PRETTY SPECTACULAR

This Amazing Planet
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Illustrated
written
and researched
by Sarah Nelson

THE INTRODUCTION:

The natural world has inspired humankind throughout history. Our relationship to wildlife goes far beyond food source and companionship.
You can find the natural world's influence in our storytelling, mythology, religion- even our art and fashion!

This edition is dedicated to the undeniable beauty found in nature. Centered on both the way different species use their unique traits, as well as how we have been inspired by them.

One of my passions is to try and bridge the gap between humans + nature. So much of our language is man vs. nature, and I want to bring the 'two worlds' a little closer. I will dig into their influence, our use of animals, and as a special addition: I will talk about color and how it works, as well as the different principles and elements of art in relationship to animals!

I sincerely hope you enjoy.

-Sarah Nelson


Magnificent Riflebird

Visual: Shapes, patterns, and color, have been tools of communication (and disappearance) for as long as there have been living things on this earth!

The way an animal looks, is one method that wildlife uses to communicate with one another. Their colors and shapes can be used to make them appear bigger, to find a mate, to be mistaken for a predator instead of a prey, to communicate to others that they are poisonous, to show dominance over a territory, or to help them disappear into their environment!

COMMUNICATION

Some other ways animals communicate:

Pheromones (chemicals that are released mostly used by insects): Pheromones can be used to direct others to food, to attract a mate, or to raise an alarm. For example, if an ant is squashed they release chemicals that translate as a warning to other ants to stay away.

Touch:
This is also a commonly used by insects. Honeybees will communicate within the hive by doing a 'waggle dance' that gives flight directions to discovered food. Due to the hive's darkness, the bees use touch through dance to guide their fellow bees.

Auditory (mostly used by birds):
This method is used by many species, but is most noted among birds. Different calls can be used to warn, defend, attract, or coordinate large groups into action. Even non-bird species will heed the warning calls made by birds.
Not all communication happens within one type of species.

This is
Wahnee's Parotia,
a bird of paradise,
having transformed
it's shape to try and
attract a mate.

BIRDS OF PARADISE

Birds of Paradise have mesmerized us for much of history. Found primarily in New Guinea, both the indigenous and 16th century Europeans considered them to be the 'birds of god'.

Their unusual beauty almost brought them to extinction. Hunter's hunted them for their beautiful feathers. There are more than 30 different types of birds of paradise, all believed to have descended from some sort of crow like species. Their populations are currently stable, but loss of habitat could lead to a quick decline.

Researcher's believe that these spectacularly ornamental birds didn't start off so wildly colorful and extravagant. Females choose their mates, and they believe that through natural selection, the female birds of paradise have gravitated towards the more extravagant and colorful males. Over time this has created the majestic birds we see today!


Black Sicklebill
Bird of Paradise
Magnificent
Bird of Paradise
Count Raggi
Bird of Paradise
Magnificent
Riflebird
Wahnes Parotia
Wilson's
Blue Bird of Paradise


Panda
Kingfisher
Flamingo
Blue Pet Viper
Peacock Mudskipper
Mandarin Duck
Mandarin Fish
Sheep
Fan Throated Lizard

Many people love to visit the zoo and to decorate their homes with the images of animals and landscapes.
Beautiful things naturally draws us in.

Animals are often naturally stunning. What does differ from person to person is taste. Some people prefer minimal tones and muted colors (like a panda), while others gravitate to elaborate patterns and bright hues (like the mandarin fish or peacock nudibranch)!

Which animals are your favorite and why?

We have used feathers in hats, stuffed creatures, aquariums, etc to display the beauty of these species to the world.

Some species, like the peacock native to India, are associated with royalty, used to ward off snakes on palace and temple grounds. They were also viewed as spiritual birds in Hinduism, Buddhism and even play a role in some Biblical stories.

Did you know that their tail makes up for 60% of their entire body?! Also, peacocks can be any of 13 different colors, including all white, bright pink or purple!

The more we explore the more species we discover.
Often, the most difficult to access areas are home to stunning creatures, with designs that will inspire and mystify us for years to come.

