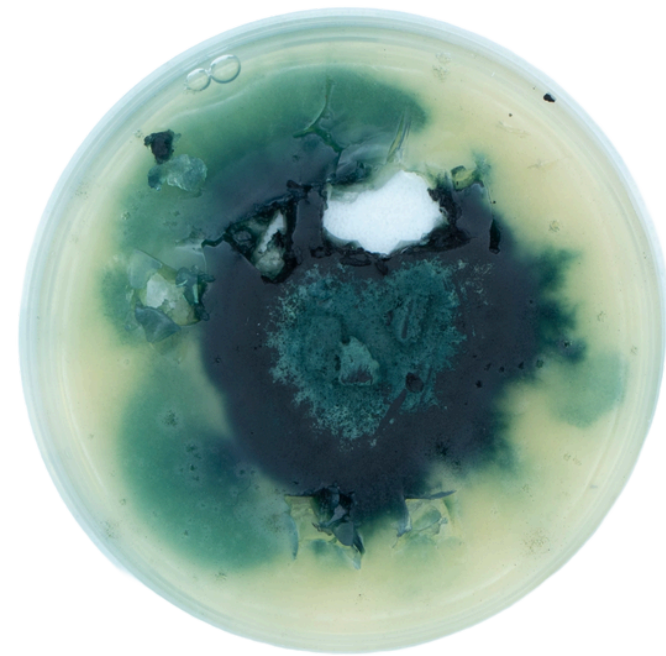


blend



knead





# GREEN pulp

→ *Chlorociboria aeruginascens*



The green pulp has the same properties and possibilities than the pulp described above, but with this one you can extract a beautiful green pigment produced by the *Chlorociboria aeruginascens*.





# wet FELTING

The wool I worked with, comes from de Laxta sheep wich is a local breed of Euskal Herria, is raised primarily for its milk. It has a very long fleece of rough wool so for years has been considered a waste for farmers.

with

↑  
**RAW wool**



↓  
process of using a combination of friction/agitation, soap and water to make felt out of wool fibres. The hot water and soap changes the pH of the wool and allows the scales on the fibres to open up. The soap also helps provide a lubricant and allows your hands to move around the fibres easily.





# EUCALIPTIUS bark DYE

From the barks you can obtain a beautiful pigment that can be used for dye baths, inks, and watering color to biofabricate materials








# FOREST material ARCHIVE

The Forest Material Archive is a series of experimental materials and processes that capture the colors, textures, and forms of the forest. It acts as a kind of material memory – a way to translate the sensory experience of the landscape into crafted matter. Each sample reflects an attempt to embody the forest’s essence, whether through pigments, fibers, clay, or organic compounds. This archive becomes a record of my encounters with the territory – a tactile reflection of otherness shaped through direct interaction with place.







