



14th European Taxidermy Championships | Salzburg 2025

**ARABIAN SPRING – A STREAM OF LIFE AT THE EDGE OF DESERT AND SEA**  
Crowned Lapwing *Vanellus coronatus*, Desert Hyacinths *Cistanche tubulosa* and associated species



Sebastian Brandt (GER) & Zsombor Pünkösti (HUN)  
Category: Collective Artists



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## 1. Division of Work

This exhibit represents an international collaboration. Zsombor Pünkösti (Hungary) created the dermoplastic mount of a Crowned Lapwing (*Vanellus coronatus*). Sebastian Brandt (Germany) created the nature-identical plant models and designed all other elements of the exhibit.

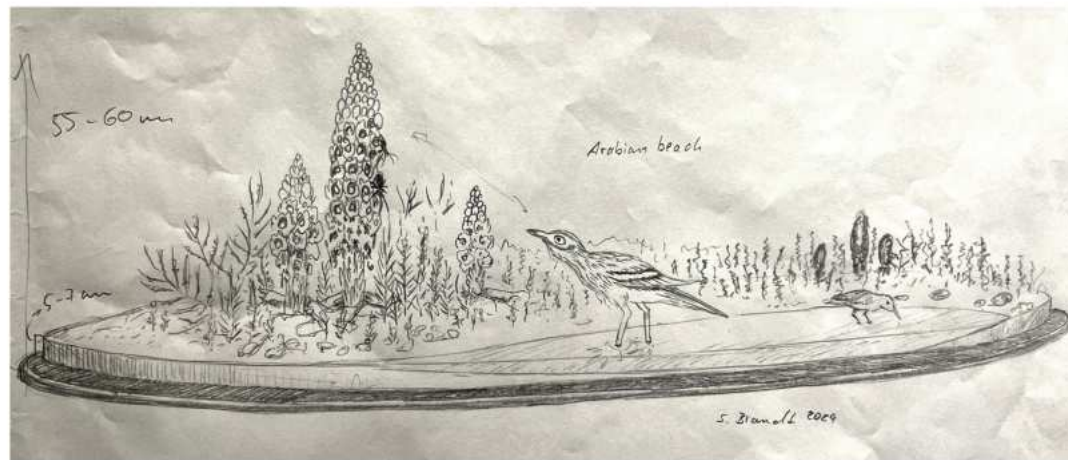
## 2. Life on the Edge

The coastal regions and salt marshes of Northeast Africa and the Middle East, with their extreme climatic and geological conditions, represent some of the planet's most extreme ecosystems. At the sharp boundary between the great sand deserts of the Sahara and Rub al Khali, transitioning to the dynamic beaches of the Indian Ocean and its marginal seas, a unique community of organisms has evolved. Except for a handful of rainy days, the desert sun burns shadowless and relentlessly on the constantly blowing sand throughout the year, with extreme temperatures ranging from over 40 to well above 50 degrees Celsius. Due to both the strong evaporation of warm seawater on beaches and in marsh areas, as well as geological uplift and leaching processes, the soil substrate is heavily salinized and, moreover, barely consolidated due to its tiny round granulation. Fresh water is only available through brief spring rains and nightly dew formation when the day's heat subsides and the relatively high air humidity allows condensation. To survive under these conditions, organisms must adapt in extreme ways.

### 2.1. Flora

Many plant species in these extreme desert-coastal areas develop special succulent adaptations. To minimize evaporative surface area, leaves are either completely reduced or transformed into fleshy, spherical, bubble-like structures. These store both water and excess salt. This creates a unique vegetation cycle in the so-called "saltworts": After sprouting, the plants grow continuously, and through constant storage of excess soil salt, the leaf bubbles of some species change color from initial yellow tones to a deep, brilliant red. After this, these over-salinized plant parts die off and lignify - during this process, the plants release their seeds, form lateral shoots, and sprout anew elsewhere. The following species of this type can be seen here:

*Halocnemum strobilaceum*  
*Tetraena quatariense*  
*Arthrocnemum macrostachyum*  
*Halopeplis perfoliata*



IDEA:



