

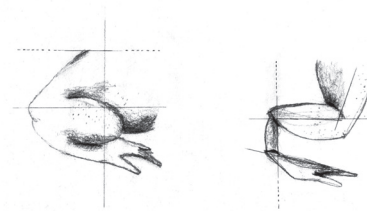
01 : Spade Footed Toad

Order: Salientia
Family: Pelobatidae (spadefoots)
Other common name: spadefoot toad
Spanish names: sapo con espuelas

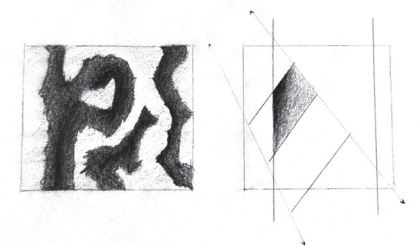
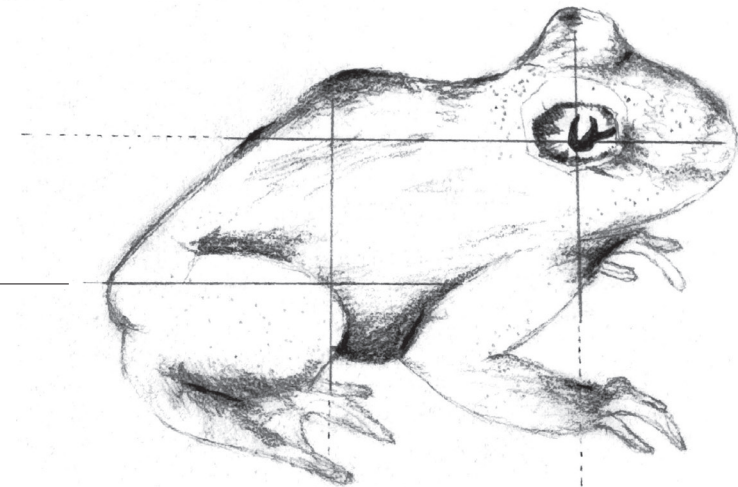
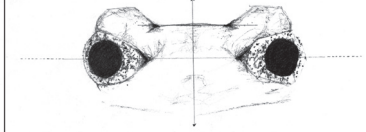
Couch's spadefoots do well in extremely xeric (dry) conditions in areas with sandy, well-drained soils often occupied by creosote bush and mesquite trees. They are also found in short grass prairies and grasslands, cultivated lands, and along desert roadways during summer thunderstorms.

Using the spade on the hind foot, spadefoots can quickly bury themselves in loose, sandy soil. Adult spadefoots burrow into the ground to avoid heat and desiccation, but recently metamorphosed spadefoots may be seen during and immediately after the rainy season in any moist place — under vegetation, former ponds, or moist soil. During this time young spadefoots need to eat enough food to survive the unfavorable living conditions above the surface of the ground. After eating as much as possible, they too burrow beneath the surface. Breeding may not occur in years with insufficient rainfall. Preying primarily upon beetles, grasshoppers, katydids, ants, spiders, and termites, a spadefoot can consume enough food in one meal to last an entire year!

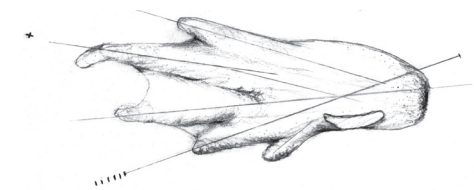
The Hop
The hind legs give impulse to the hop, and spring out, while they close their eyes for protective purposes, landing on front legs.



Large Eyes
Large eyes that have vertical pupils, which allows them to see well at night, a key adaptation for their nocturnal lifestyle where they hunt for food in the dark



Skin
Warty skin, varying in color from grayish, dark brown, olive or reddish, with irregular dark spots



Shovel Foot
Distinctive hind feet that have a spade-like tubercle for digging.

Eggs
Each female lays about 7,000 eggs

Tadpole
After 1 week reaches 3mm

Tadpole
After 6-9 weeks reaches 6mm

Semi Adult
After 10-13 weeks 1 cm

Adult
Around 15 weeks males reach maturity

Hunting Phase
Hunting small insects for hibernation period during no mating season

Burrowing Phase
Using their spade foot to burrow into soft, semi wet, and larger grain sand for the no matting season.

Mating Season
Responding to thunder storms and loud noises the frog will come out for mating season.