Biomass 3D sculptures filled with bio silicone & flowers





Bio-silicone glove with tree trunk fingers



Gelatine bioplastic with tree barks





Bio-silicone (eucalyptus coloured) & moss



Alginate bioyarns coloured with eucalyptus





Biomass 3D printed vase



Bio-silicone (eucalyptus coloured) & thorns



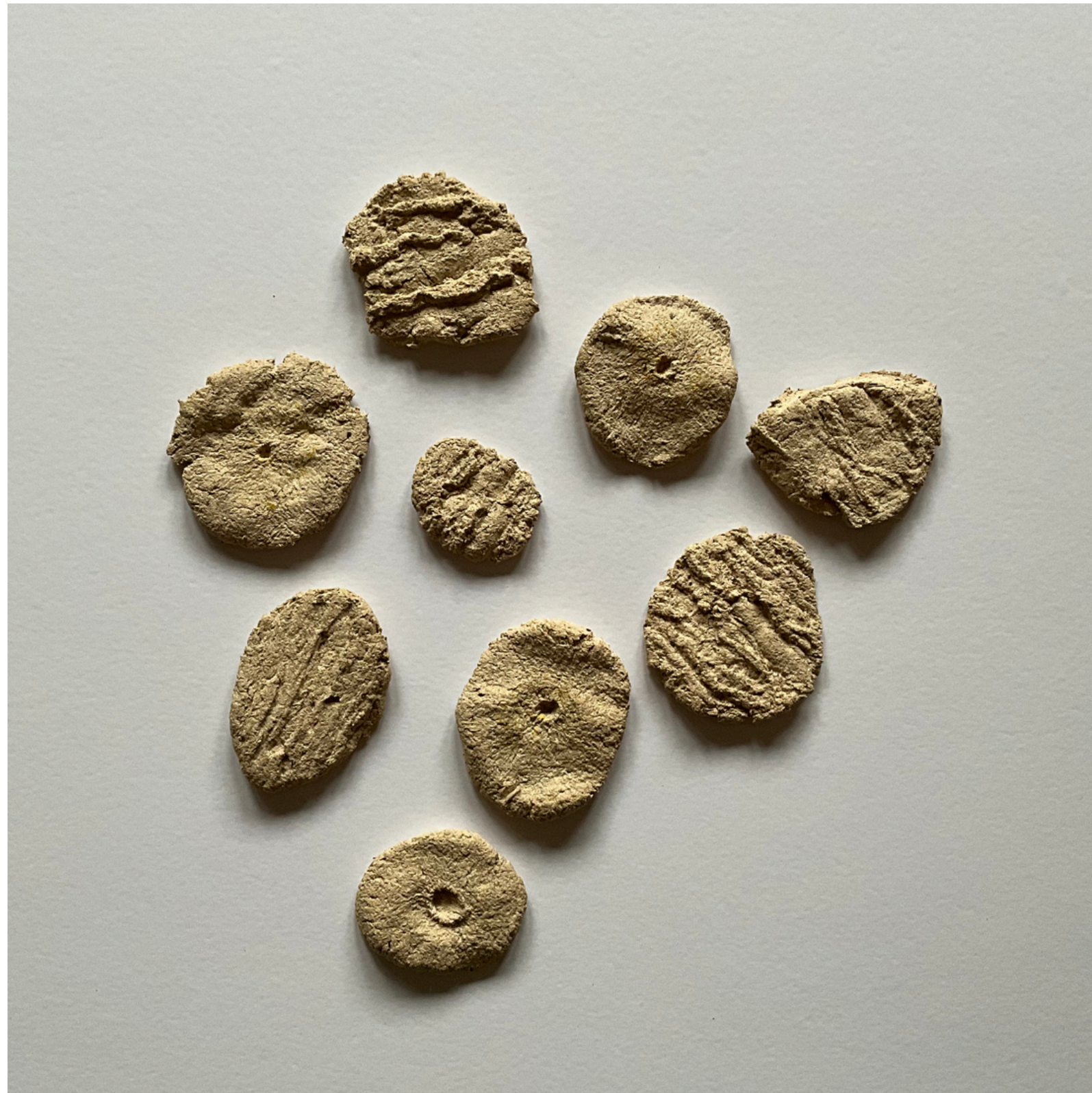


Agar bioplastic & wild flowers



Gelatine bioplastic with moss





Biomass forest textures pressed



Agar bioplastic & wild flowers



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# ODD friends

