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BURPEE

MEMBER MAGAZINE
WINTER 2024

Out of the Rock

EARTH

CELEBRATING THE
ART INHERENT IN NATURE

A Dream Realized

Unveiling Nature's Classroom

Princess in a DINOSAUR GRAVEYARD

Combining Art, Science, and Culture at the Hanksville-Burpee Quarry

Cover Art by: Stephen Somers

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BURPEE

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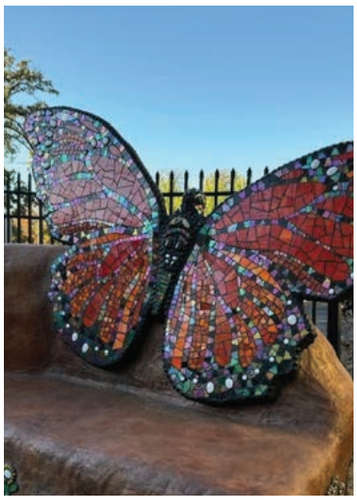
SCIENCE + ART + INSPIRATION



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EARTH

Natural history museums celebrate the art inherent in nature

A Letter from the Executive Director

Art is everywhere in nature—from the vibrant oranges and reds of the autumn leaves to the bubbling water of a stream, from the vibrant colors of a bird's feathers to the intricate patterns on a butterfly's wings. This issue's cover showcases a roadside plant captured in macro photography, revealing an almost alien beauty hidden from the naked eye.

When we pause and appreciate nature's artistry, we're more likely to support conservation efforts to protect these habitats and the animals within them. At the museum, we say: to inspire someone to save something, they must first learn to love it.

Art in Natural History

Each living creature, shaped by the forces of time and adaptation, holds a palette of colors and designs that tell stories of survival and attraction, warning and wonder. With every feather, fur, or petal, nature creates masterpieces that dazzle the eye and ignite curiosity, inviting us to explore deeper into life's endless canvas.

Artists capturing elements of nature as they are from photography to taxidermy to genetic codes are preserving them for future generations to study and admire. Through artistic interpretation, we can connect deeply with our planet's past creating PaleoArt of creatures long extinct from this planet.

Art in Natural History

Through programs like Art of the Earth, Burpee visitors learn to reimagine Earth's prehistoric life by merging scientific understanding with artistic techniques, creating paleoart that brings ancient creatures to life. The museum also celebrates the natural beauty found in living organisms, from our animal ambassadors to the educational displays showcasing the art in phenotypic variation, like our animals "Patches" and "Freckles," ball pythons with unique color mutations. In addition, Burpee's volunteer programs, including passionate young volunteers like D'Shaun, engage the community directly, nurturing an appreciation for nature through hands-on animal care and live presentations. With projects like the large cicada mosaic sculpture created through the SPARK summer art camp, we offer a space where local youth can make their artistic mark on the museum itself. This blend of art and science helps all ages fall in love with nature's beauty and sparks a shared commitment to preserving it.

In this giving season, we invite you to join Burpee Museum in celebrating and preserving the extraordinary art found in nature. We rely on your generosity to continue inspiring wonder, curiosity, and a passion for preservation. By donating, you help us sustain programs like Art of the Earth and community projects like the cicada mosaic, which connect people of all ages to nature's artistry. Together, we can ensure that Burpee remains a vital resource for learning, creativity, and conservation, bridging art, science, and a shared love for our planet's wonders.

Respectfully and Enthusiastically Yours,

Anne Weerda

Anne Weerda
Executive Director

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Creativity in the Animal Kingdom

NON-HUMAN ARTISTS

By: Madelynn Peters

WHO CAN MAKE ART?

If asked to think of the greatest artists in history—perhaps Michelangelo, Monet, or Yayoi Kusama come to mind. But did you ever consider penguins, elephants, birds, or even pufferfish? Art, once thought to be an exclusively human endeavor, has proven to extend into the animal kingdom. From painting to sculpting, animals are creating art for enjoyment, enrichment, and even survival. This “animal-art” spans a wide array of mediums and species, with animals expressing creativity for reasons as varied as our own.

ZOO ARTISTS

Initially, art activities were introduced in zoos to provide animals with enrichment. Elephants, for example, were trained to use their trunks to hold paint brushes, and penguins painted with their flippers. These animals quickly demonstrated enjoyment and engagement, sometimes even learning to draw specific shapes or images. For these animals, painting offers stimulation and entertainment, just as it does for humans.

WILD ARTISTS

In the wild, many animals also create impressive displays, often for the purpose of attracting mates. Bowerbirds, for example, construct intricate nests using an array of colorful objects like berries and flowers. Each item is carefully selected and arranged to form a vibrant display outside the nest. The female bowerbird judges this artistic presentation, selecting mates based on the beauty and complexity of their displays.

A male satin bowerbird, *Ptilonorhynchus violaceus*, tends his nest which he has decorated with blue objects. Photo location: Lamington National Park, Queensland, Australia

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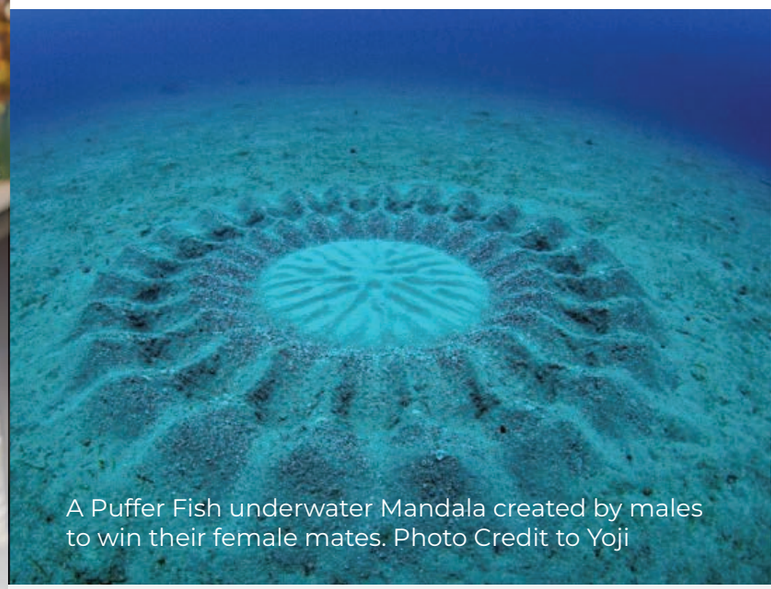

A Puffer Fish underwater Mandala created by males to win their female mates. Photo Credit to Yoji

White-spotted puffer (Arothron hispidus) in the Red Sea.

UNDERWATER ARTISANS

Some underwater creatures also showcase artistic skills! A notable example is the white-spotted puffer-fish *(Torquigener albomaculosus)*. Males create expansive, geometric mandalas on the seafloor using their fins to draw elaborate, repeating patterns. These sand artworks can take days to complete, and females assess the quality of these mandalas to determine a suitable mate.