01



02



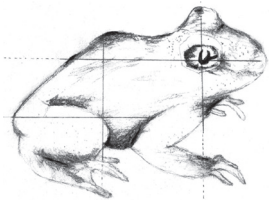
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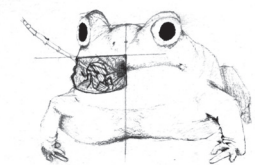
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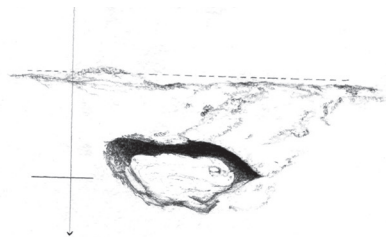
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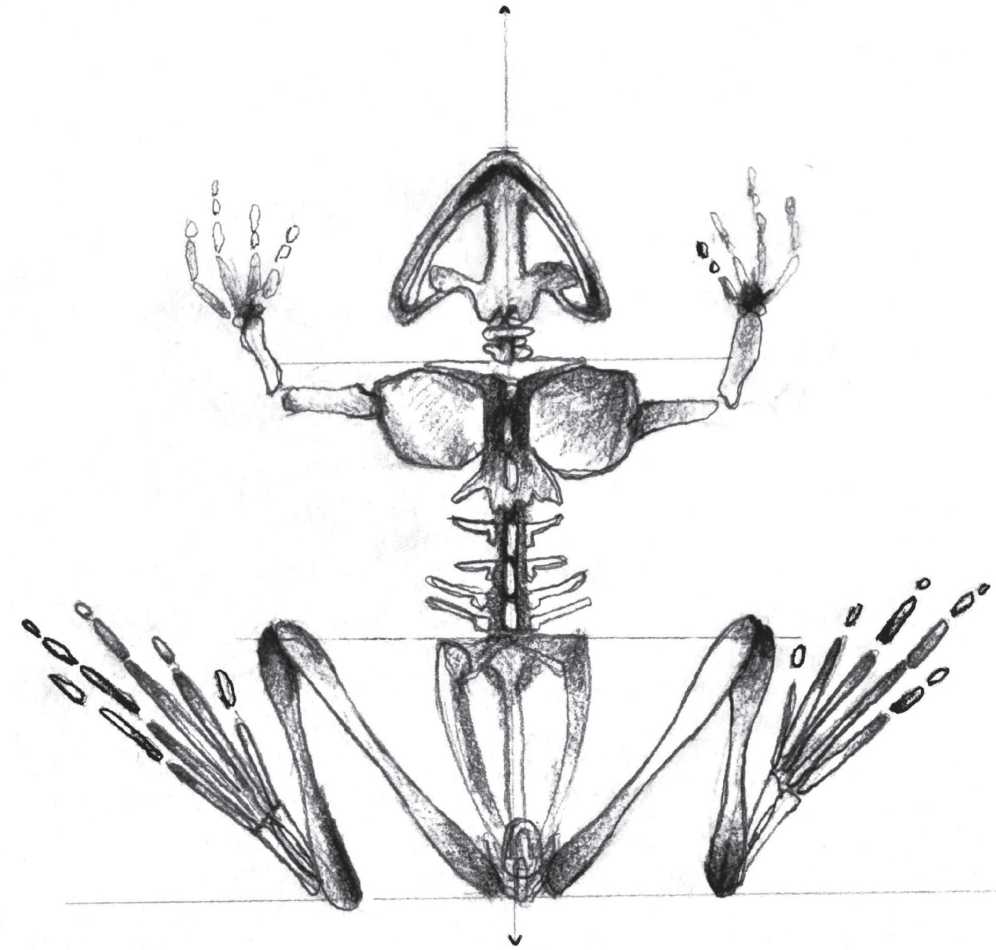
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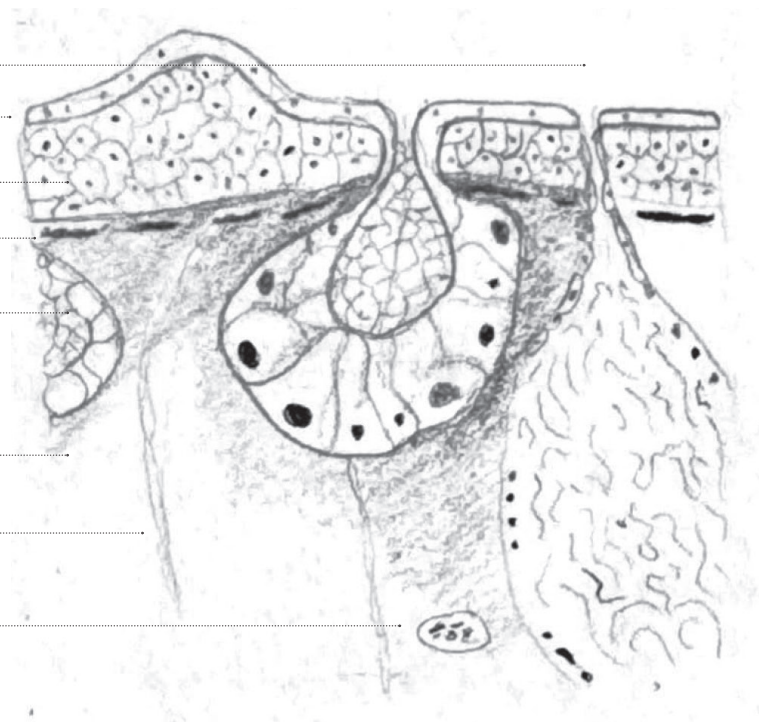
Niche - What role does the organism play in the environment?

The Couch's spadefoot toads contribute to the desert ecosystem by controlling pest populations, and providing a habitat for other species.

Prey on insects

The species of frog eats beetles, grasshoppers, katydids, ants, spiders and termites, This helps keep the population of these insects in check, which can also be beneficial for humans.

Duct of Poison Gland
 Stratum Corneum
 Sensory Papilia
 Pigment Cells
 Stratum Spongiosum
 Stratum Spongiosum
 Connective Tissue
 Blood Vessel

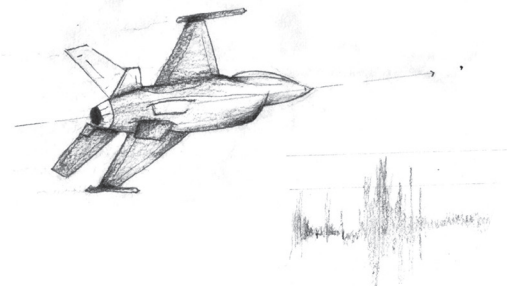


Spadefoot Toad Detailed Section



Thunder Storms

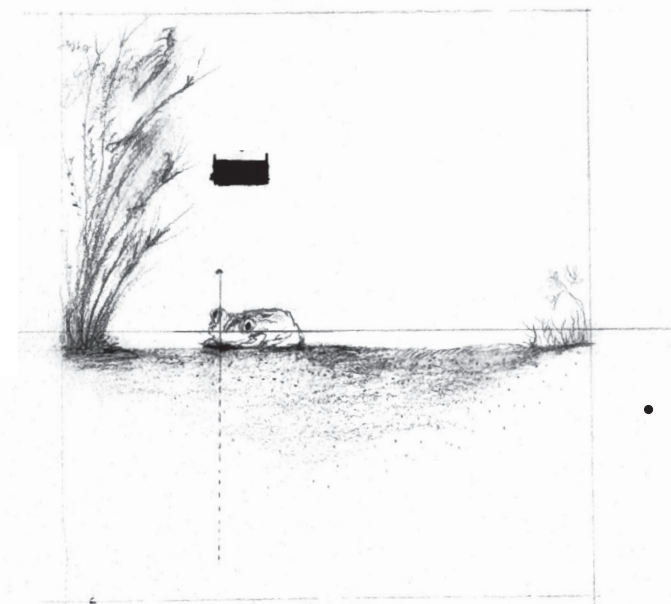
Thunderstorms trigger spadefoot toads to emerge from burrows and migrate to temporary pools for breeding. The rainfall creates ideal conditions for their



Military Jets

Military jets or airplanes can disrupt spadefoot toads by causing stress and disturbing their migration or breeding activities with loud noise and vibrations.

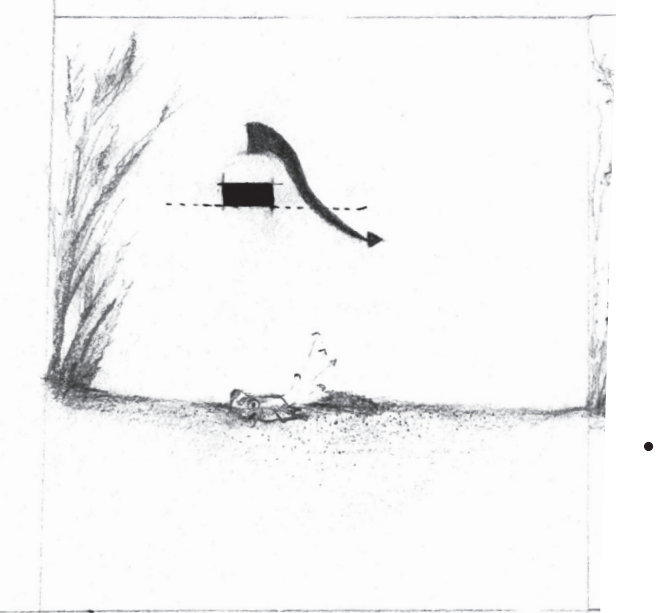
01



Seeking

- Spadefoot toads seek sandy or loose, well-drained soil, which allows them to burrow easily for shelter during dry periods and to avoid predators. Spadefoot toads typically emerge during the night, especially after rainfall, as they are nocturnal creatures.