PRETTY SPECIES

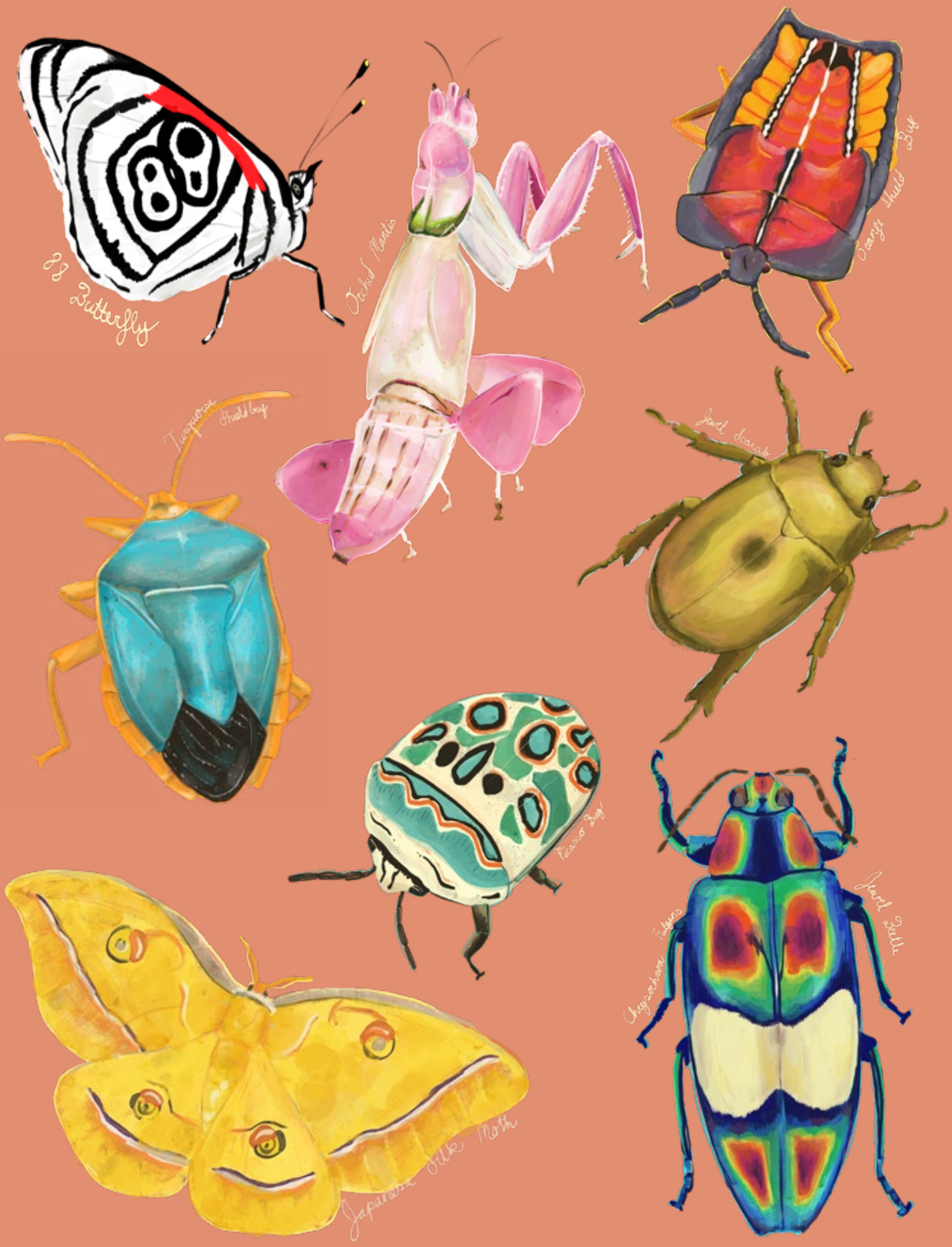
FANCY BUGS

Bugs are not everyones... cup of tea.
Some obsess over them by collecting and studying them. Some even wear replicas of insects as jewelry. Others scream and run away when they see them.
Arguably, the most commonly liked bug is any type of butterfly.
How do you feel about bugs?

Despite their, at times, 'freakish' qualities, there are a lot of stunning insects out there. From the orchid mantis, whose shape will fool you into thinking it is a beautiful flower, to the gold jewel scarab beetle that looks like it was dipped in the precious metal- There is much to be inspired by.

Insects are the most common life form on the planet!
They are strategic and teach us a lot about how to work together efficiently. They are full of information about habitats and put in place many of the structures that keep them healthy.

To care for bugs, is to care for all animals and ecosystems.
There are so many different types of insects, and we are learning new things about them all the time.


22 Butterfly
Orchid Mantis
Orange Shield Bug
Turquoise Shield bug
Jewel Beetle
Peacock Bug
Jewel Beetle
Grey-cheeked Fulgora
Japanese Silk Moth

DID YOU KNOW?

Chameleons have crystals in their skin! Crystals reflect light. Because chameleons have the ability to adjust their nano crystals, they are able to adjust their color to fit their mood and temperature. They can turn into almost every color!!

TRANSFORMERS

Some animals have a wild ability to change color, texture, and shape!

The most famous color transforming creature is the chameleon! They are capable of not only changing color, but their patterns too! Most people believe that they do it purely for camouflage, but some of their most brilliant colorings come when they are trying to attract a mate or defending their territory.

Pufferfish are known for their elastic stomachs that inflate to protect them from predators! They have another retaliation however, they are EXTREMELY poisonous.

Recent studies show that Squid can actually re-write their RNA to adapt to their surroundings! They are the only species we know of that are able to edit their RNA to this extent (up to 60%)!

Seahorses are unusual creatures for many reasons. They mate for life and the male is the one who gives birth! They are able to change colors to blend in with their habitat as a tool for communication amongst one another too.

Lastly, the male peacock spider sports a colorful rear that is used in a dance to dazzle potential mates.


Seahorse
Pufferfish
Squid
Peacock Spider


peony


prayer plant


Japanese Egret Flower
(White Orchid)


eucalyptus


Bird of Paradise

Ipomoea Speciosus

Plants and flowers have a broad range of appearance and function, and are also universally symbolic of beauty and life.