AESTHETIC APPRECIATION IN ANIMALS

Beyond courtship, some animals seem to appreciate art for its own sake. Dogs, dolphins, and elephants have been observed responding to images and displays. Non-human primates, such as orangutans and chimpanzees, show active interest in both creating and observing art. While researchers continue to explore the depth of animals' aesthetic understanding, it's clear that animals are capable of experiencing beauty, creativity, and enjoyment through art.

REVISITING THE ARTIST ROLE

While we're still learning about the significance of art for non-human animals, the evidence suggests that humans aren't the only creatures moved by the power of creation. From brushes to sand mandalas, the art of the animal kingdom reminds us of the diverse ways many forms of life on Earth appreciate beauty.

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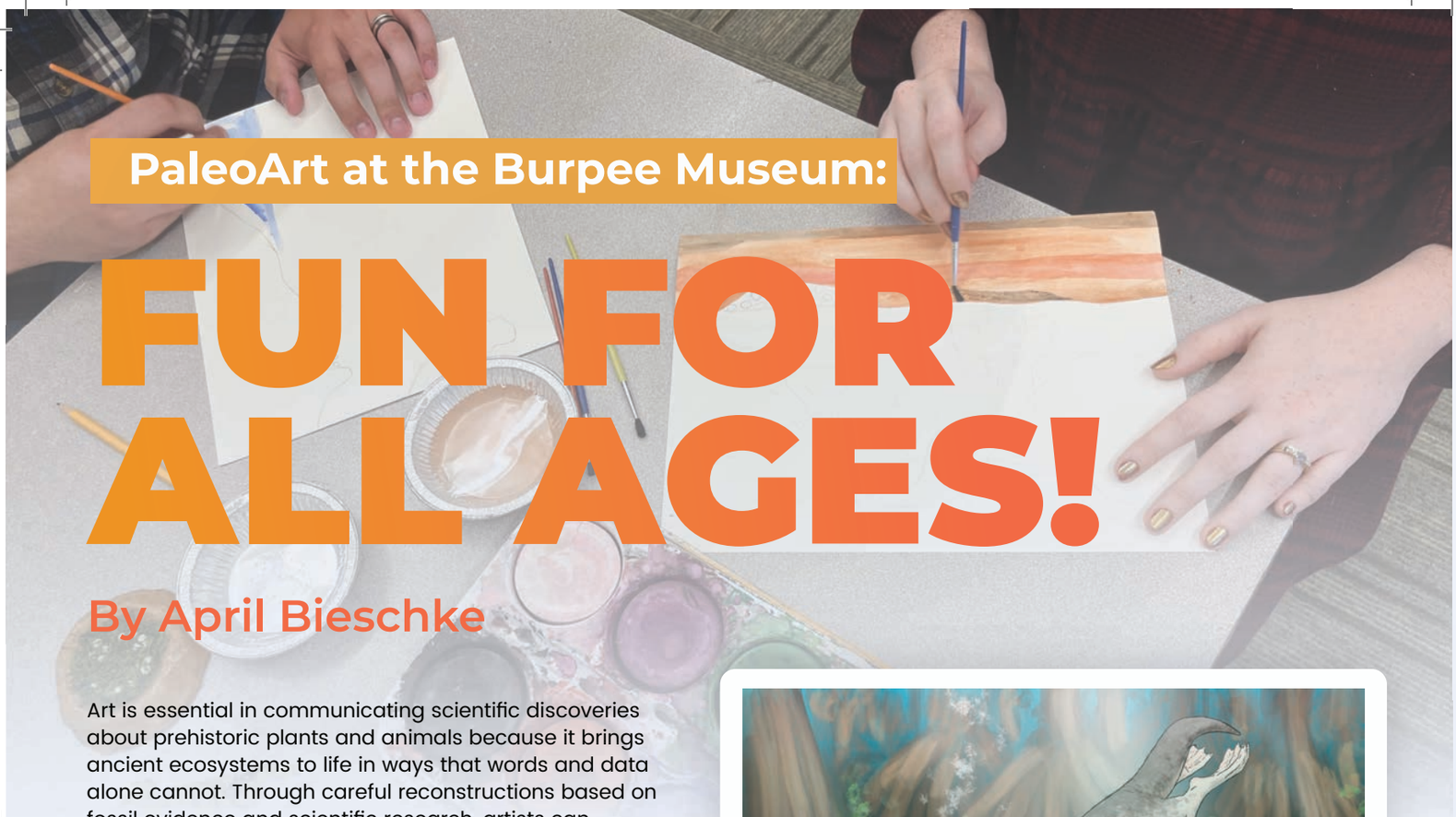
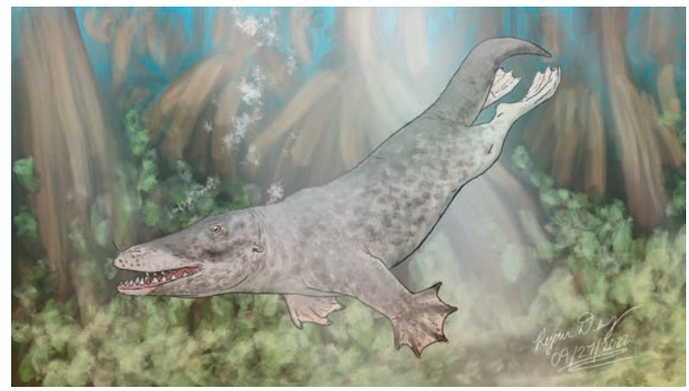


PaleoArt at the Burpee Museum:

FUN FOR ALL AGES!

By April Bieschke

Art is essential in communicating scientific discoveries about prehistoric plants and animals because it brings ancient ecosystems to life in ways that words and data alone cannot. Through careful reconstructions based on fossil evidence and scientific research, artists can illustrate what extinct species looked like, how they interacted, and the environments they inhabited. These visual representations bridge the gap between raw data and public understanding, allowing people of all ages to visualize and connect with Earth's past. Art makes science accessible, inspiring curiosity and deeper learning about our planet's ancient history.



TRAINING IN PALEOART

If you're looking for a hands-on experience that combines science, creativity, and a dash of prehistoric adventure, the Burpee Museum's Art of the Earth classes are perfect for you! These 60-minute sessions, held every other Saturday from 1:00 pm to 2:00 pm, are an exciting opportunity to dive into PaleoArt—where art and science come together to bring Earth's ancient creatures and landscapes back to life. Whether you're 7 or 70, these classes offer something for everyone!

WHAT TO EXPECT

For just $3 (or $2 for members), you'll join one of the museum's resident artists in exploring how scientists and artists collaborate to visualize the distant past. Picture yourself drawing fierce dinosaurs like *T. rex* or graceful woolly mammoths using real skeletons, modern models, and the latest scientific research. You'll get hands-on with fossils, plants, and skulls, learning how to translate ancient natural history into your own artistic creations.