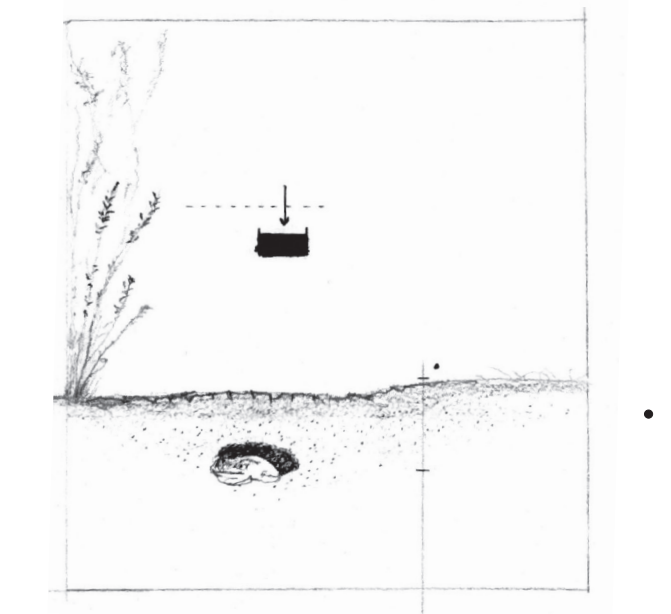
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Burrow

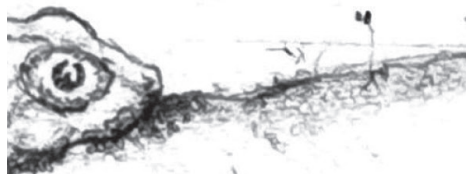
- Spadefoot toads use their specialized, hardened "spade" on their hind feet to dig into the ground. They use this spade to push and burrow through loose soil, creating a burrow where they can remain protected from heat and predators during dry conditions.

03

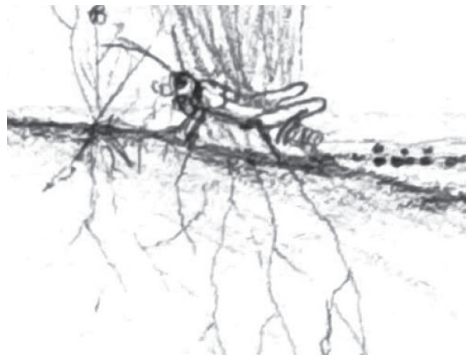


Rest

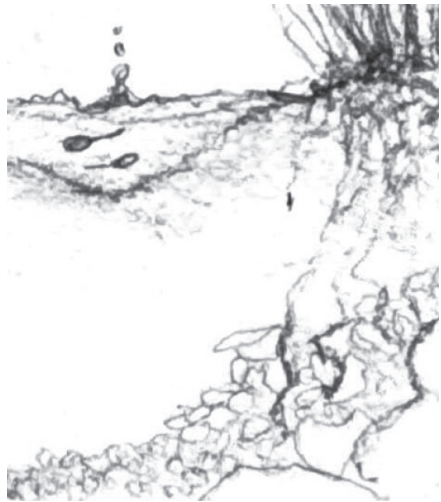
- During their resting period, spadefoot toads enter a state of dormancy called estivation, typically in dry or hot conditions. Below the frost line, they remain inactive and conserve moisture until favorable conditions, such as rainfall, prompt them to emerge.