## “Mediators of the unknown”

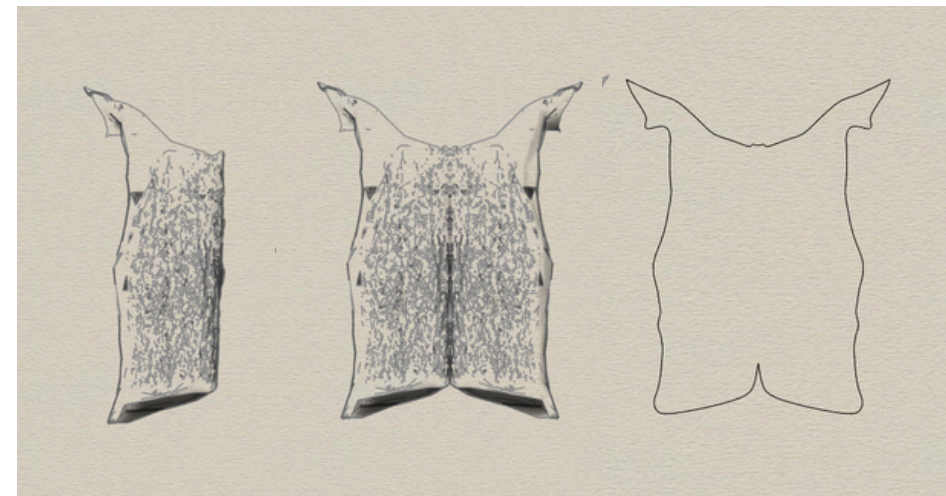
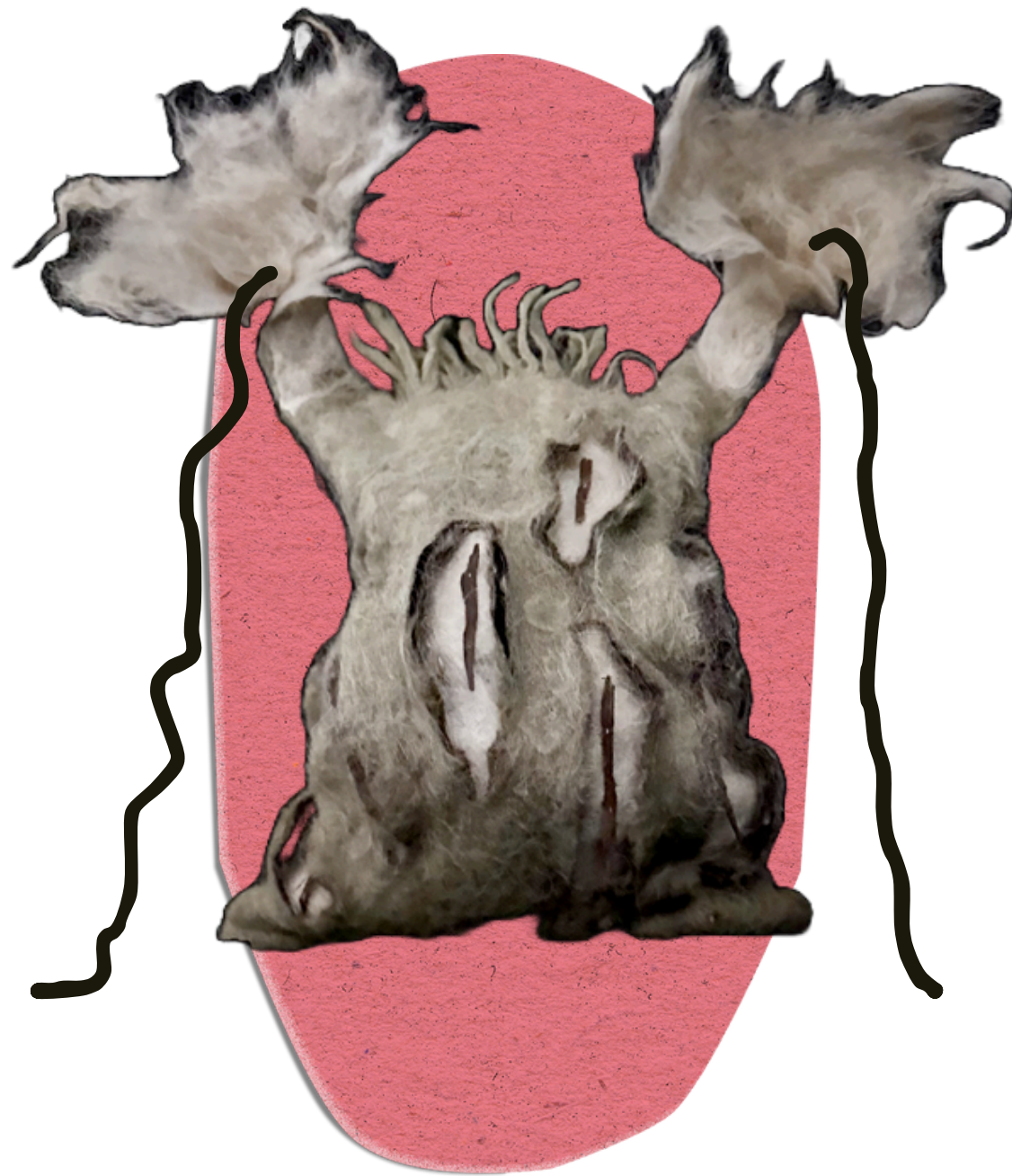
This is the last stage of the process where the “Odd friends are assembled”. Here a more poetic or philosophical reflection takes place: Reciprocal transformation, meaning that as I transformed the matter, it transformed me. In my video this idea is reflected by saying that “the other was enchanted, now I’m enchanted too” This means in a way that the The ‘Other’ is no longer something foreign to be mastered or feared, but something intricately connected to who I am now.