An extreme level of specialization is exhibited by parasitic plants. The spectacular Desert Hyacinth and the fungus-like Red Thumb completely parasitize various saltwort species. Their root organs grow into the root systems of their host plants, extracting both precious freshwater and all necessary nutrients. This specialization has progressed to such an extent that they no longer perform any photosynthesis nor develop their own roots. For a brief period of the year, only their impressive inflorescences can be seen like beacons among their host plants' populations. They form an important food source for insects and are simultaneously sought-after medicinal plants in the region's traditional medicine:

*Cistanche tubulosa*  
*Cynomorium coccineum*

The Saltwort Zone generally consists of pioneer vegetation. These salt-tolerant species are the first to colonize the freshly deposited and wind-blown sandy areas of coastal lagoons. Their roots bind the initially loose sand, trap washed-up seagrass, driftwood, and calcium-rich seashells, fix their nutrients in the substrate, and thus sediment the newly formed land for subsequent successor species.

For just a few days each year, the desert may suddenly burst into bloom. When heavy ocean storms reach land in February, enormous amounts of water sometimes discharge from the sky. Delicate plants like the Desert Groundsel or the rare Brown Desert Lily germinate and sprout rapidly after such downpours, either from ancient seeds or thick storage bulbs - only to flower rapidly, be pollinated, and just as quickly produce new seeds. After only two to three weeks, everything is over. The sun dries the salt-encrusted soils into a desolate lunar landscape as if nothing had happened. A rare and brief spectacle, the Desert Spring:

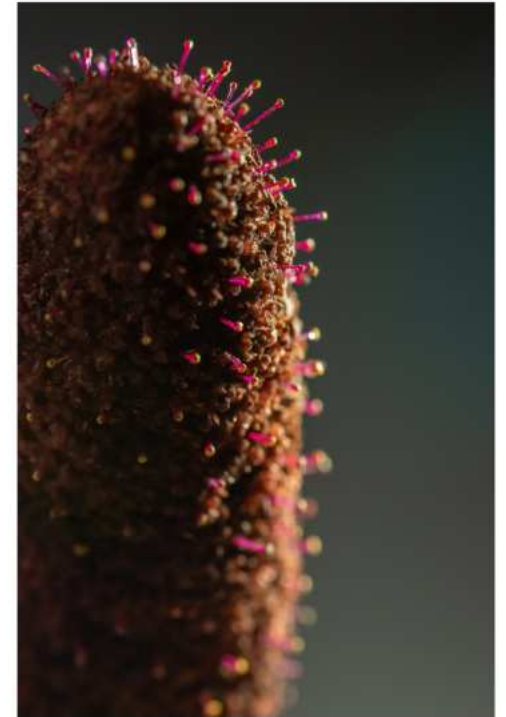
*Senecio glaucum*  
*Dipcadi erythraeum*

## 2.2. Fauna

Similar to the plant world, the animal kingdom shows adaptations to this ecosystem's extreme climate. To escape the scorching sun and heat, most species have shifted their activity to the cooler evening and night hours. During the day, most animals seek protection in self-dug underground burrows, under stones, or at least in the vegetation substrate. Arthropods show high diversity, as their chitinous body is well-protected against moisture loss.

Among insects, beetles, particularly the darkling beetle family (*Tenebrionidae*), occupy many ecological niches and are very numerous. They feed primarily on the withering remains of sparse vegetation and carrion. The bizarre long-legged *Adesmia* species belong to the darkling beetles. These diurnal and agile desert beetles walk on greatly elongated legs to protect their body from overheated sand. Additionally, in the evening, they climb dune crests and raise their abdomens to absorb night dew. The following darkling beetles can be seen in the exhibit:

*Adesmia dilatata*  
*Blaps* sp.  
*Pimela* sp.  
*Scaurus* sp.  
*Tentyria* sp.



Not belonging to the darkling beetles is the predatory ground beetle *Scarites*, which can capture other beetles and even small reptiles with its powerful jaw claws (mandibles).

*Scarites* sp.