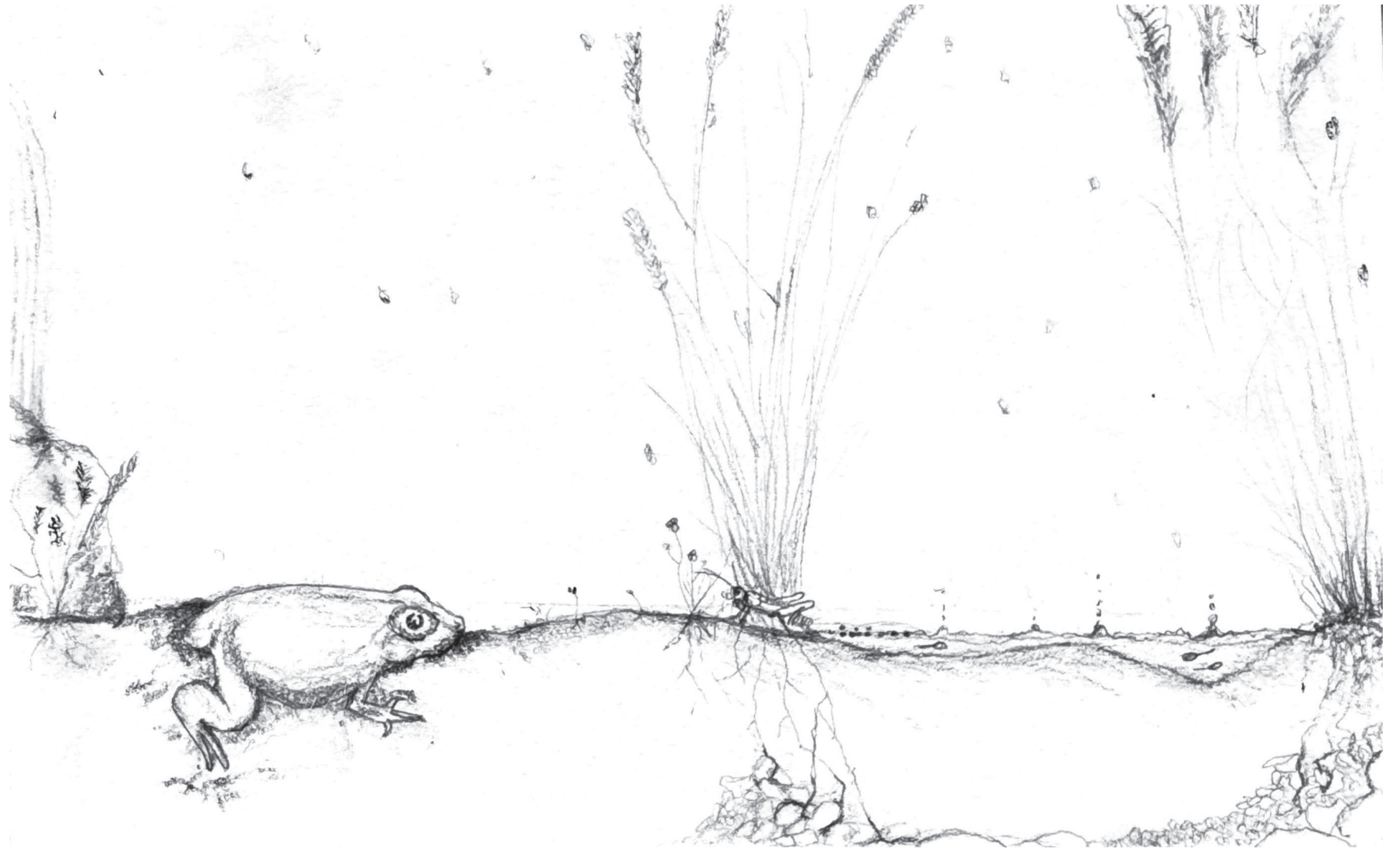
Hunting + Preying



Cricket + Dense Weeds

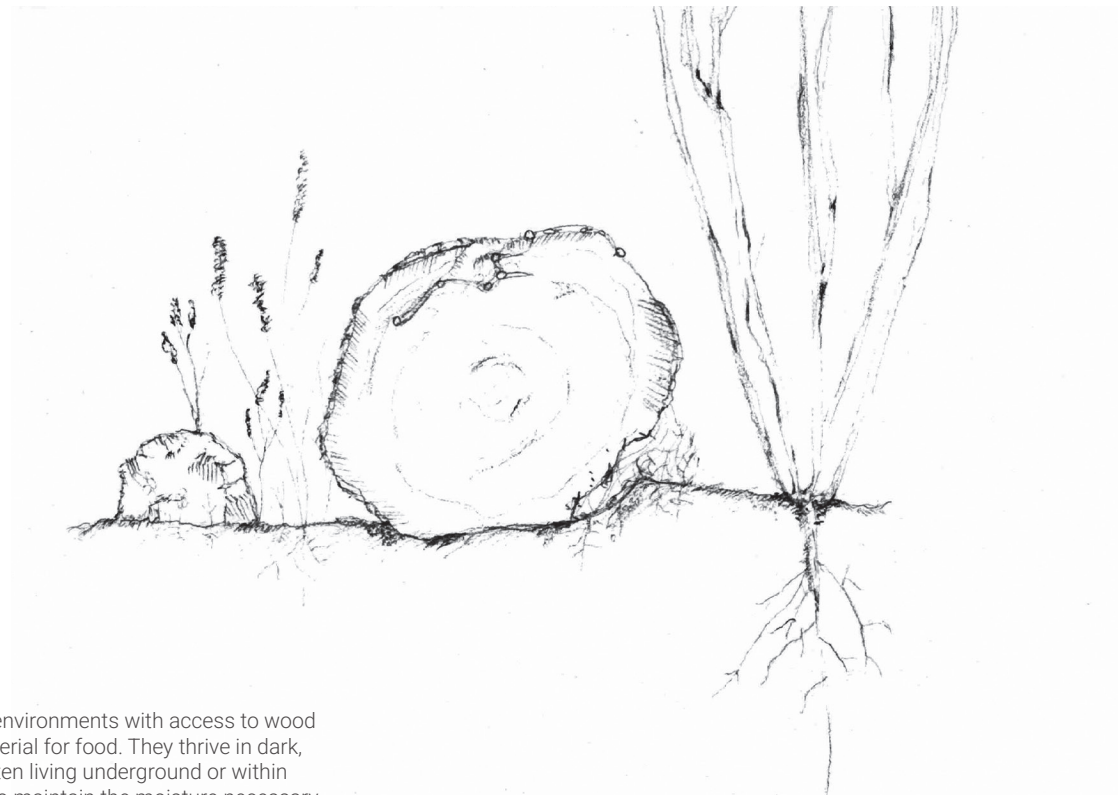


Tadpoles + Puddled Water

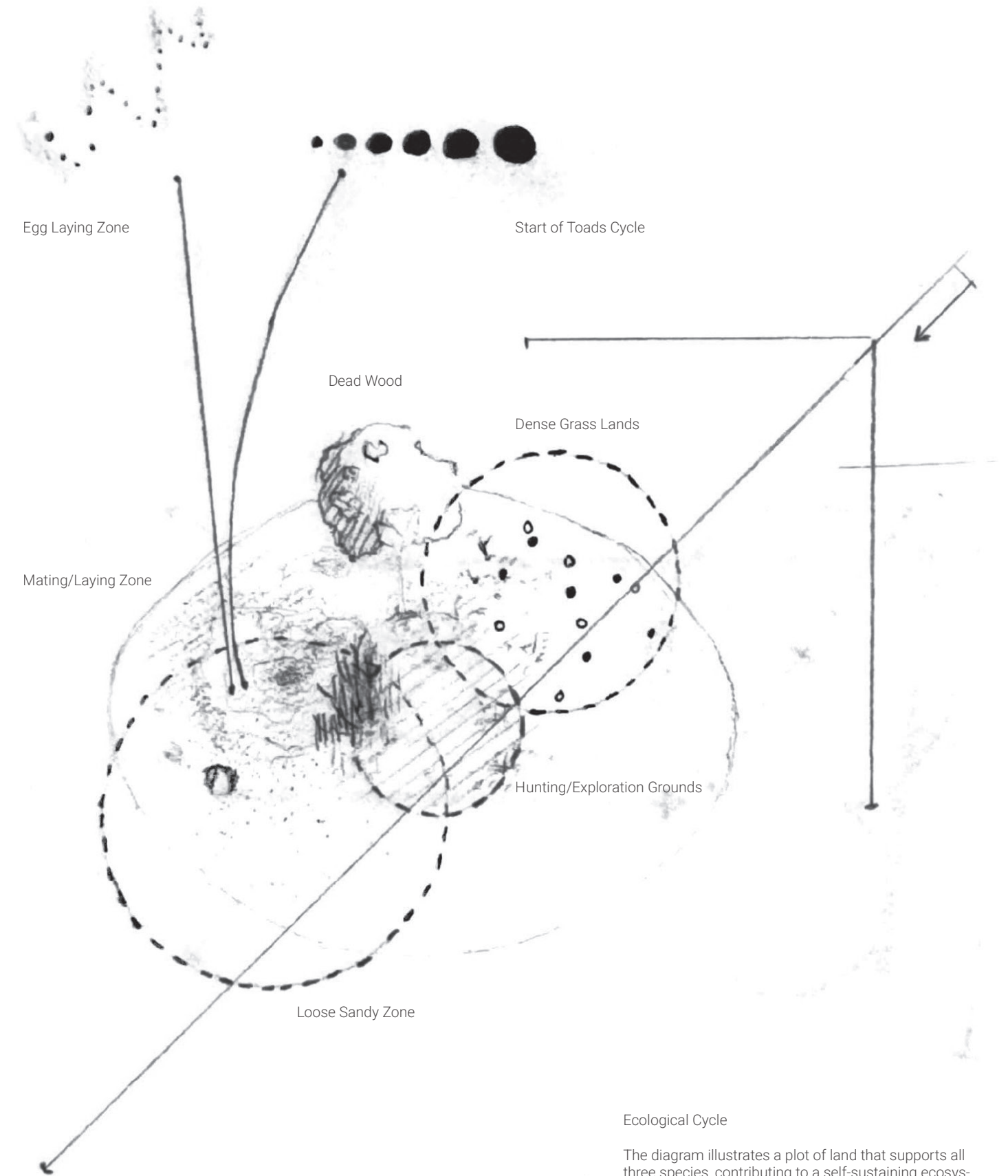




Crickets
Desert crickets need shelter, moisture, and access to food sources like plant material and decaying organic matter to survive in arid conditions. Along with cooler conditions for temperature regulation during the night.



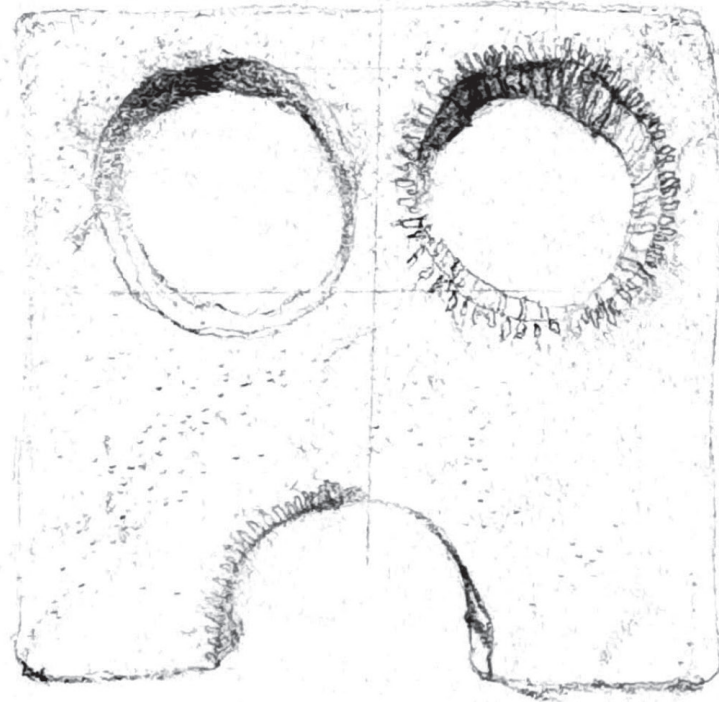
Termites
Need warm, humid environments with access to wood or cellulose-rich material for food. They thrive in dark, moist conditions, often living underground or within wooden structures to maintain the moisture necessary for their survival.