Just like animals, their appearance has function!
In a plant, every color serves a purpose.
First, lets talk about the
difference between leaves and petals. Leaves absorb light through a process called photosynthesis. This allows plants to create sugar (energy) enabling them to grow! Leaves are green because they use all of light except for the green wavelengths. They reflect green back to us, and that is the color we see!

When you see striped leaves with
different shades of green or white
it is because there less chlorophyll in
that portion of the plant.

Colors are used by plants
to attract pollinators birds and
animals!
Plants depend on pollinators
to distribute their
pollen to another plant to
help them generate new seeds.
Animals, like mice, squirrels, and
birds, help distribute their seeds.
In turn these plants feed animals and pollinators for their services!

FLORA

Some flowers also change their colors in order to communicate whether they are ready for pollination or not. Forget-me-not flowers will change from blue to pink, and signal to pollinators whether they should stop to harvest pollen or not.

BIOMIMICRY

Biomimicry is a beautiful approach to innovation. Instead of harvesting or extracting, we use observation and learn how nature has engineered solutions to similar issues we are facing. This approach to invention has lead to incredible breakthroughs!

Termites have taught us about ventilation, beetles have showed us how to harvest water in deserts, plants inspired the invention of velcro, butterflies have improved our solar panel technology, and spiders have helped us create UV reflective glass that is nearly indestructible and prevents birds from flying into them.

Whales have improved our wind turbines! By learning from their aerodynamics and physical structure, researchers observed that the serrated and bumpy edges of their fins lead to greater efficiency when gliding through the air or water. They applied this to wind turbines and now serrated blades are quieter and more efficient than smooth blade turbines!

The Kingfisher inspired the fastest train in the world, Japan's Shinkansen. This train created a sonic boom every time it emerged from a tunnel. Designers found their solution in the Kingfisher's shape. Kingfishers can leave water by barely making a sound. By modeling the front of the train after the Kingfisher's beak, they not only reduced the noise, it also made the train faster and more energy efficient!

Even the medical world is using biomimicry! Geckos have inspired special tape that could replace staples after surgery, and jellyfish have inspired a microchip that helps find and remove cancer cells!

We have so much to learn from nature, by humbly observing and getting to know it better!

One of the earliest forms of evidence of human life that have been discovered, are cave paintings found around the globe.
Cave paintings almost always feature animals! We still aren't sure if it was for spiritual purposes, documentation, or because they simply wanted to decorate their caves with animals.

No matter what the early humans reasoning was, wildlife has continued to weave their way into art and storytelling throughout history. Explorers used artists to document new species on their expeditions. Royalty across the globe, used various animals to symbolize and represent their power and their gods.
Across the globe and throughout time, storytellers used animals as metaphors in their mythologies and fables.

Realistic paintings of livestock and local wildlife, were used to decorate homes and celebrate the homeland. Horses helped push forward new art movements like Expressionism.

Abstract and less 'representational' art has been known to draw from the unusual patterns that some wildlife carries.

Using wildlife and nature in our literature, film, and visual art, has helped us as humans to process our experiences and to have a better understanding of ourselves and one another.