These classes offer a chance to expand your skills in drawing, painting, or even sculpture—using techniques rooted in both science and creativity. Whether you're interested in mastering paleoart techniques or simply trying something new, this experience is designed for all skill levels and age groups. Basic art supplies are included, so you can jump right in, though you're welcome to bring your favorite materials.

ADULTS, DON'T HOLD BACK!

These classes aren't just for kids—adults, hobbyists, and anyone with a passion for art and nature will love them, too! Imagine sketching a dinosaur from scratch or constructing a prehistoric landscape with expert guidance. Not only will you learn about extinct animals and ecosystems, but you'll also gain insights into how modern paleoartists bring creatures from Earth's ancient past to life on the page.

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Whether you're a parent joining your kids for a creative bonding experience or a solo adult looking to flex your artistic muscles, you'll find that the Art of the Earth sessions offer a relaxed yet inspiring environment. No matter your experience level, you'll walk away with newfound artistic skills, a deeper understanding of natural history, and your very own piece of prehistoric art.

MEET THE EXPERTS GUIDING YOU

Ryan, one of Burpee's veteran instructors, brings his passion for both art and science to every class. A volunteer educator since 2017 and full-time museum staff member since 2021, Ryan specializes in teaching the intricate techniques behind paleoart. In his sessions, he'll show you how to draw skeletons, plants, and animals from the ancient world, weaving in fascinating facts about how scientists recreate these long-lost ecosystems.

For those interested in creating full environments and detailed models, Carl, another expert educator, offers classes focused on diorama-building and model-making. With over a decade of teaching experience, Carl helps students construct detailed, lifelike scenes featuring the animals and plants of Earth's prehistoric past. Whether you're into drawing, sculpting, or constructing entire worlds, Carl and Ryan will guide you through techniques to bring your creative visions to life. They emphasize that paleoart is about more than drawing dinosaurs—it's about combining science with creativity to make informed artistic decisions.

WHY SHOULD YOU JOIN?

It's More Than Just Art—It's a Journey into the Past!
The Art of the Earth program goes beyond simply teaching how to draw a dinosaur. It's about understanding the science behind these incredible creatures and using that knowledge to create something truly unique. For adults, it's a chance to revisit the wonder of natural history through a new lens. For kids, it's a fun way to learn about dinosaurs while unleashing their imagination.

At the end of the class, you won't just leave with art—you'll leave with a deeper appreciation for the natural world and the skills to capture it. So, why not make your next Saturday extraordinary? Grab a friend, your family, or come solo, and dive into the world of paleoart. You'll explore the past, create something amazing, and have a blast doing it!

Sign up now, and let your inner artist and scientist roam free at Burpee Museum!

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Princess in a DINOSAUR GRAVEYARD

"To hell with Princess, I'm gonna be a Paleontologist"

The Hanksville-Burpee Quarry is one of the largest continuous dinosaur bone beds in North America. This site preserves fossils of Jurassic dinosaurs like Diplodocus, Camarasaurus, Allosaurus, Stegosaurus, and more in what was once an ancient riverbed. Located in the Brushy Basin Member of the Morrison Formation, the fossils suggest that Southeast Utah resembled the modern-day Gran Chaco Plain in South America, with flowing rivers, sequoia forests, diverse reptiles, and thriving dinosaur populations.

Since 2007, the Burpee Museum of Natural History (BMNH) has partnered with the Bureau of Land Management to excavate and preserve this site, collecting over a thousand specimens - many of which are now on display at BMNH.

Stew Cook
Brandon Pierce, O'Rourke Zellmer

This past dig season in Southeast Utah, I found myself surrounded by Jurassic dinosaurs, a photographer, and a princess! This unique mix brought together science and its best companion—art!

I have always been a lover of art in the sciences as talented scientists and artists have always surrounded me. When Burpee was approached by a pair of artists for a collaboration, I was thrilled! One of them, Brandon Pierce, first visited the Hanksville-Burpee Quarry in summer 2023 to scout for a photography project. After touring the site, he expressed interest in returning with his colleague. They did come back, bringing new life to a 150-million-year-old dinosaur graveyard.

Brandon Pierce, Chair and Lead Faculty of Fine Arts and Design at Lake Michigan College, is the photographer for O'Rourke Zellmer, a model and teaching assistant. Their project began with O'Rourke creating costumes and characters for students to explore concept art and design. As Brandon documented these shoots, the project evolved into an exploration of identity and evolution.

"Over time, we realized there was more to these sessions than just isolated, individual images. As the archive of shoots grew, we began to see the potential in viewing the collection through a broader lens. Just as a paleontologist avoids drawing conclusions from a single set of remains, a single portrait captures only a fleeting, literal split-second in time." Brandon likens the project to collecting data to better understand ancient cats like Smilodon within the scheme of the entire cat family.

"In our time when identity—whether intentionally or unintentionally—is constantly constructed, manipulated, and communicated online, this process felt especially relevant."

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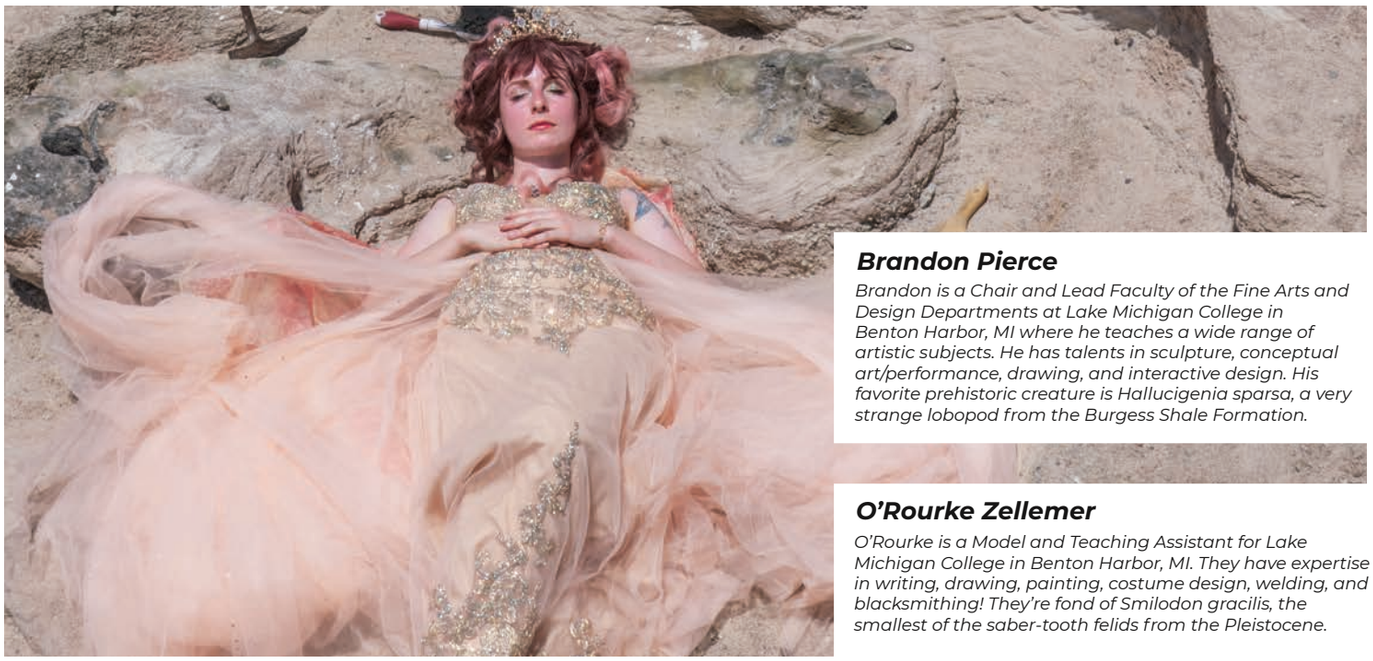