Various blister beetles (*Meloidae*) feed on leaves and flowers. These beetles have a unique reproductive strategy in nature. The fertilized females specifically seek out the most attractive flowers to deposit their claw-bearing larvae (Triungulins). These attach themselves to pollinating bees to develop through several parasitic developmental stages into mature blister beetles in their nests. All blister beetles contain the lethal poison cantharidin, which is secreted from leg glands as protection against predators when threatened. The poison of the Spanish Fly *Lytta vesicatoria* was historically used as a questionable aphrodisiac and murder poison.

*Lytta vesicatoria*

*Teratolytta* sp.

*Zonabris* sp.

Scorpions are another typical example of arthropods belonging to the arachnids. As characteristic species of deserts and semi-deserts, they have adapted well to extreme conditions. Their sand-colored body is flattened to hide in crevices and sand burrows during the day. With their multiple eyes, they have quite good vision. When hunting, they use their first pair of legs, which are enlarged into pincers, and their elongated tail with a highly effective venomous stinger. This allows them to quickly catch and eat relatively large prey, primarily insects. Scorpion venom is also dangerous to humans, making nighttime walks through the ecosystem shown here potentially hazardous.

*Buthus occitanus*

From the vertebrate group, the Crowned Lapwing *Vanellus coronatus* is shown here as an example. This bird, belonging to the plovers (*Charadriiformes*), is widely distributed from North Africa to the Arabian Peninsula, often as a resident bird but also as a partial migrant. As an insect-eating ground dweller, it depends on dry areas with sparse and, most importantly, low vegetation. It spots its prey of beetles, caterpillars, and locusts primarily during low sun conditions – at dusk, in the afternoon, and on moonlit nights. It also follows grazing animals such as camels, horses, and cattle to catch insects disturbed by their activities.



### 3. New Methods in Botanical Preparation

The true-to-nature three-dimensional preparation of plant material for exhibition purposes has been very limited until now. The classical methods of dehydrating compression, sand drying, and polyethylene glycol (PEG) impregnation hardly provide satisfactory results by modern standards. This is certainly why convincing plant specimens are still underrepresented in natural history museum exhibitions today. The difficulty in plant preparation lies in the substantial nature of the plant organism - particularly in body parts that are only minimally reinforced by fibers, such as leaves, flowers, and herbaceous elements. The volume of these organs consists almost entirely of water and gas with just a few stabilizing tissue structures. Additionally, the unique transparent coloration of plants is not formed by surface-lying pigments (which could be simulated through subsequent coloration with airbrush colors, for example), but through deposits in the otherwise transparent tissue or through structural peculiarities of light refraction within the plant substance. The organism begins to decay very quickly after collection. When wilting begins, the plant rapidly loses its actual volume and thus its structure and coloration – as anyone can observe with a home bouquet. This decay process of plant material cannot be completely stopped even by the most modern preservation methods.

Only through the experimental attempts of two German zoological preparators, Rainer Michelson (Gera) and Klaus Wechsler (Bremen) in the early 2000s did new possibilities emerge through the use of modern molding technologies. Instead of trying to prevent the plant's decay process, they focused on creating a microscopically exact three-dimensional replica.

In 2013, Sebastian Brandt developed an innovative reproduction process that produces unique, naturally appearing plant models. This exclusive method deals with both the exact reproduction of surface details and, most importantly, the convincing reproduction of plant coloration – resulting from knowledge about their structural composition.

Consequently, the first step is always a precise examination of the original plants' coloration and the resulting mixing of species-specific color sets from various pigments. In the second step, molds are made from original plants using modern silicones, creating individual sets of numerous highly detailed casting molds. These molds are then filled with colored synthetic resins in the next step, ensuring that all elements of the plant body receive the exact coloration during the casting process. Additional substances simulate the substantial characteristics of the original plant, which in total creates a deceptively realistic color reproduction in the model. All steps from collecting the original plant to the finished model are performed by hand by the first author.

This process produces plastic casts that are pretty much identical to nature in form and color, indistinguishable from living plants even at close range. These globally unique botanical models are absolutely permanent under museum conditions and can be presented in individual display cases.