Ecological Cycle

The diagram illustrates a plot of land that supports all three species, contributing to a self-sustaining ecosystem. A predator will be necessary for the frogs, as their overpopulation could disrupt the food chain by causing an imbalance through excessive consumption.

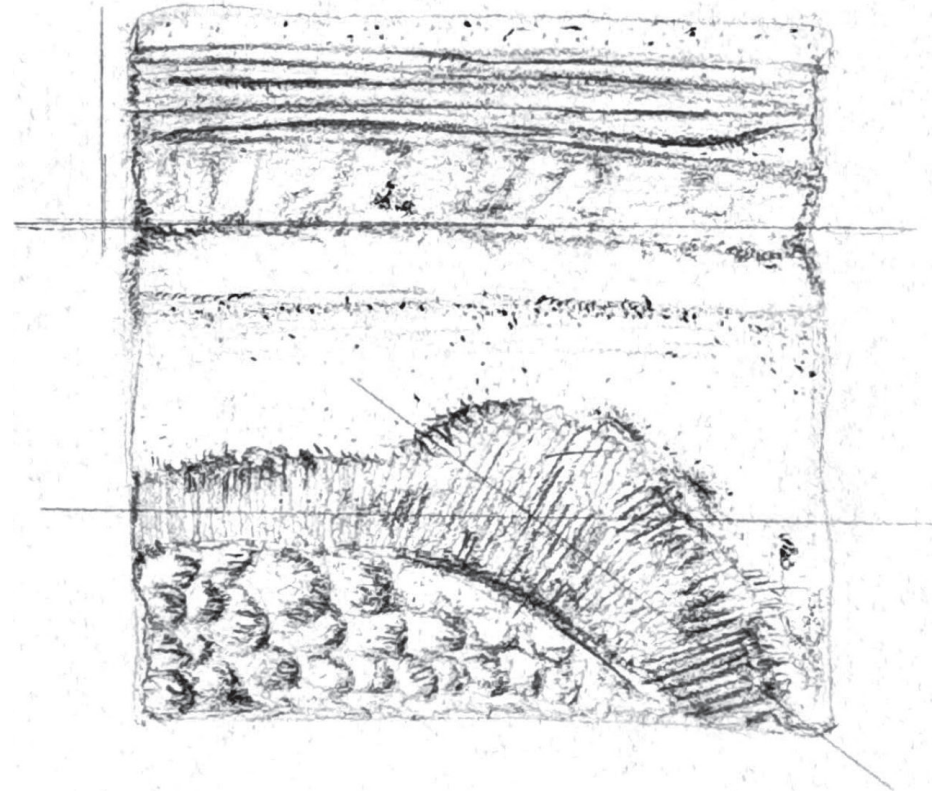
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Settling Tanks

The circular design explains the settling tanks that separate solids from liquids, with heavier particles settling to the bottom, while the cleaner water rises to the top for further treatment.