Brandon Pierce

Brandon is a Chair and Lead Faculty of the Fine Arts and Design Departments at Lake Michigan College in Benton Harbor, MI where he teaches a wide range of artistic subjects. He has talents in sculpture, conceptual art/performance, drawing, and interactive design. His favorite prehistoric creature is Hallucigenia sparsa, a very strange lobopod from the Burgess Shale Formation.

O'Rourke Zellemer

O'Rourke is a Model and Teaching Assistant for Lake Michigan College in Benton Harbor, MI. They have expertise in writing, drawing, painting, costume design, welding, and blacksmithing! They're fond of Smilodon gracilis, the smallest of the saber-tooth felids from the Pleistocene.

For the past three years, O'Rourke has created characters with diverse personas, genders, and backstories for Brandon to photograph as unique "clients." Together, they've captured over 65,000 images across 61 sessions.

For their shoot at the Hanksville-Burpee Quarry, O'Rourke styled a look inspired by the quarry itself, which aligned with the theme: modern culture and issues in paleontology.
"Initially, we envisioned something like Vogue meets Jurassic Park. However, as we did more research, we developed an awareness of the complex history of women in STEM, particularly in paleontology."

Inspired by the Guerrilla Girls and the Bearded Lady Project, their shoot explores stereotypes, equity, and gender dynamics in art and science. Paleontology has traditionally been male-dominated, with women often discouraged from careers or interest in the field. Mary Anning, a pioneering paleontologist, faced many barriers due to the lack of respect for women. Although women now lead much of the cutting-edge research in paleontology, some of these challenges still persist today.

For Brandon and O'Rourke "the concept for this shoot truly came together when we encountered memes proclaiming variations of "to hell with Princess, I'm gonna be a Paleontologist."

Paleontologists are often stereotyped as "masculine explorers" much like Indiana Jones which has given the public a skewed picture of who these scientists are. In reality, paleontology is an extremely diverse field not just with gender or ethnicity but also style!

"Princess and paleontologist are not mutually exclusive as they are both constructs and thus subject to reinterpretation. The shoot became an exploration of both the power of the site and the ongoing, often underrepresented, contributions of women in STEM," as put by O'Rourke and Brandon.

So on a hot day in June, I was able to serve as a paleontology advisor for O'Rourke as they became a Princess and Paleontologist at the Hanksville-Burpee Quarry. Brandon's expert documentation of this experience can be seen in this issue as well as both Brandon and O'Rourke's Instagram pages: @dragoncrownjewels and @snapcase23. If you are interested in their exploits be sure to follow them as they will be working on a website, book, and gallery for this project!

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The Art of Animal Coloration:

Exploring Phenotypic Variation in the ANIMAL KINGDOM

TOP: Ball Python Wild Type

BOTTOM: Ball Python Piebald Morph

By: Carl Deaton

While it's easy to overlook, the colors and patterns in animals often serve specific and crucial roles in their survival. Some animals use their colors to blend into their surroundings through "disruptive" or "cryptic" coloration, while others display bright colors to warn potential predators that they're poisonous or dangerous. The colors and patterns we see in animals are crafted through unique combinations of pigments and structural characteristics that reflect light in specific ways. These traits vary widely across the animal kingdom, and some are so rare they are found in only a few species.

WHAT MAKES ANIMAL COLORS?

Animal coloration generally arises from two mechanisms: pigments and structural colors. Pigments are organic molecules that absorb certain wavelengths of light and reflect others. The color we see is the reflected wavelength—like how the red feathers of a cardinal absorb all wavelengths except red. In contrast, black fur on a bear absorbs all wavelengths, leaving no light to reflect back, giving it a dark appearance. Pigments depend on dietary elements, meaning some are more common than others, with colors like red, brown, black, and white appearing far more frequently in nature than rarer hues like purple or blue.

Structural colors, on the other hand, do not come from pigments. Instead, they rely on the microscopic structure of an animal's body to reflect and refract light. This phenomenon is particularly striking in animals with iridescence. Microscopic prismatic structures on the body refract light, causing certain wavelengths to cancel each other out and only specific colors to be visible. Blue, a rare color in the natural world, is often produced through this structural process rather than pigments. This is why true blue pigmentation is incredibly rare and found only in a few animals, like Olive Wing butterflies and certain blue frogs.

THE ROLE OF COLORATION IN ANIMAL SURVIVAL

Animals use their colors and patterns in various ways that are closely tied to their survival. Many animals rely on camouflage to avoid predators or ambush prey, blending seamlessly into their environments. Others, like certain frogs and butterflies, display vibrant colors to signal to predators that they are toxic or otherwise unpalatable. These colors are not only visually striking but serve as effective communication tools in the animal kingdom.
But what happens when an animal has a mutation in its coloration? These changes, known as color morphs, can dramatically alter an animal's appearance and provide valuable insight into phenotypic variation. Two ball pythons at Burpee Museum, Patches and Freckles, demonstrate such unique variations.

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CASE STUDIES: THE COLORFUL WORLD OF BALL PYTHON MORPHS

Ball pythons, known for their calm demeanor, are a prime example of how genetic diversity can lead to extraordinary variation in coloration and patterning. Patches, a piebald python, has distinct patches of dark and light scales, creating a striking contrast across her body. This piebald trait, popular with museum visitors, arises from a genetic mutation that interrupts the distribution of color-producing cells in certain areas of the snake's skin.

Another example, Freckles, is a "Banana Ball Python," also known as hypomelanistic, meaning he has reduced melanin. Melanin is the pigment that produces darker color. The result is a vibrant, banana-like yellow coloration with minimal darker markings. Ball pythons have over 7,000 known color morphs, each displaying unique combinations of colors and patterns—many of which would not survive in the wild.

