Adaptation in Desert Lizards

Dr Simone Des Roches
Have you ever wondered why some animals match their surroundings?
Usually their **COLOR** is the same as their surroundings... and sometimes even their **PATTERN** matches!
This color and pattern matching is called camouflage... and lizards are really good at it!
Camouflage is an **ADAPTATION** - it helps animals survive in their habitats by helping them hide from predators.
One of the best examples of a camouflage adaptation is in lizard species in White Sands, New Mexico.
White Sands is like a huge sandbox in the middle of the desert.
Most sand is made of SILICA & QUARTZ, which is like tiny pieces of glass. It is usually light to dark brown in color.

White Sands sand is made of GYPSUM, which is more like chalk. It is soft and usually white in color.
There are only three lizard species that live in White Sands. These three species also live outside White Sands in the brown sandy desert.

- the earless lizard
- the fence lizard
- the whiptail lizard
What color do you think the lizards are in the brown sandy desert outside White Sands?
White Sands is only 6000 years old! That seems like a long time, but the three lizard species have been around for over 1,000,000 years!
This doesn’t mean the brown-colored lizards are gone - lots of them still live in the brown sandy desert!

So the white-colored White Sands lizards must have evolved from the brown-coloured lizards.
So we know that:

White color is an adaptation for camouflage in White Sands.

Brown-color is an adaptation for camouflage in the brown sandy desert outside White Sands.
Why is it good to be camouflaged?

When the lizards match the sand they live on, they are less likely to be spotted by predators like birds and snakes!
One other important thing about adaptations is that they are passed on from parents to their babies.

This baby white colored earless lizard on my toe had white-colored parents.

This baby white colored fence lizard on my finger had white-colored parents.
Brown-colored lizards have babies that are also brown colored.

and

White-colored lizards have babies that are also white colored.

no matter where they live!
So... lizards that are camouflaged with their surroundings have babies that are also camouflaged with their surroundings.
But if brown-colored lizards have brown-colored babies, where did the first white lizard come from?
1000s of years ago, there was a change in the brown-colored lizard’s **genes**.

This meant that some baby lizards were born that could not make the brown color anymore.
Because they were better camouflaged in White Sands, these white colored lizards were better able to survive!
These lizards passed on white-color to their own babies!
Until all the lizards in White Sands were white colored
This same thing happened with each of the three species!
But wait, that’s not all!

Sometimes adaptations like color affect more than just camouflage.
Lizards are cold-blooded (also known as ectotherms) This means they cannot make their own heat - they have to absorb it from the outside!
Color affects how fast heat is absorbed. darker colors absorb more heat very quickly. lighter colors absorb less heat very slowly.
Not only is white sand cooler than the brown sand, but the white lizards also stay cooler!
This shows how just ONE adaptation can affect more than one part of a lizard's life!
Can you think of other adaptations?

Do these adaptations affect more than one part of the animal’s (or plant’s) life?
Terms
habitat
adaptation
camouflage
evolution
predator
cold-blooded/ectothermic
genes