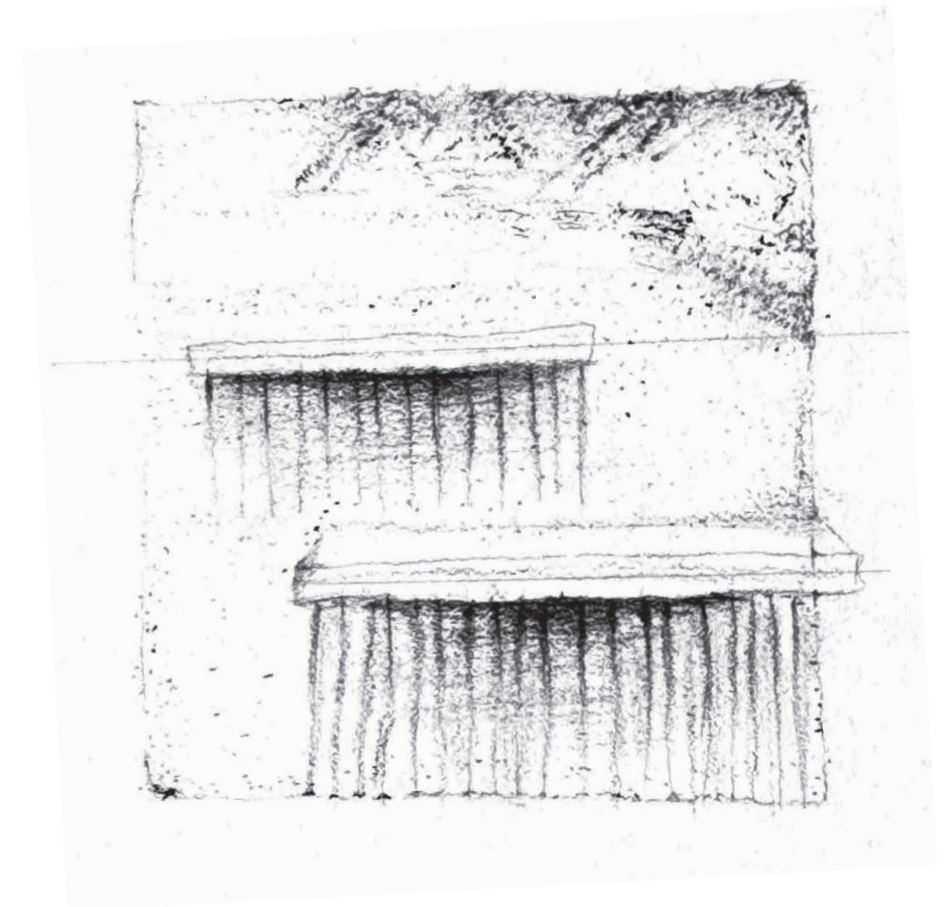
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Wash Textures

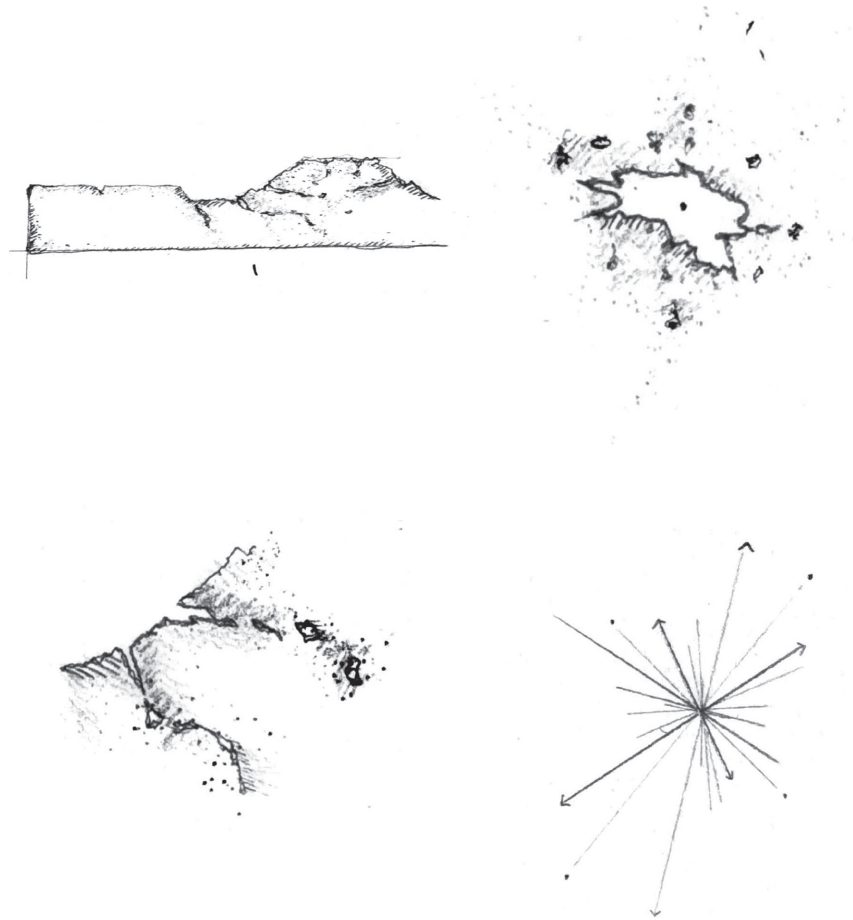
This tile highlights the transition in textures experienced as one moves from the smooth, straight bike path to the more uneven, rippled sand shaped by historic floods.