THE INFLUENCE OF SELECTIVE PRESSURE ON ANIMAL COLORATION

In the wild, animals like ball pythons are subject to selective pressures, meaning they must blend into their environments to evade predators and capture prey. Natural selection favors colorations that help an animal survive and reproduce, which is why wild ball pythons typically have muted, mottled colors that blend well into the forest floor. These patterns are practical for survival, helping them avoid detection and thrive in their natural habitats.

In captivity, however, selective pressures are significantly reduced, allowing for a broader range of colors and patterns to survive and thrive. Humans, captivated by visually striking patterns, often breed animals with more vibrant and unusual morphs, leading to the array of colorful variations we see in captive ball pythons.

NATURE'S FUNCTIONAL ART

Animal coloration is a fascinating blend of biology, chemistry, and evolution. From rare pigments to complex structural colors, these traits serve practical roles in an animal's survival, communication, and, in some cases, reproductive success. Captive breeding has allowed humans to witness the full spectrum of color possibilities in animals like ball pythons, yet these variations remind us of the delicate balance between beauty and function in nature. Whether for camouflage, signaling, or simply aesthetic appeal, animal coloration highlights the artistry inherent in the natural world and offers us insight into how life adapts to survive and thrive.

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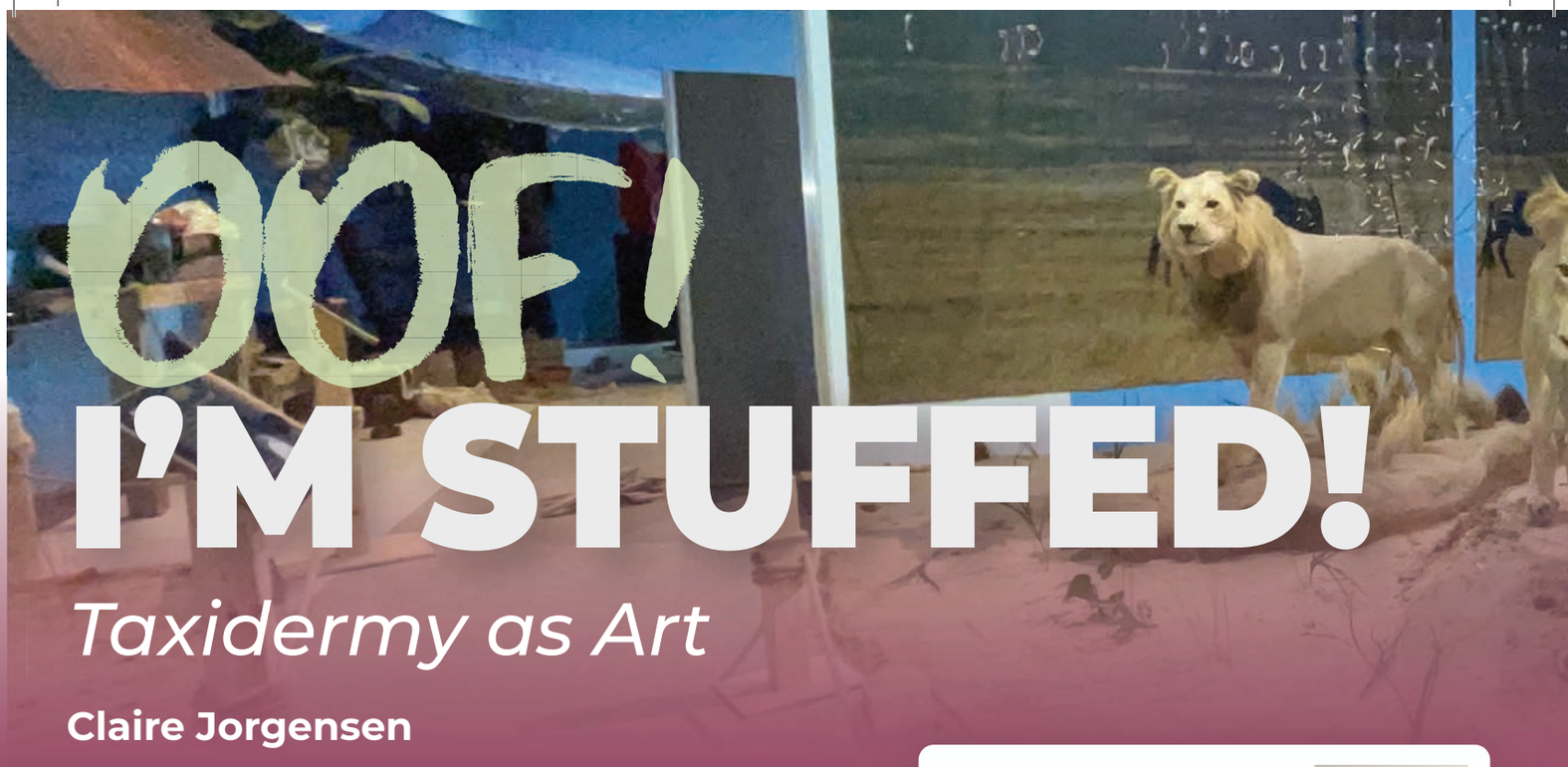

OOF! I'M STUFFED!

Taxidermy as Art

Claire Jorgensen

Taxidermy is a unique blend of the odd, the captivating, and sometimes the controversial. For some, it's triumphant or whimsical; for others, it might seem grotesque. Whether or not you'd want a "stuffed" animal displayed on your mantel, taxidermy holds immense scientific and artistic value. At the museum, it goes beyond aesthetics—serving important roles in education, research, and preservation.

The ancient Egyptians were among the first to master the preservation of animals—and even humans. They transformed this practice into an art form with profound spiritual significance, aiming to ease their loved ones' journey into the afterlife. Apparently, that passage was considered safer once the brain had been removed through the nose, and the deceased were laid to rest in tombs surrounded by mummified cats and ibises.

Attitudes toward hunting and wildlife collection have varied widely across cultures and eras. Over time, the practice of taxidermy has drifted in and out of public favor, evolving from crude displays to sophisticated artistry, while trophy hunting has often sparked controversy. Nature has long been something to be feared, dominated, and reshaped—forests cleared, gardens forced into geometric patterns, rivers dammed, animals caged, and the wild made tame. As science moved from the fringes to a respected field, embraced by the secular public, attitudes toward the natural world shifted as well.

In Victorian England, taxidermy reached its peak popularity. Millions of songbirds were killed to decorate extravagant hats, and elephant feet were repurposed into umbrella stands, reflecting the era's fascination with conquering and displaying nature.

Alongside these fashionable trophies came thrilling tales of exotic animals from distant lands. Darwin returned from his voyage on the Beagle with wondrous descriptions of giant tortoises, iguanas, armadillos, the elegant llama, and the baffling platypus. Scientists quickly realized that people would eagerly attend their presentations if they included opportunities to see animals previously known only by name. Beyond the shock of encountering a lion, giraffe, or gorilla for the first time, the public's fascination grew into genuine appreciation.