+ ART

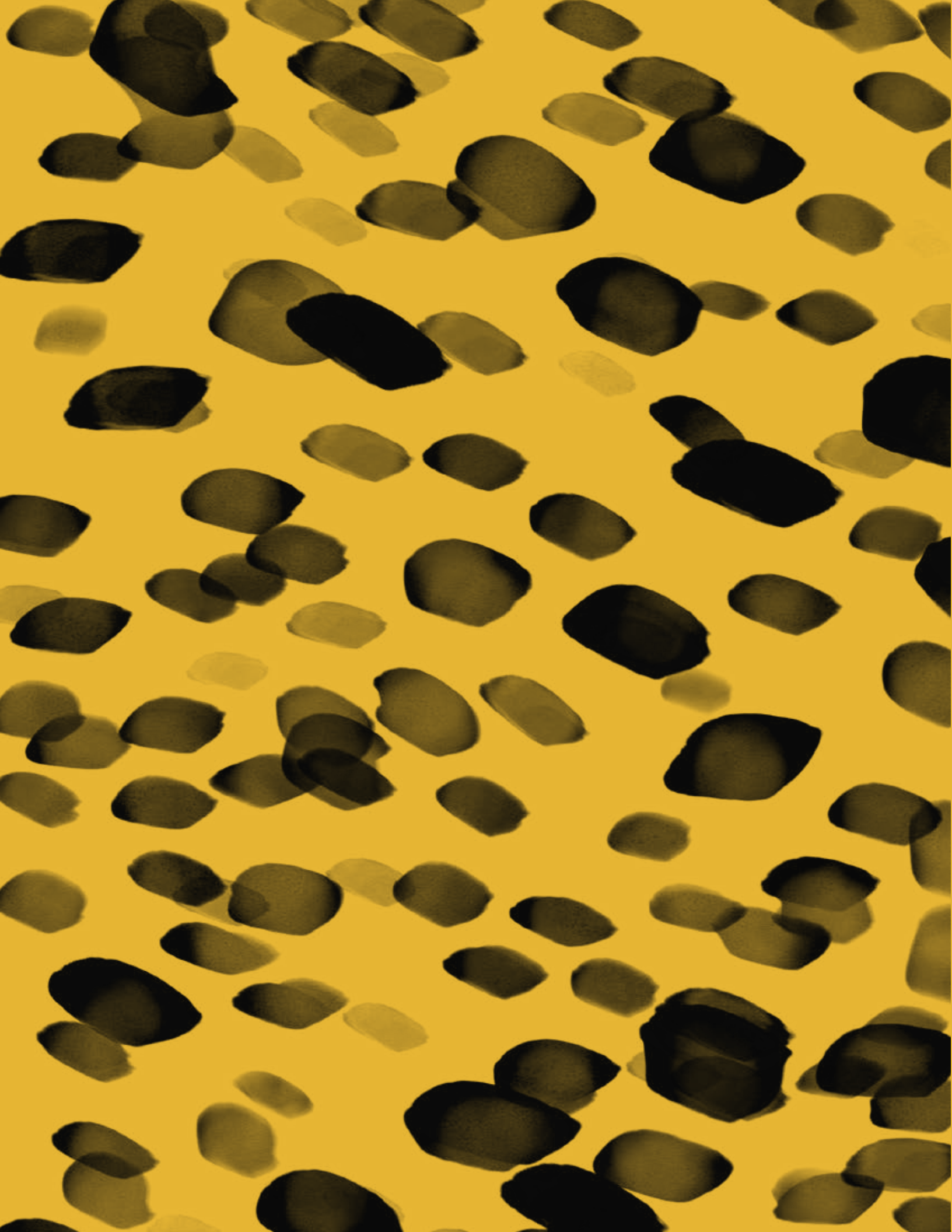
FASHION

Animals have long inspired fashion trends. Whether it is a print resembling a tiger, zebra, cheetah, or polka dots inspired by bugs and dalmatians, the impact of animals on fashion is very evident. In turn, the impact fashion has had on animals and their habitats continues to also be overwhelming.

We are not only inspired by animals decor, but we also use them as a resource to create materials for the things we wear.
Wool, leather, silk, cashmere, and fur, are all material trends that are still used to create our day to day clothing and footwear.
Feathers have been used to decorate hats across the globe, and insects, corals, as well as the tusks of rhinos and elephants have all been used to create jewelry and house decorations.

Unlike biomimicry, our fashion often uses the species themselves as a resource for our product. This has lead to the extinction of some and near extinction of others. The demand has lead to illegal poaching that still happens today.

It isn't wrong to be inspired by the patterns and designs we find in nature, we simply have to be mindful to not abuse animals or their habitats.



POACHING

Poaching is an illegal form of hunting where the animals being hunted are endangered. The most commonly known animals, who are threatened by poachers, are elephants and rhinos. However, there are many other animals who are threatened by poachers too!

Not all animals are hunted and killed, there is a growing illegal sale of wildlife as exotic pets. Even though this does not directly kill the animal, by taking it out of it's habitat it still risks it's species extinction. This trend has grown as people have increased the popularity of taking selfies with wild animals.

Rhinos and elephants are hunted for their ivory tusks. Both are endangered, and one type of rhino, the white rhino, was recently saved from extinction in Africa by conservationists! There was only ONE LEFT! Thanks to new science and caring humans, the last white rhino is now pregnant! (Which is VERY EXCITING!)

Pangolin's are critically endangered because their scales used in traditional medicines.

Poaching also affects those trying to protect endangered habitats and wildlife! Because poaching is illegal, many poachers have resorted to violence against conservationists.

SO HOW CAN YOU HELP?

- Raise awareness
- Don't buy things from poached animals
- Empower by donating to, or sharing the work of, organizations that work against poaching!