### Reconciliation

Reciprocal transformation leads to reconciliation meaning the ‘Other’ and I are no longer opposing forces but parts of a greater unity, I begin to see how I’m part of the land too (interdependent).

Mediators of the unknown: the “Odd Friends” sculptures are the result of the dialogue with the land and materials. They symbolize this reconciliation between what is known and unknown.





### Materials & Process Overview

It all starts around the laser-cut EVA foam mold (to shape the wet felt) => the mold creates a hollow structure by preventing the two layers of wool from felting together in the center. The non-porous surface of the EVA foam acts as a barrier, allowing for controlled shaping and maintaining an internal cavity.



### Piece incorporates:

- Eucalyptus bark & Bio-yarns, used as raw material and symbolic texture reference.
- Wet felt with latxa raw wool, shaped and sculpted around the mold.
- Eucalyptus dye, extracted to color and stain the wool & bioyarns.

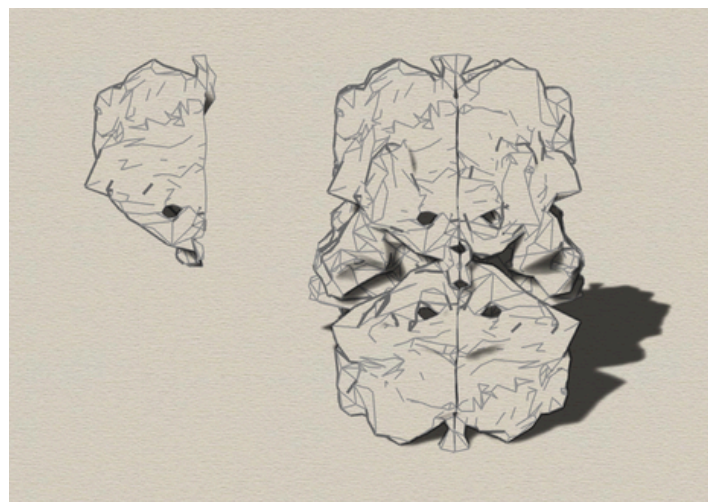




## Materials & Process Overview

### Cardboard Framework & Biomass Skin

- the core structure is cardboard, digitally modeled in Fusion 360 using the Slicer tool and then laser cuted resulting in interlocking segments form skeleton (base for further material layering).
- this skeletal frame is then coated with the biomass (local pulp + organic matter) => the mixture is applied in a technique similar to papier-mâché.



### Additional materials used include:

- Bio-yarns to articulate linear and connective features.
- Wet felt for soft, fibrous contrasts.
- Eucalyptus dye for natural color and surface treatment.







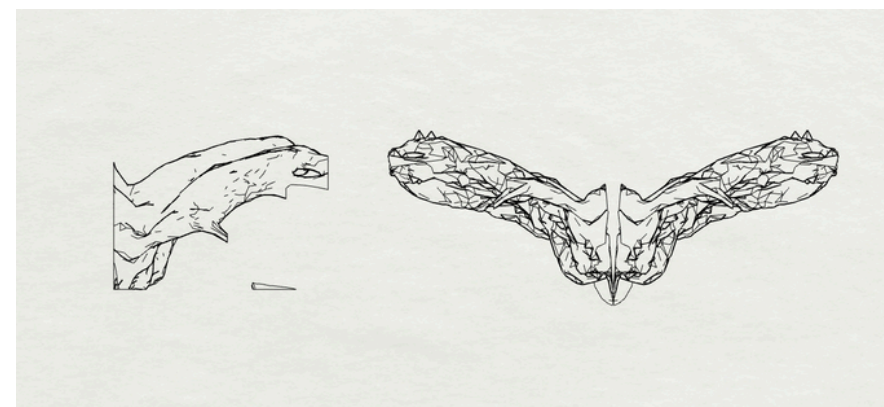
## Materials & Process Overview

### Cardboard Frame & Organic Draping:

The main structure (the head) is built from laser-cut cardboard, digitally modeled with Fusion 360's Slicer tool. The interlocking slices form a skeletal base that defines a winged, flowing shape – like a suspended body or unfolding organism.

Over this cardboard framework, pulp biomass is applied (papier-mâché) => adding texture and structural volumen.

From the pulp-covered head, a wet-felted wool cape hangs down, adding softness and movement. It contrasts the rigid structure with a flowing, organic texture.