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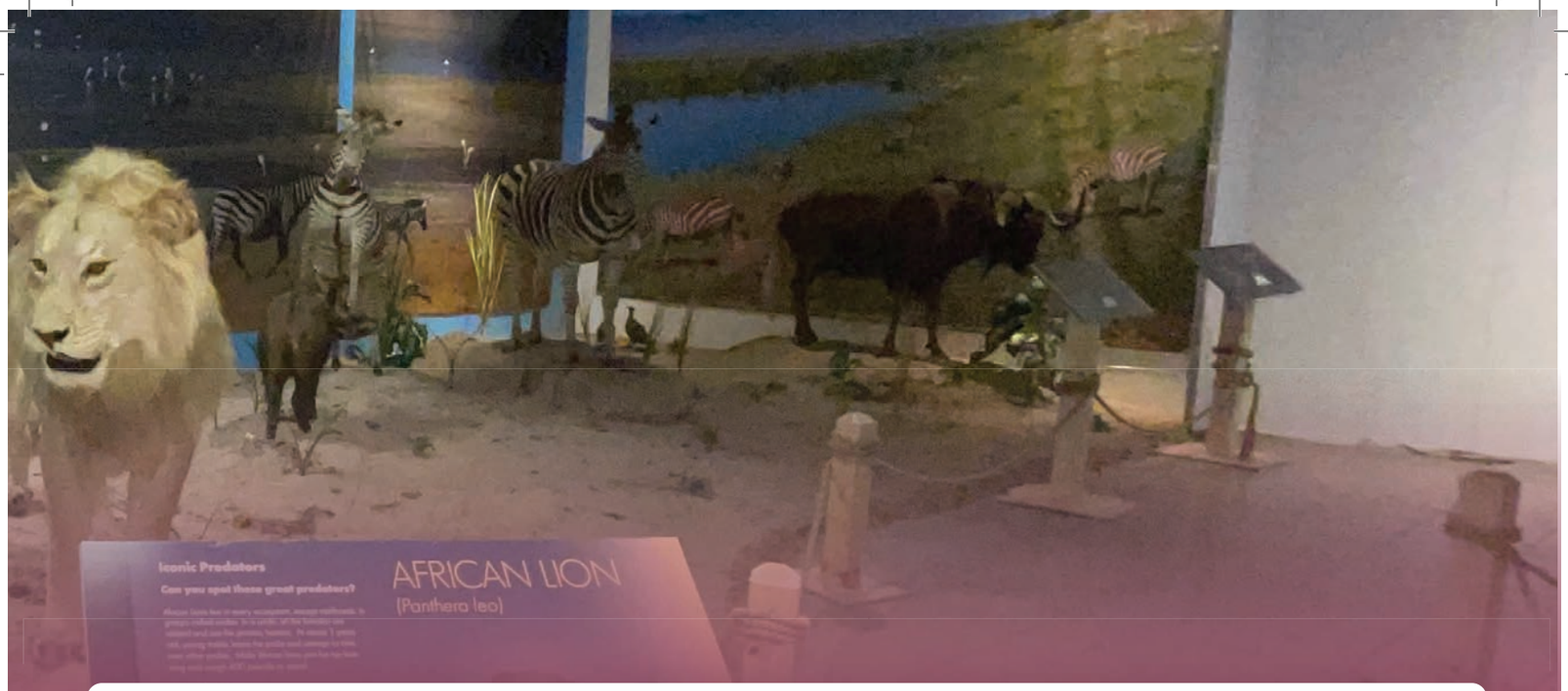

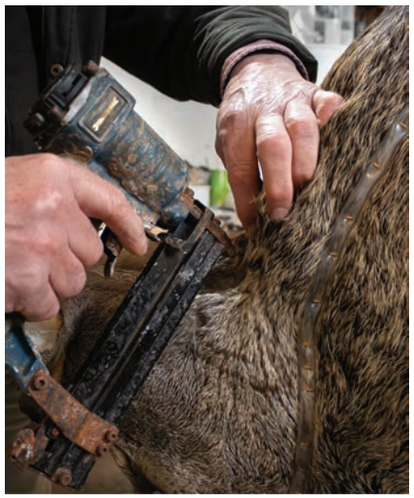

Taxidermy styles vary widely: some artists prefer to let animals appear in natural poses, while others create dramatic scenes of intense chases or even whimsical displays—like squirrels playing poker. And while any art form may invite critique, few can say “I could do that” of expert taxidermy. Taxidermists need immense artistry, a keen understanding of animal behavior, and a deep knowledge of anatomy, giving taxidermy a rightful place in art museums and scientific collections alike.

The intricate process of preserving an animal’s appearance after death involves careful skinning, precise preparation, and sculpting to create a lifelike form. Each taxidermied specimen, frozen in time, tells its own story of the natural world.

Beyond aesthetics, taxidermy plays a vital role in education and conservation, allowing scientists and the public to study species like the dodo or the passenger pigeon that have vanished from our planet. These specimens provide invaluable insights into the habits, anatomy, and habitats of species now lost to history.

The bridging of art and science cultivates a deeper appreciation for the rich biodiversity surrounding us and highlights the importance of preserving Earth’s many life forms. As you wander a museum's halls, each carefully posed creature serves as both a testament to the artist’s skill and a tribute to the wonders of nature. The balance of beauty and knowledge in taxidermy deepens our understanding of the world and reminds us of the intricate connections binding all living things

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Natural Dyes:
NATURE'S COL

By: Julie Junod

For over 50,000 years, people have used natural pigments and dyes to create art—from the earliest Neanderthal cave drawings to the masterpieces of Renaissance artists, materials like minerals, plants, and even insects have offered pigments that reflect the diversity of our landscapes and cultures.

These colors were once carefully cultivated, often passed down through generations, and today, as artists revisit sustainable and eco-friendly techniques, these “back to nature” natural dyes are making a comeback.

THE BEGINNING

The origins of natural dyeing trace back to prehistoric cave paintings, first discovered in the 1800s in Spain. Dating back as far as 20,000 years, these images of hands, animals, and local scenery were rendered with primitive tools using minerals like ochre (from a clay based rock, and made of iron oxide, clay, and sand) for earthy reds and yellows, charcoal for rich blacks, and calcite for whites. These pigments, often mixed with animal fat for durability, were limited in color but gave depth and texture to the drawings. Natural color variations of the rocks were used to enhance their drawings and give some of them a more 3D appearance. This initial use of local, natural materials not only represents a “birth of art” but also highlights humanity's resourcefulness in finding ways to create lasting expressions.

