

Deceptive Coloration

Deceptive coloration is when an organism's color fools either its predators or its prey. There are two types of deceptive coloration: **camouflage** and **mimicry**.

Camouflage



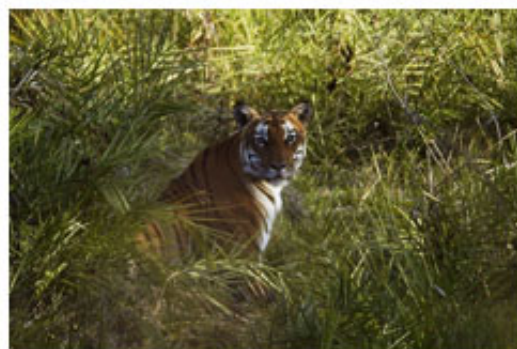
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Image Credit: Steven Amstrup
US Fish and Wildlife

Camouflage helps an organism blend in with its surroundings. Camouflage can be colors or patterns or both. When organisms are camouflaged, they are harder to find. This means predators have to spend a longer time finding them. That's a waste of energy! When a predator is camouflaged, it makes it easier to sneak up on or surprise its prey.

Blending In: Stripes or Solids?

There are lots of different examples of



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camouflage. Some colors and patterns help animals blend into areas with light and shadow. The tiger's stripes help it blend into tall grass. Its golden brown strips blend in with the grass and the dark brown and black stripes merge with darker shadows. When a tiger is hiding in the grass, it is very difficult to spot!

Mimicry

Some animals and plants look like other things -- they **mimic** them. Mimicry is another type of deceptive coloration. It can protect the mimic from predators or hide the mimic from prey.

If mimicry was a play, there would be three characters.

The Model - the species or object that is copied.

The Mimic - looks and acts like another species or object.

The Dupe- the tricked predator or prey.

The poisonous coral snake and the harmless king snake can look a lot alike. Predators will avoid the king snake because they think it is poisonous. This type of mimicry is called **Batesian mimicry**. In Batesian mimicry a harmless species mimics a toxic or dangerous species.



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Image Credit: National Park Service

The **viceroy butterfly** and **monarch butterfly**

were once thought to exhibit Batesian mimicry where a harmless species mimics a toxic species.



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Image Credit: Dr. Thomas G. Barnes
US Fish and Wildlife

Other big cats like leopards, jaguars and cheetahs have spots that help them blend into their



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Image Credit: Gary M. Stolz
US Fish and Wildlife

environment. Their spots work the same way the tiger's stripes do. The dark spots blend in with the shadows and the lighter fur blends in with lighter areas of their surroundings like the sunlight shining on the plants around them.

Disruptive Coloration - Break It Up

Stripes and spots can be **disruptive**



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Image Credit: Alfred Viola
Northeastern University, Bugwood.org

coloration. Disruptive coloration helps break up an animal's outline. This makes it difficult for other animals to see it. You'd think that the black and white stripes of the zebra would make it easy for predators to see it! The main predator of the zebra is the lion. Lions don't like to hunt in the heat of the day, they prefer sleeping in the shade. They hunt as it gets dark. As the sun goes down, the black and white stripes of the zebra help it blend into the tall grass. But the zebra's stripes have another purpose.

Studies conducted in the early 1990's suggest that the viceroy and the monarch are actually examples of **Mullerian mimicry**



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Image Credit: Rick Hansen
US Fish and Wildlife

where two equally toxic species mimic each other to the benefit of each. Just goes to show you that there's always something new to discover in the natural world!

Can You Tell the Difference?

Click on each image to identify the butterfly.

Aggressive Mimicry

Some mimics look like something else, not to avoid predators, but to catch prey. Aggressive mimics resemble their background or signal that they are something else to help them catch their prey.

The frogfish or angler fish lures its prey to where it can strike. It has a long antenna-like extension on its head that it wiggles.



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Image Credit: New Zealand-American
Submarine Ring of Fire 2005 Exploration
NOAA Vents Program, CC BY 2.0

Other fish and crustaceans think its a little fish and come in close to eat it. When they do, the anglerfish eats them!

Cryptic Coloration

Some organisms look so much like another object that they almost disappear!

Zebras live in herds. Lions like to pick out one member of the herd that looks weak. When the lion attacks, the zebras start running in all directions. With all those stripes mixing together, its easy for the lion to lose the zebra it picked out of the herd.



Zoom Image Credit: Joy Viola
Northeastern University, Bugwood.org

Solid Color

Sometimes an animal blends best into its



Zoom Image Credit: Terry Debruyne
US Fish and Wildlife

environment when it is a solid color. The white fur of the **polar bear** is perfect for an arctic environment.

Top and Bottom: Counter Shading

Another type of camouflage is called **counter shading**. Animals with countershading have different colors on their backs and stomachs.

The **red squirrel** has reddish-brown fur on top and white fur on its undersides. The darker top fur makes it harder for predators to see the squirrel when it is on the ground. When it is perched on a tree branch, the white fur on its belly helps it to blend into the



Zoom Image Credit: Donna Dewhurst
US Fish and Wildlife

The walking stick looks so much like a twig that it's easy to overlook it. Walking sticks are members of the



Zoom Image Credit: David Cappaert
Michigan State University, Bugwood.org

Phasmatodea order of insects. There are over 2,500 species in this order and over 32 species in North America. Most species in this order are found in the tropics.

Species in this order all have one thing in common - they are masters of disguise! Because walking sticks look like twigs and sticks it is very difficult for predators to spot them! Most species of walking stick have no wings or very small, non-functioning wings. Walking sticks also move slowly, so they don't attract predators.

The katydid looks like a leaf. Katydid are also known as leaf bugs or bush crickets.



Zoom Image Credit: Jim Occi, BugPics
Bugwood.org

Katydid are members of the grasshopper family. There are over 6,000 species of katydids in the world.

The praying mantis can look like a leaf and a twig! The praying mantis is a member of the Mantidae family of insects.



Zoom Image Credit: Tom Coleman
USDA Forest Service, Bugwood.org

There are over 2,400 species of mantises found around the world.

lighter sky above.

Penguins also have counter shading. Penguins spend a lot of time in the water. The dark feathers on their backs help camouflage them from predators that are swimming above them. Their white stomach feathers hide them from predators swimming below them.



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Image Credit: Joy Viola
Northeastern University, Bugwood.org

Eyespots: I'm Watching You!

Some butterflies and moths have large eyespots. These eyespots trick birds into thinking the butterfly or moth is much larger than it really is!



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Durham, NH 03824 (603) 868-1100
themailbox@nhpbs.org