03



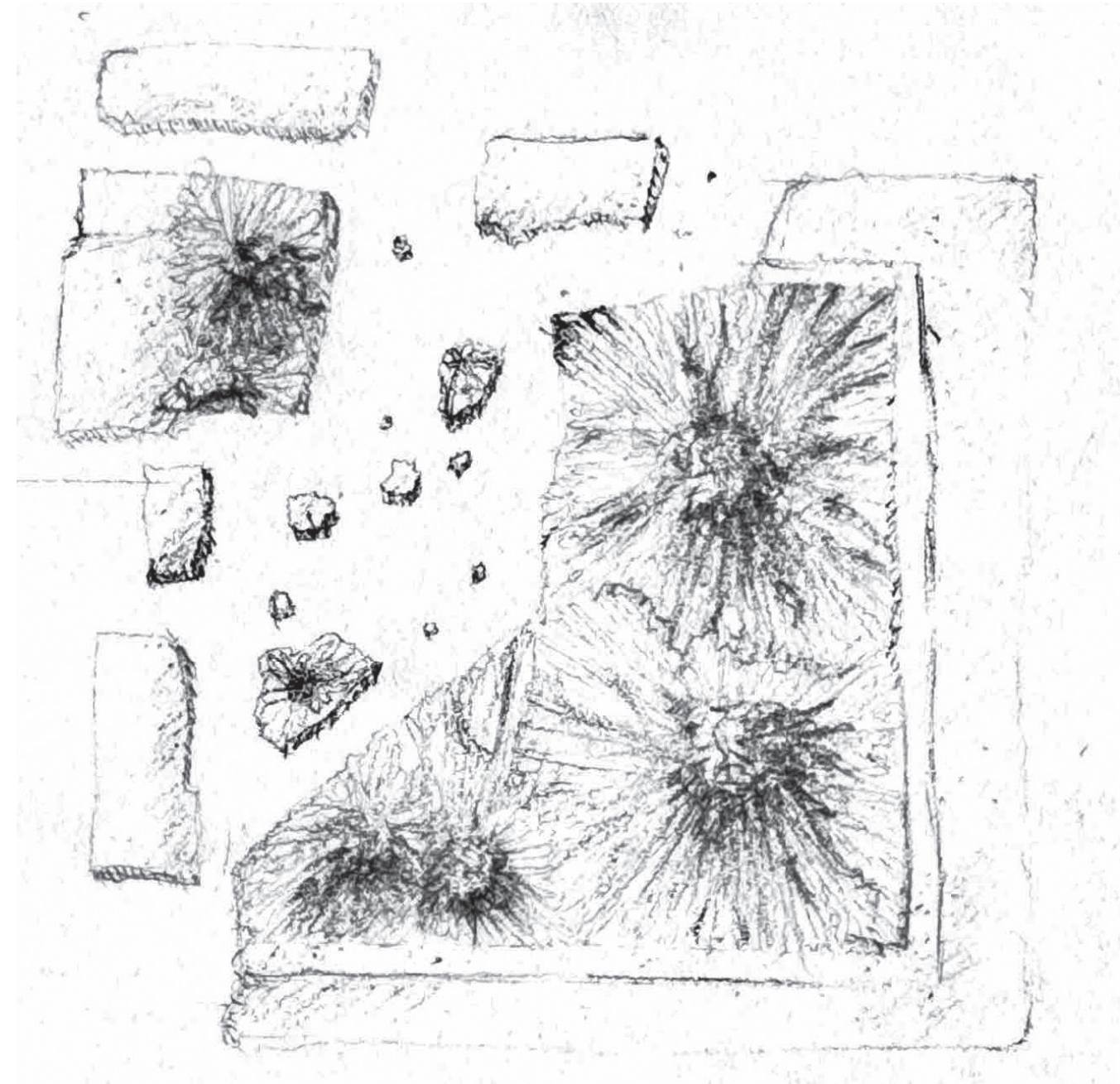
Tires and Shadows

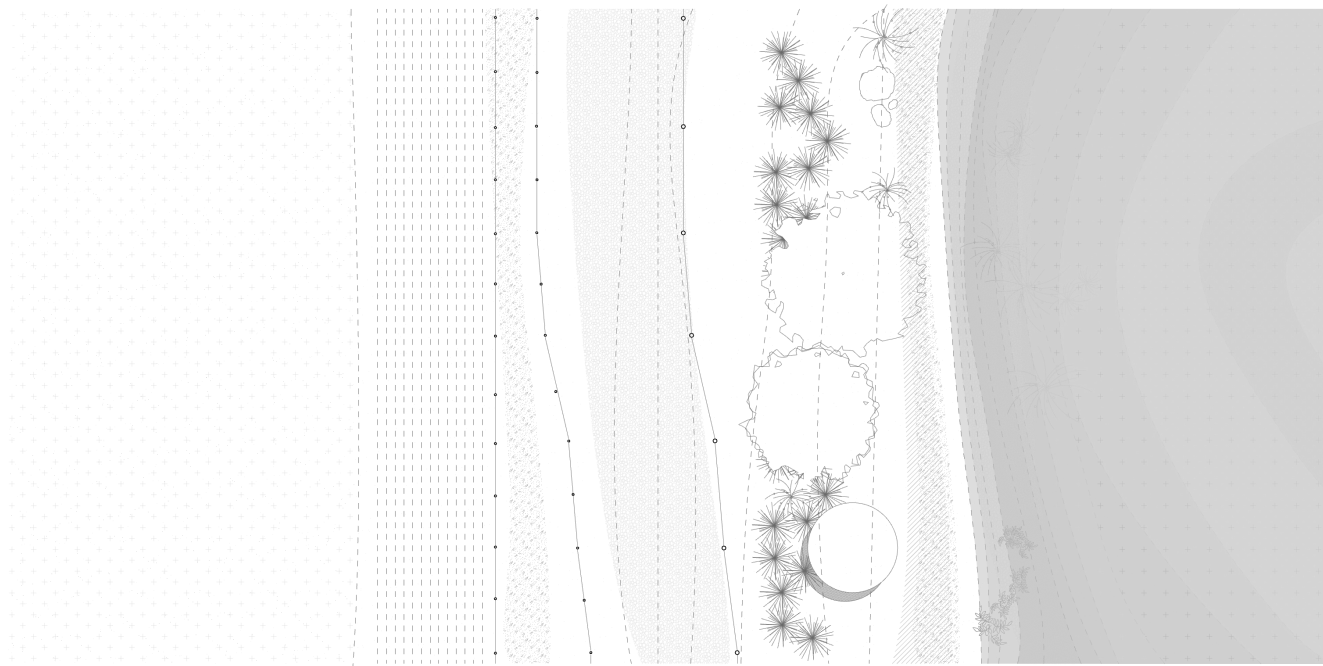
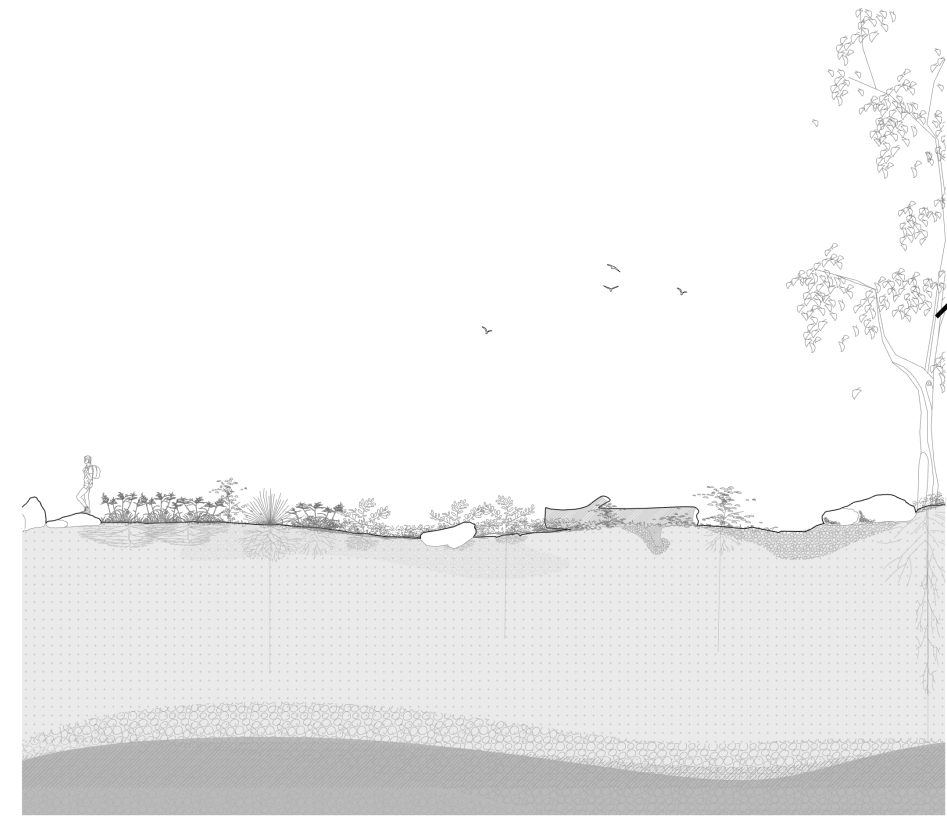
The tile explains previous interactions with the site, including tire tracks left by trucks and how the large walls cast shadows that reflect the presence of the on-site buildings.