ACROSS CULTURES AND TIME

Early art techniques and materials were shaped by what was locally available in each region. Ancient Egyptians, known for their elaborate tomb paintings and artifacts, were among the first to wash and process pigments to intensify color. By the 13th century BCE, they had developed ways to “fix” dyes, binding them to a base like white powder to enhance colors. Their use of mineral-based pigments, such as azurite (a brilliant blue copper mineral) and realgar (a striking orange sulfide mineral), yielded hues found in the tomb of Tutankhamun. Madder root, a common red dye, was also extensively used in Egyptian art, especially in textiles and wall paintings.

As societies grew and cultures exchanged materials and knowledge, the variety and complexity of natural dyes expanded. The influence of natural pigments continued through the Middle Ages and Renaissance, with artists perfecting extraction techniques. Brighter colors and different binding methods allowed artists to manipulate drying times and textures. Egg tempera, a mixture of egg and water, became popular for its quick-drying, resilient quality. Later, walnut and linseed oils replaced egg as binders, creating a slower drying time that allowed for greater blending and detailed realism. Artists like Michelangelo and Rembrandt worked with natural chalks and pigment blends, achieving dynamic colors that remain vibrant centuries later.

The Great Wave Off Kanagawa

THE SHIFT TO SYNTHETIC COLORS

In the 19th and 20th centuries, industrialization spurred innovations in art supplies, including the introduction of synthetic pigments and collapsible paint tubes, making paint more portable and consistent. A famous example of this transition is The Great Wave Off Kanagawa, a woodblock print by Japanese ukiyo-e artist Hokusai, created in 1831. Known for its use of Prussian blue—a synthetic pigment imported from China and the Netherlands that resists fading—this print was one of the first in Japan to feature Prussian blue, contributing to its popularity. Hokusai also used a layering technique, mixing Prussian blue with indigo to create bold outlines and a darker, more three-dimensional effect on the wave.

By the 1940s, synthetic acrylic resin paints entered the mainstream market, thanks to a collaboration between chemists and artists. Acrylics offered a new, synthetic alternative to traditional paints, expanding the palette while allowing for mass production. This shift, however, introduced environmental concerns such as chemical runoff, contamination, and resource depletion, prompting modern artists to reconsider the ecological impact of their materials.

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LOR PALETTE

THE SOURCES OF NATURAL COLOR

Traditional, natural dyes fall into three primary categories: plant extracts, minerals, and animal extractions, each offering a unique palette and chemical composition. Plant-based dyes, such as indigo and saffron, provide vibrant blues and yellows; mineral-based pigments, like malachite and hematite, yield intense greens and reds; while animal-based dyes, although less common, have long been prized for their intensity. Many natural dyes fall into two types: adjective dyes, which require a mordant (such as iron or tin) to fix the color, and substantive dyes, which naturally bind to fibers without additional chemicals.

REDISCOVERING NATURAL DYES TODAY

In an age where modern materials abound, natural dyes remind us of the beauty of simplicity and the resilience of traditional art forms. These dyes, rich in history, are a testament to human creativity and the enduring allure of the natural world.

STEPS TO MAKE NATURAL DYE:

1 Grind the Ingredients:

- Cut, blend, or crush ingredients using a blender, knife, food processor, or mortar and pestle.
- Ensure everything is evenly mixed and of similar size.

2 Heat or Sunlight Extraction:

- **Stovetop Method:** Combine ingredients and water in a 1:1 ratio (use 1 cup of water to 1 tablespoon of spices) and simmer until the desired color is achieved.
- **Sunlight Method:** Place ingredients with cool water in a sealed jar and leave in sunlight. This may take weeks to months to reach the desired color.
  Ensure everything is evenly mixed and of similar size.

3 Separate the Dye:

- Strain the mixture through a sieve or cheesecloth into a bowl.
- **Tip:** Leftover material in the sieve can still be used for other purposes.

4 Adjust the Final Color:

- Add a small amount of acid (like vinegar) or alkaline (like baking soda) to change the pH, setting the color permanently.
- For example, adding lemon juice to red cabbage dye produces a deep pink. Experiment with varying amounts to achieve different hues.

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MAKE YOUR OWN PIGMENTS

	PLANT	PRODUCE	SPICE
Red	Hibiscus, Rose, Hollyhock	Raspberries, Cherries, Cranberries (rich dyes) *Beets make a vibrant pink dye*	Sumac, Cayenne Pepper, Red Pepper Flakes
Orange	Calendula Flower	Carrots, Orange Peels (classic orange) Pomegranates (deep orange)	Saffron, Paprika
Yellow	Goldenrod, Yarrow, Black-Eyed Susan and Dandelions	Lemon peels	Turmeric (bright yellow) Ginger (muted yellow)
Green	Stems and Leaves of pretty much any green plant	Spinach, Matcha Leaves	
Indigo	Russian Sage, Bachelor Buttons	Blueberries (dark purple), red cabbage (bright purple) Blackberries (subtle purple)	
Brown		Onion Skins, Acorns (light brown to tan) Black Walnuts and Coffee Beans (dark brown)	Anise, Cloves (tan)

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Volunteer Spotlight

D'SHAUN LOMAX

Spotlight on D'Shaun Lomax: Young Volunteer with a Passion for Animals and Community

Meet D'Shaun Lomax, one of Burpee Museum's youngest and most dedicated volunteers. At only 11 years old, D'Shaun has been visiting the museum since he was 4 and volunteering with the Animal Care team every week since he turned 10. Here, he is pictured with Nubs, a friendly Crested Gecko he helps care for regularly. For D'Shaun, volunteering isn't just about spending time with animals—it's about fulfilling a lifelong dream.

D'Shaun's interest in the museum started with field trips organized by his daycare, which sparked a love for both the animals and the people who work with them. Now, as a volunteer, D'Shaun's favorite part of the role is sharing live animals with visitors in the Sprouts Lab. As he explains, "The people are the best part." He believes it's important to give back to the community, and volunteering at Burpee has allowed him to do just that.

Through his work at Burpee, D'Shaun has learned hands-on skills in animal care and responsibility, along with practical life skills like cleaning and keeping an organized workspace. He's also developed valuable communication skills by interacting with guests as an animal ambassador, eagerly sharing fun facts and stories about the museum's animal residents.

D'Shaun's interests extend beyond Burpee as well. Outside the museum, he loves capturing photos of animals—especially his favorite photo subjects, his stuffed animals. He also attended the Rockford Arts Alliance Summer Art Camp, where he helped create the stunning cicada wings and large cicada sculpture that now welcome guests at the Burpee entrance.

But animals aren't just his weekend focus; they're at the heart of his hobbies, too. D'Shaun takes weekly horseback riding lessons at Lockwood Park, nurturing his love of horses, and he enjoys watching animal videos in his free time.

Thanks for all you do D'Shaun Lomax! You are proving that age is no barrier to giving back to your community, following your passions, and creating an impact!