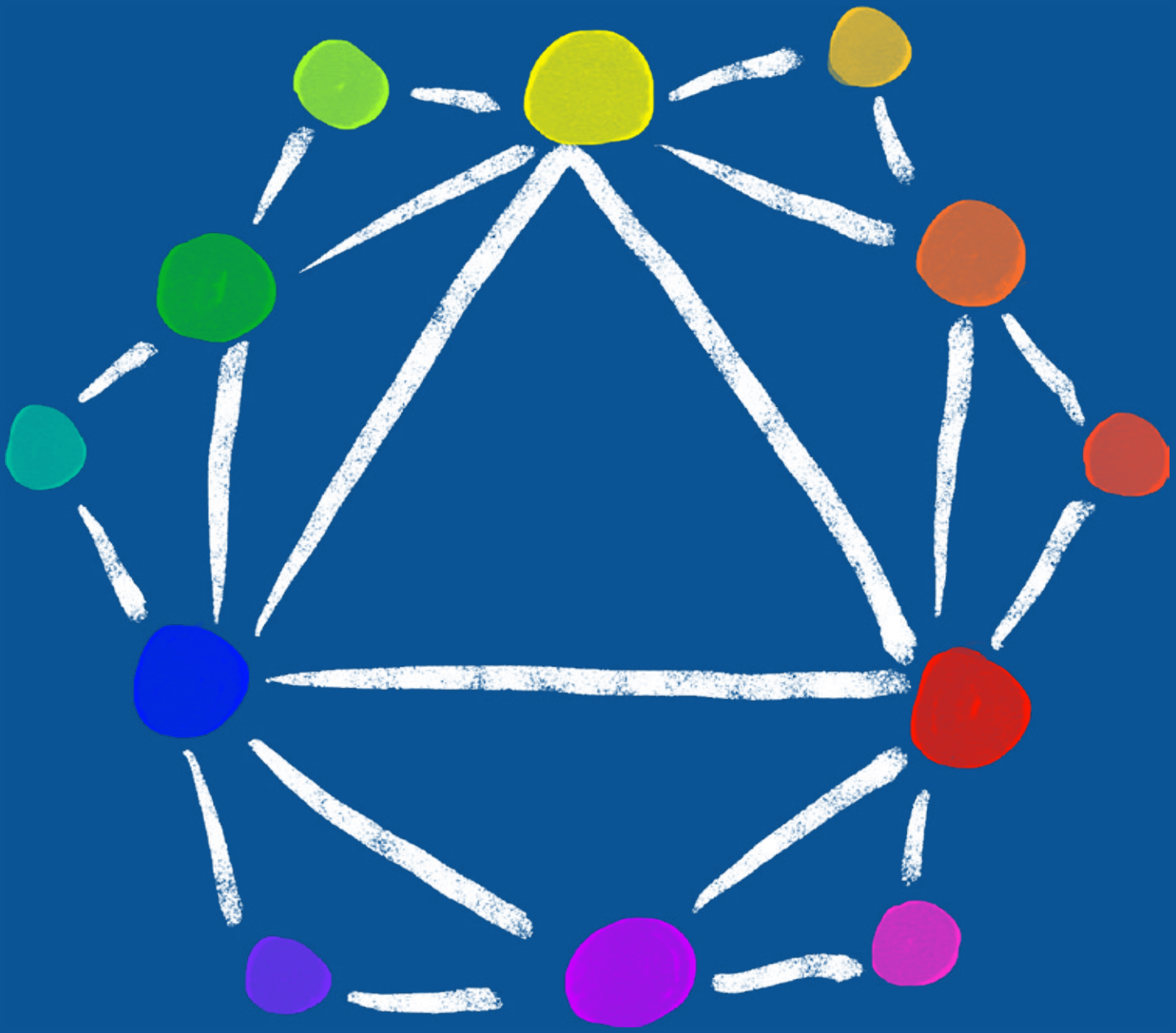
Organizations making a difference:

Ol Pejeta Conservancy
IAPF - International Anti-Poaching Foundation
WWF - World Wildlife Fund
Chengeta Wildlife
Sea Shepherd Conservation Society


Rhino
Pangolin
Elephant
Cheetah
Tiger

PART II

COLORS



HOW COLOR WORKS

Color is most often not what something IS, it is instead the color that was not absorbed by the object.
If something is white,
no color is being absorbed,
if something is black,
all colors are being absorbed.
So, yes, what I am saying is:
light is color.

Each color in light has a different wavelength. Red has the longest and violet the shortest. When all colors shine together they appear white.

Did you know that there are colors in light that our eyes can't see?
The cones in our eyes that help us to see, can only detect a specific range of colors!
We can even see mixed tones by mixing wavelengths together.

These are the parts of our eyes that help us to see color:
Cones: help us to see color
Rods: see black and white.

Not all species with eyes see colors like we do!

WHO SEES WHAT

Dogs, mice, and rabbits, have poor color vision. Everything is slightly muted and more gray and blue.

The bull, who famously chases the red cape, sees in black and white.

Birds, insects, monkeys, and squirrels all have pretty good color vision and helping them find their food and identify predators!

Butterflies and bees see all the colors including colors humans can't see!

THE COLORS WE SEE

PRIMARY

PRIMARY COLORS are the basis to all the colors that we see.
By blending **yellow, blue, or red** *together in different ratios, you can make every color we can see.*
To make a color lighter or darker you can add white or black.

Primary colors cannot be made by mixing other colors together!

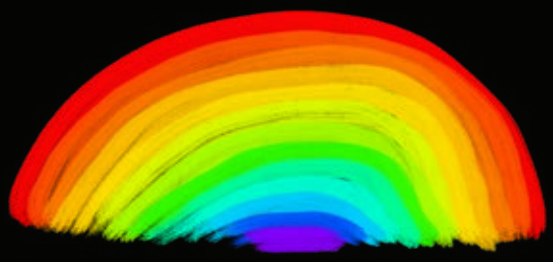
If colors are found in light, how do we make colors?
That is an excellent question.

It is actually pretty complicated.
We use pigments, grinding them up into a powder and mixing them with a liquid.
At first, people created pigments by using nature!
Minerals, chemical reactions, as well as berries, fruits, and vegetables can all be transformed into color pigments used for creating.
For a long time however we had a limited color palette.

Blue was nearly impossible to make. The Egyptians discovered a recipe for the color, in 2500BC . It is the first synthetic (or non natural) pigment!
Because blue is so difficult to generate it has often considered a sacred or royal color.