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# RECIPES

## GLUE

- 2 cup H<sub>2</sub>O
- 1 cup plain flour
- 1 cup natural sugar
- 1/2 vinegar (antibacterial purpose)



Process:

1. Mix 1/2 cup of flour with 1 cup of natural (room temperature) water until smooth.
2. In a pot, heat 1 cup of water until it starts to boil.
3. Add 1 cup of sugar, stir to dissolve, then lower the heat.
4. Slowly pour in the flour mixture, stirring constantly to avoid lumps.
5. Cook on low heat until the mixture thickens into a smooth, sticky paste.
6. Let it cool completely, then add 1/2 cup of vinegar for antibacterial purposes.
7. Stir well and your adhesive is ready to use!

## Bio MASS

### papiermache

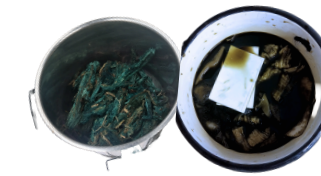
- 1 cup H<sub>2</sub>O
- 1/2 cup clay
- 2 cups pre-decomposed pulp
- 1 cup plain flour
- 1 cup natural starch-based adhesive
- 10 ml vinegar (antibacterial purpose)
- 1 spoon (soup) carbonate calcium
- 1/4 cup sunflower seed oil

process:

1. Boil the pre-decomposed pulp until the fibers are soft.
2. Rinse with fresh water to remove dark lignin and impurities.
3. Mix the clean pulp with water, oil, vinegar, flour and adhesive
4. Knead the mixture until it reaches a dough-like consistency.



# GREEN pulp color EXTRACTION



## Process:

### 1. Prepare the green pulp:

Cut or shred the green pulp into small pieces to increase the surface area and help release the color.

### 2. Boiling:

Place the green pulp in a large pot and cover it with water, maintaining a 1:2 pulp-to-water ratio.

### 3. Simmer and reduce

Bring the mixture to a boil, then lower the heat and simmer for 1-2 hours. The water will gradually change color as the pigments are released from the pulp.

### 4. Cool and macerate:

Let the dye bath cool, ideally allowing it to sit overnight for a deeper color extraction.

### 5. Strain:

Strain the liquid to remove the pulp and collect your natural dye.

### 6. (Optional) Color fixation:

If desired, you can add a mordant (such as alum, vinegar, or iron) to the fabric before or after dyeing to help fix the color.

## Materials:

- Fresh or dried green pulp (the more you use, the stronger the color)
- Water
- Large pot
- Heat source
- Strainer or cheesecloth







# wet FELTING

## Materials

- Raw wool (e.g., Latxa wool)
- Warm water
- Natural soap
- Towel or absorbent cloth
- Bamboo mat, bubble wrap, or sushi mat (for rolling)
- Mesh cloth or netting (optional, to keep fibers in place)
- Cold water (for rinsing)



## Process

1. Lay out raw wool fibers in thin, overlapping layers, alternating directions (horizontal, vertical, diagonal) for strength.
2. Cover with mesh cloth (optional) to keep the fibers from shifting.
3. Sprinkle warm soapy water over the wool until damp but not soaked.
4. Gently press and rub the wool to start bonding the fibers.
5. Roll the wool inside a bamboo mat or bubble wrap and apply pressure by rolling back and forth.
6. Unroll, flip, and re-roll in different directions to ensure even felting. Add more soap and water if needed.
7. Continue rolling and rubbing until the wool shrinks and becomes dense and firm.
8. Rinse with cold water to remove soap and gently squeeze out excess water.



# eucalyptus BARK

## color EXTRACTION



### Process

1. Break or shred the eucalyptus bark into small pieces to increase surface area.
2. Place the bark in a large pot and cover with water – about 1:2 ratio bark to water.
3. Bring to a boil, then lower heat and simmer for 1-2 hours. The water will gradually turn a rich color.
4. Let the dye bath cool, ideally letting it sit overnight to deepen the color extraction.
5. Strain the liquid to remove the bark and collect your natural dye.
6. (Optional) Add a mordant to your fabric before or after dyeing to help fix the color and shift the tone.

### Materials

- Dried or fresh eucalyptus bark (the more, the stronger the color)
- Water
- Large pot
- Heat source
- Strainer or cheesecloth
- Optional: Mordant (e.g., alum, vinegar, or iron) to fix the dye to fabric



# The ODD friends PROJECT

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