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The Dennis & Jean Harezlak Outdoor Classroom:

A Dream Realized

By: Anne Weerda

The Burpee Museum staff and Board of Trustees have long envisioned an outdoor classroom to inspire learning and foster community connections through nature. After years of planning, fundraising, and dedicated effort, we are excited to announce the completion of Phase 2 of this project in November of 2024.

A DREAM IS BORN

In 2017, Burpee Museum saw the potential in transforming the open space between Rockford Museum Campus and Burpee Museum's Manny Mansion wing. This area, shaded by a majestic Civil War-era Ginkgo tree, was full of invasive plants and debris. Yet, it offered the perfect opportunity to create a safe, engaging outdoor classroom for children to explore nature and learn in real pollinator spaces, prairies, wetlands, and more. Soon, a fence was installed, and plans were drafted to bring this dream to life.

LAYING THE FOUNDATION

Thanks to the support of our generous donors, Phase 1 began with the purchase and installation of a "butterfly-wing-safe" Butterfly & Insect Barn, which has been essential to events like Monarch Fest. We continued with the meticulous and repetitive work of removal of invasive species, laying a natural foundation for our future plans, with invaluable guidance from Winnebago County Forest Preserves.

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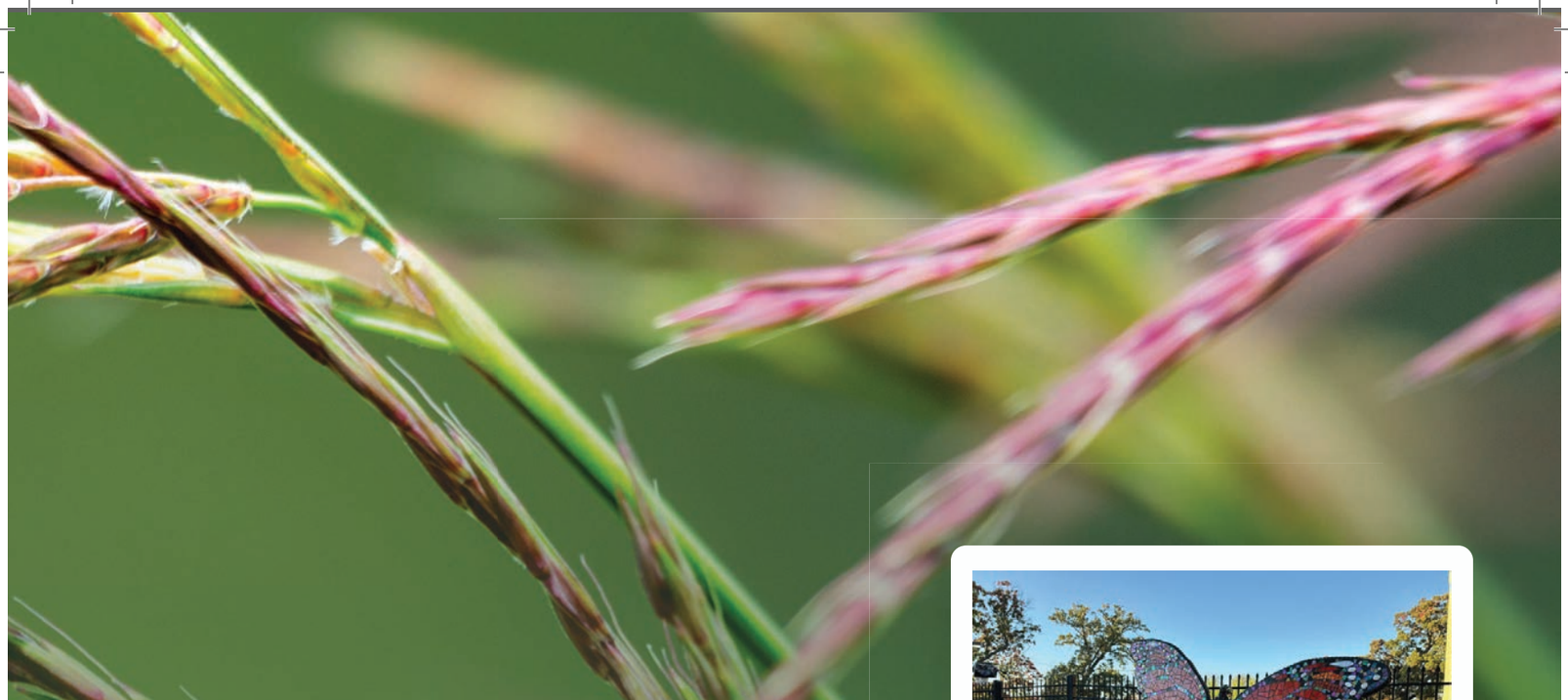

GROWTH AND EXPANSION

This year marks an incredible milestone for Burpee Museum as the Nature Nook transforms into a vibrant educational oasis of the Dennis and Jean Harezlak Outdoor Classroom. The rejuvenated tallgrass prairie now flourishes with fresh plantings and with our invasive species control, native flora can thrive. This allows Burpee to recreate a slice of the Midwest's natural, but endangered landscape Once covering 170 million acres in North America, less than 4% of the tallgrass prairie remains.

Winding sidewalks now guide visitors through the Nook, offering new vantage points to enjoy the art and nature throughout. A new pond-less water feature brings life to our wetland display, inviting wildlife of many species while adding serene beauty for our guests.

With over 1,500 native plants introduced through a partnership with Winnebago County Forest Preserve, the Nook is now a supportive habitat for local wildlife and a model of stability and biodiversity. The iconic cicadas made a loud appearance in the summer of 2024, and we have this moment in time immortalized in an 8-foot sculpture, and mosaic wings created by SPARK students with the Rockford Arts Alliance. Additionally, a mosaic butterfly bench, crafted in memory of Molly Phalen by a renowned artist, was unveiled on November 2, 2024, creating a serene space for reflection amidst this lush, art-filled environment.

A SPECIAL TRIBUTE

As we celebrate the completion of Phase 2 of our outdoor classroom project, we take a moment to honor the remarkable legacy of Molly (Mary Catherine) Phalen, a dedicated advocate for education and a long-time supporter of Burpee Museum. Molly served on our Board of Trustees for nearly fourteen years, offering invaluable wisdom and guidance in human resources and financial discussions. Her passion for the Burpee Museum's mission and her commitment to fostering community connections made her an exceptional member of our team.
Joyfully, Molly was able to attend Monarch Fest in the fall of 2023, shortly before her passing. She poured a large portion of her heart into the museum, and for that, we will forever be in her debt. Molly's strong-willed approach to life and her love of humanity and science continue to inspire us all. May her spirit find peace, and may we honor her memory by carrying forward her mission of education and advocacy within our community in this outdoor classroom.

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(815) 965-3433
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We would like to thank the following special supporters for the contribution to Burpee Museum in the period of August through October 2024

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