This opens up previously unimagined possibilities for modern natural history museums and other nature education institutions in the area of natural history education and public conservation work. The conservation aspect of the new reproduction technique is particularly noteworthy: The new process allows even diverse plant species and, more recently, fungal species to be admired simultaneously and conveniently from close up. This allows every observer to easily learn about both the breathtaking aesthetics of plants and their biological and ecological characteristics. This forms a basis for developing a new awareness of responsibility for the botanical and holistic natural heritage of our planet.

With this special reproduction technique, unlike previous plant preparations, plants need to be taken from nature only once for molding. With the new process, multiple replicas can be produced from the same template in almost nature-identical quality. This also makes an important contribution to species conservation, as natural biotopes are both preserved and impressively presented to a broad public.

#### METHODS:



## 5. Creation of a Habitat Display

This is the crucial and most challenging step to ultimately create a convincing and natural exhibit. The decisions regarding form, perspective, and design of the display are determined by both the content to be shown and aesthetic values. The goal must be to authentically represent a part of nature, an ecosystem, in its specific complexity and beauty within a limited three-dimensional object. This is an interdisciplinary challenge that inextricably links scientific and well-founded artistic skills.

It is particularly important that all work steps of the entire exhibit and all its elements are carried out equally - with the same quality, standard, and skill. Unfortunately, in taxidermy, the presentation of specimens and decorative accessories is still commonly observed. Botanical elements (or models when available), stones, substrate, natural materials, etc. are unfortunately still viewed merely as decorative objects meant to create a focusing frame for the "actual" exhibit/animal specimen. Describing such an exhibit as a "habitat" is not justified and, in the first author's opinion, simply presumptuous and incorrect.

A habitat refers to a typical living space of species, a complex ecosystem that consists of many natural factors that need to be precisely analyzed for each species and even for each inanimate element. This includes the following considerations:

- geographic locality
- climate and weather
- season and temperature
- soil composition
- water management
- typical accompanying species from flora and fauna
- typical behavior of species
- functional morphology and specifications of species
- substantive knowledge about typical ecological processes and the relationships between species and inanimate elements

To demonstrate a habitat in the form of a model exhibit, All these points must be carefully considered and thoroughly thought through. Only then can a decision be made regarding the desired statement about which of these characteristics should be highlighted and which should not. This begins with the choice of the section to be shown and the decision on the basic form of the display. How can the typical dynamics of this ecosystem be made visible through the basic form? Or typical directions and movements? Which environmental factors are particularly important for the species being shown? Which accompanying species are essential or only conditionally necessary? How must the design elements - relief, soil substrate, plant models, natural materials, and animal specimens - be arranged so that their relationships are authentic and simultaneously exciting for the viewer?

HABITAT:



## 5.1. Human Perception Patterns

It is helpful to consider the perception patterns of subsequent viewers. Typically, these are museum visitors, people embedded in an urban, architectural context with the expectation of consuming knowledge and aesthetics in an entertaining manner. Their visual habits at this moment are different from if they were on a mountain hike, a nature tour in the desert, or even during a meditation retreat. This is important because anything that corresponds to the current visual pattern is perceived as appropriate and thus quickly as normal and boring. This must be avoided.

The key concept is the creation of an irritation. Essentially, a deliberately staged disruption of the consumer's - the viewer's - expectations. Unlike an actual disruption, which is perceived negatively, irritation is much more subtle, intelligent, and surprising. It targets the moment of amazement, the exciting disruption of the familiar that is experienced and remembered with great intensity. More so than an exaggerated sensation. This is how fascination works.

As a biological artist, this knowledge is the decisive approach: suddenly confront the viewer with an absolutely authentic-looking - a lifelike-appearing segment of nature in an artificial, architectural context. A foreign artifact from a natural reality in an artificial yet simultaneously familiar environment. This has an enormous effect! From the natural foreignness of the exhibit in contrast to the familiar human world, the authenticity of both is sharply questioned. The object becomes an experience that stimulates the viewer to think, to position themselves, to communicate, and to develop a sustainable sense of responsibility - it remains in memory.

Creating an exciting and thus convincing habitat display is a deliberately staged shift in the viewer's perceptual habits. This fact makes this work art.











Beauty arisen on parasitism.

Sebastian Brandt  
&  
Zsombor Pümkösti  
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