There is a lot of chemistry and science involved in making colors.
Creating colors to use as dyes, inks, and paints, has been a long and hard road for humans.
Most colors were toxic to humans and animals on our first few tries.
Now, we have synthetic colors that are made in labs and are often even safe enough to put in our foods!

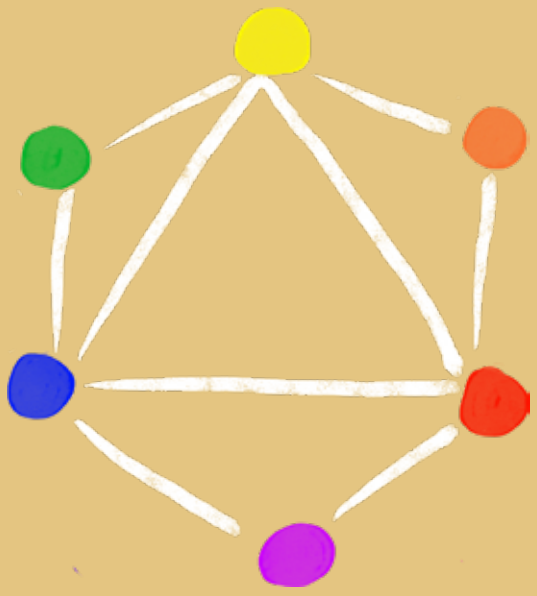
HOW WE MAKE COLORS



HOW TO MIX COLORS

SECONDARY

colors are created by mixing primary colors together.



TERCIARY

colors are created by mixing secondary colors and primary colors together.

COMPLIMENTARY

colors are the colors directly across from one another on the color wheel. They often work in a complimentary manner when creating shadows in a painting, etc.

A brief overview of the

ELEMENTS + PRINCIPLES OF DESIGN

visual tools used to create compelling art

ELEMENTS

Line *is the basis for all drawing. It is used to create: form, shape, depth, distance, movement and more.*

Shape *can be geometric, organic, regular or irregular*

Tone *is the light or darkness of a color, used to set a feeling and create depth within the art.*

Color *is the most emotional element, creating atmosphere, emphasis, and emotion.*

Pattern *is created with a repetition of elements, in order to communicate rhythm or movement. Some patterns are based on natural observations and others are 'man made'.*

Texture *the surface quality of the art, either an optical texture (the impression of texture) or physical texture created by changing the surface of the work.*

Form *is the space an object takes up (volume). It can be implied (2D) or physically taking up space (3D).*

+

Balance *is the way the weight, size, and presence of objects, colors, and textures are arranged to make the design feel stable. (Radial, asymmetrical, or symmetrical.)*

Emphasis *is used to catch a viewers eye. Contrast, size, color, shape, texture, etc. can all be used to create this effect in a design.*

Movement *it is how line, shape, patterns, etc. are used to guide the eye through the design.*

Pattern *are created using repeating objects and symbols within art.*

Repetition *works with patterns to create a feeling of activity within the design.*

Proportion *is when the different components of an object are scaled to create accuracy or unity, or are emphasized with scale or number to create dissonance.*

Rhythm *is the repetition of one or more elements to create movement,*

Variety *the use of multiple elements to keep the viewer's attention within the work of art.*