Order: Ceramics
 Family: Clay Minerals
 Other common name: Clay cracking
 Spanish names: agrietamiento de arcilla

Right before the cracking process begins, the clay undergoes significant moisture fluctuations. Due to the clay's exposure to varying humidity and temperature, this is not simply a rectangular block of clay with cracks forming randomly; rather, it's an intricate process where the clay's surface begins to dry, causing shrinkage and visible fissures. These cracks can increase over time as the material's structure weakens due to repeated cycles of wetting and drying.





Order: Rillito River Division
 Family: Habitat Fragmentation
 Other common name: Wash wall barrier
 Spanish names: Muro de desagüe

These sections specifically highlight the division created by the site from the Rillito River. The wash wall provides protection from severe floods but also traps species within, acting as a pitfall. On the other side, the area is filled with vegetation and water, offering a thriving environment for animals. While the Rillito River possesses certain attributes that are crucial for some of the species on-site, it remains unsafe for direct use.

01 : Architectural Translation

Order: Stereotonic
Family: Geological Forces
Other common name: Earth Pressure
Spanish names: Estero-ónico

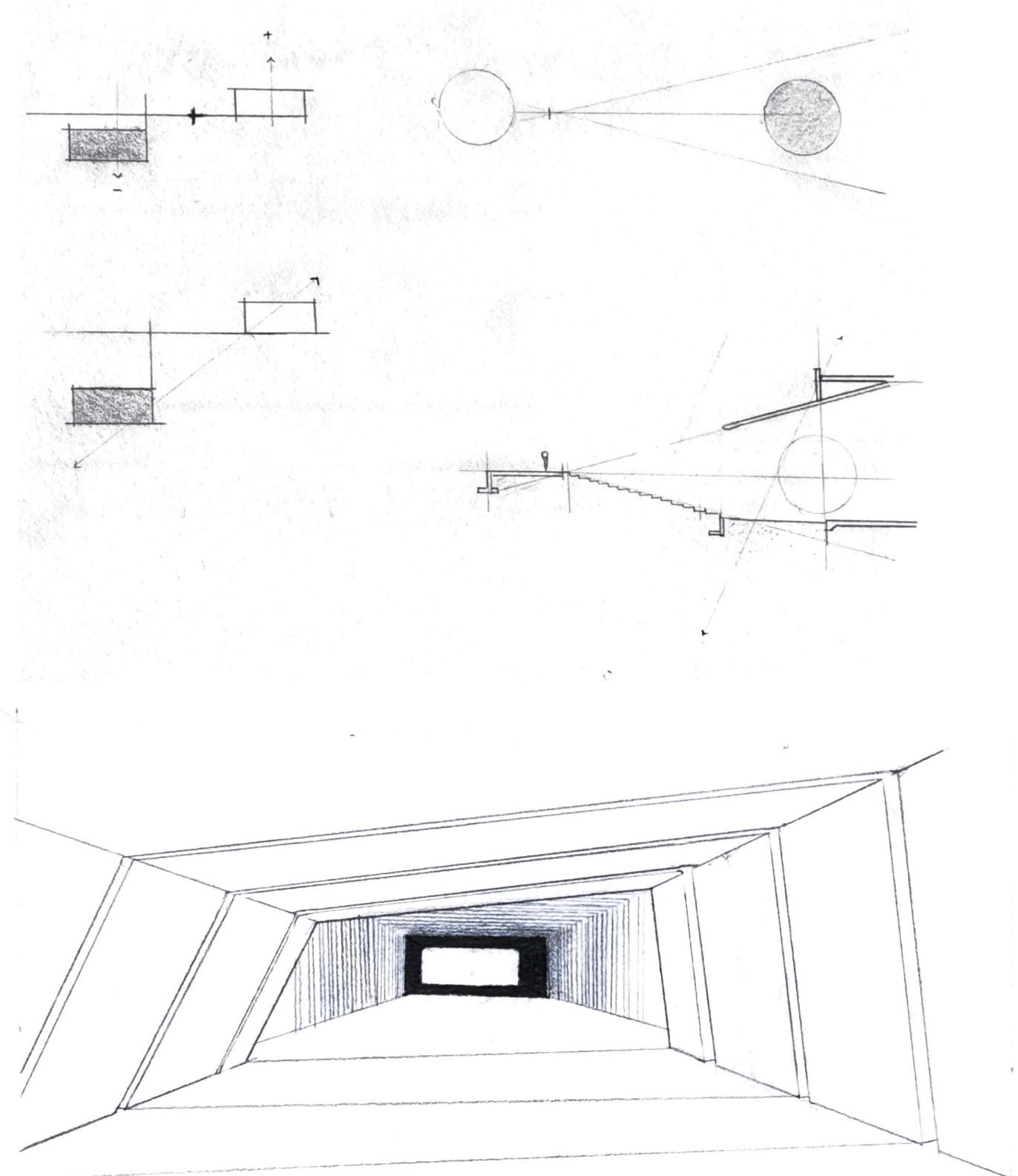
The spadefoot toad's primary tool for survival is its specialized foot, which allows it to dig and burrow into the ground. This ability enables the toad to hide during the day, staying out of sight of most predators, while also ensuring it remains in a moist environment, ready for the nighttime hunting and mating seasons. In the context of its habitat, this duality is reflected in its behavior: the positive aspect of its existence is spent above ground, while the negative aspect occurs when it burrows beneath the earth's surface.

The exploration experience reflects the sensation of delving into the depths of the earth, creating a profound negative space that can only be truly understood through excavation. This process of digging and unearthing emphasizes the need to physically engage with the space in order to fully experience it.

Abiotic Vs. Biotic?

Amphibian Anatomy + Form

Spade Toad Analysis



02 : Architectural Translation

Order: Tectonic Experience
Family: Earth Dynamics
Other Common Name: Plate Movements
Spanish Name: Experiencia Tectónica

When the spadefoot toad is not burrowing underground, it must move across different areas in search of food and mates. To do so, it relies on its built-in method of transportation, which is a striking contrast to its time spent underground. Instead of being rooted to the earth, it is elevated in movement, traveling above the surface.

The drawing was created to understand the toad's movement trajectory. By studying the arch formed during its jump and the force generated from its powerful leap, this concept was then translated into a design plan for a building or spatial organization. Additionally, inspired by the toad's unique skin patterns, the design incorporated elements of solar shading. The toad's markings informed the placement of openings within the structure, adding a dynamic and functional aesthetic.

Abiotic Vs. Biotic?

Amphibian Anatomy + Form

Spade Toad Analysis