Unity *is when all parts work together to make the design feel complete.*

PRINCIPLES

BALANCE

F
O
R
M

SHAPE

line

TOXIE


texture

EMPHASIS

MOVEMENT

REPETITION

PROPORTION

Elephant

rhythm


VARIETY
Mandarin Fish


unity

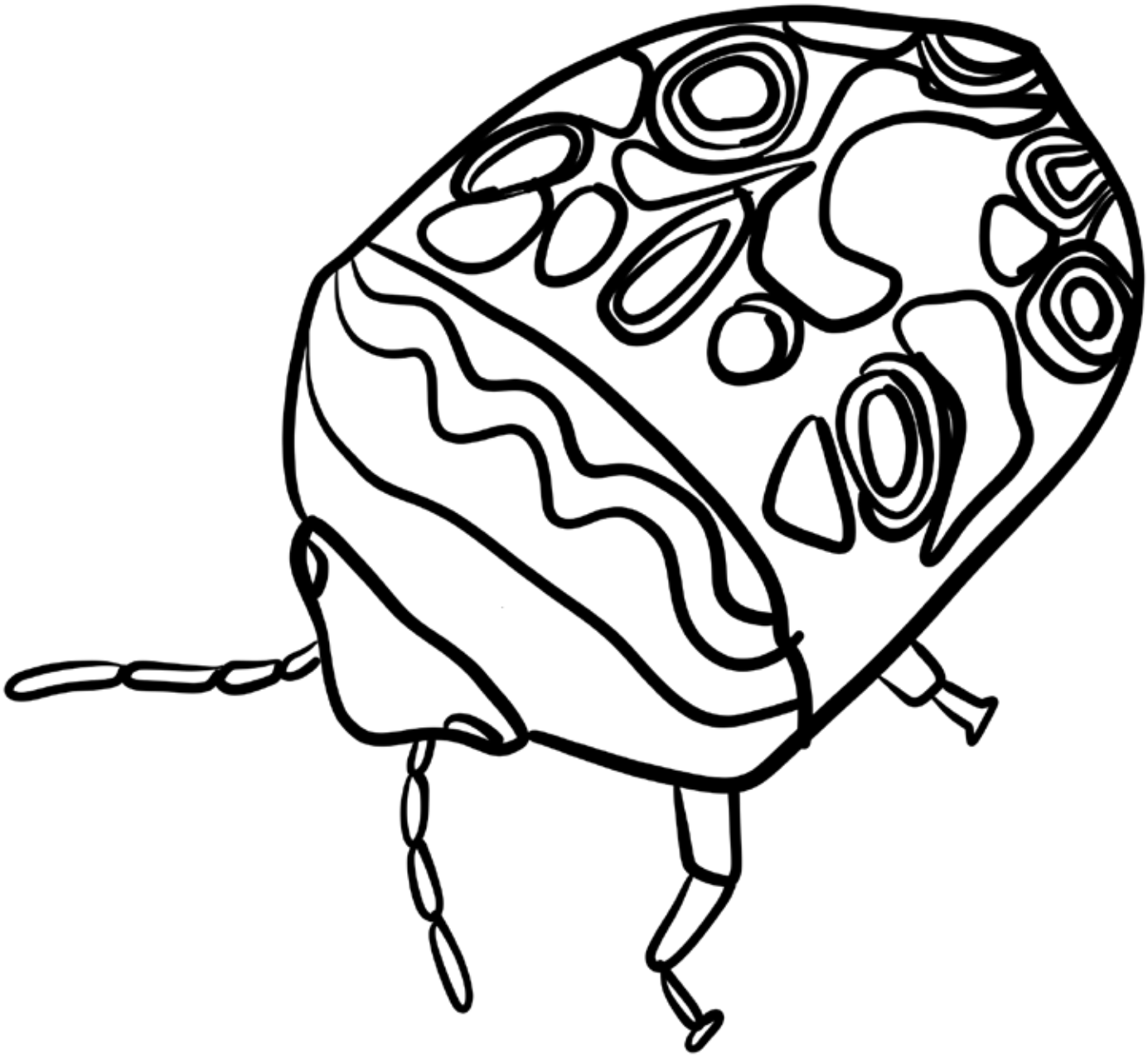
PATTERNS

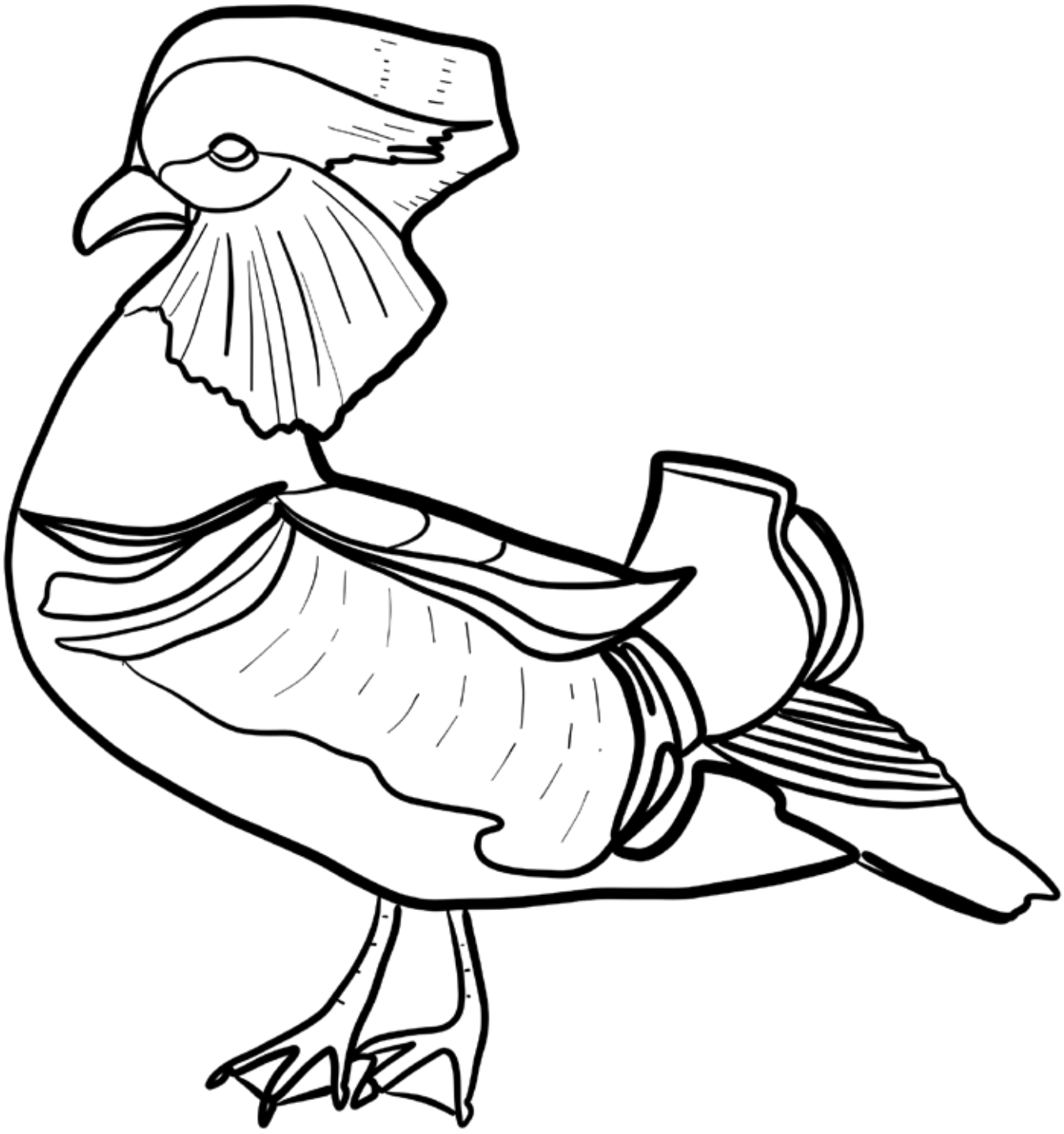
IT'S YOUR TURN

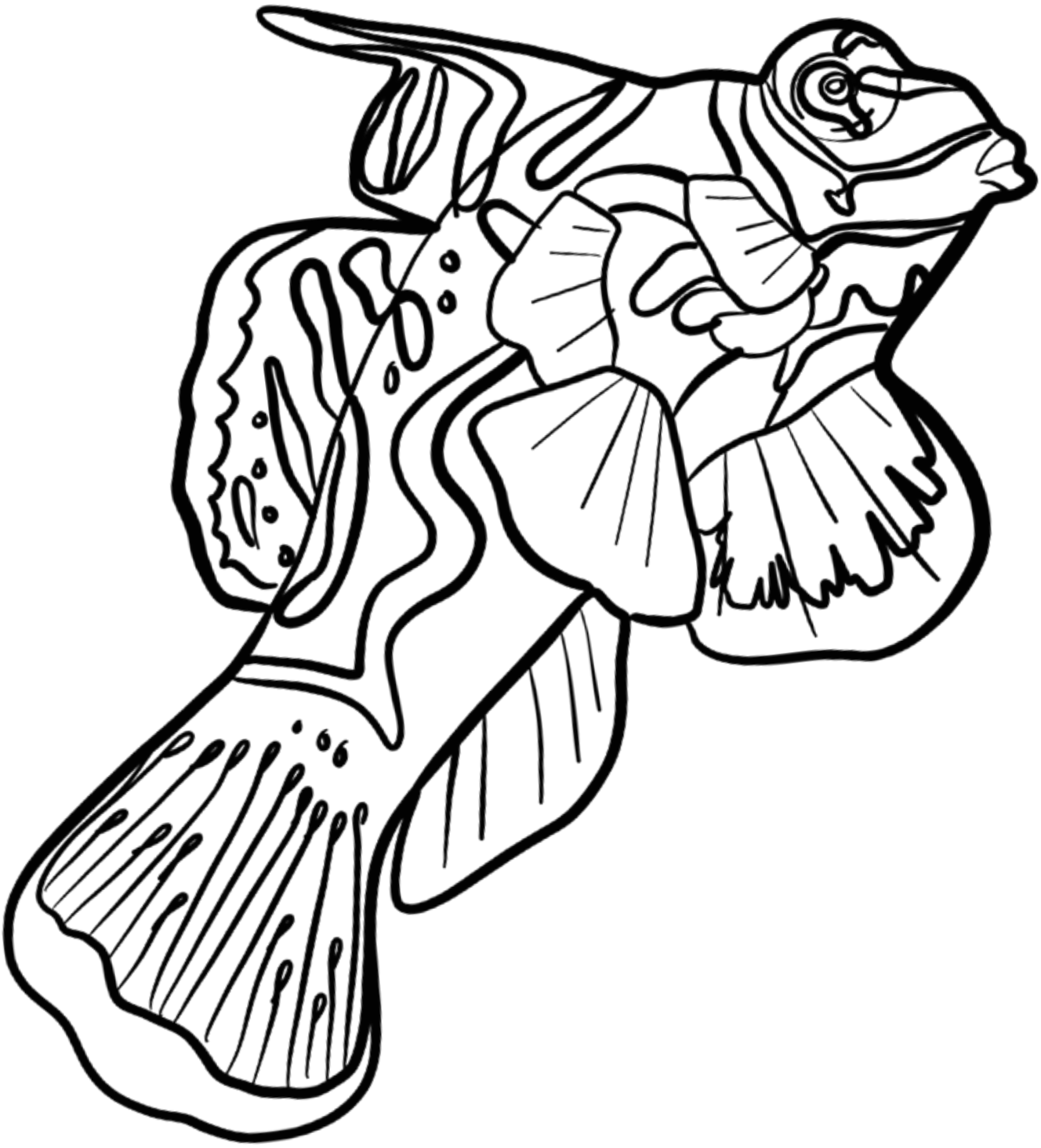
Below are coloring pages for you to create your version of these exquisite animals.

If you choose to color your own, or draw an animal on your own please send it to me:
Instagram: @worksbysarahnelson
I want to feature it on my Instagram Stories and in the next This Amazing Planet edition!

I can't wait to see what you make!







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