



RANDALL MUNROE
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HOW FORESTS COME BACK

How trees and flowers and animals fill in the land again after a big change

After a disturbance in an ecosystem, biotic changes regenerate the damaged community or create a new community in a previously uninhabited area. Take a look at this process of change and rebirth.

THE STORY OF CHANGING FORESTS



THINGS THAT HAPPEN TO FORESTS

Sometimes, big things happen to forests that clear out lots of the old trees and animals that live there. When these things happen, lots of new trees and flowers come in to fill in the space. After a while, big trees can grow back.

Here are a few of the things that can happen to forests:

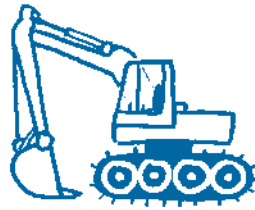
FIRE

In some forests, there are fires every so often that burn lots of the plants and trees, along with dead sticks and leaves lying on the ground.



PEOPLE

People cut down forests to make room for stuff or because they want to use the wood. Most of Earth's old forests have been cut down over the years.



WIND

When there's a really big storm, wind can push over lots of trees, especially if the storm happens when the trees have leaves on them.



GETTING EATEN

Most animals that eat trees get eaten by other things. If something that eats trees moves to a new part of the world where nothing eats it, it can eat whole forests.

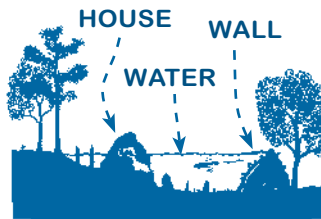


SMALL HOLES IN THE FOREST

Some forests have little animals that like to build their houses in pools. If they can't find a pool to use, they make a new one by cutting down trees and building a wall across the river.



The water covers part of the forest, and the trees that are covered with water die. When the animals move away, the wall falls apart.



When the water in the pool goes away, it leaves an open area among the trees. Over the years, this area fills with green things and becomes a forest again.



BIGGER PROBLEMS

Life doesn't just come from nowhere. When forests are cleared and grow back, some of the new trees grow from parts in the ground that are still alive. Other green things move in from the edges or are carried by the wind or birds.

But if there's a really big change, there might not be any life left in the area to grow back. Sometimes, on land out in the sea, hot fire comes out of the ground and the rocks get hot and run like water. If this happens, nothing grows back until new life is carried there from across the sea.



A FOREST AFTER A FIRE

WHAT STARTS FIRES?

Many forest fires are caused by people. Sometimes, people drop burning things on the ground and forget about them, or they start fires to sit around and then don't put them out. Other fires start without help from people. Most of those are caused by flashes of power from big storms, but some are caused by hot rocks that come out of holes in the tops of mountains.

SPACE ROCKS

Big rocks falling from space can start fires, but that doesn't happen very often. As far as we know, there haven't been any of these fires since people started writing down things that happened.



FIRE STARTER

Fires aren't usually started by people who are bad at flying space boats, but it could happen!



Some fires burn the dead leaves and sticks on the ground but don't really bother the big trees.

These small fires can be good for a forest, because they burn away the leaves and sticks before too many of them pile up.

If there are a lot of dry sticks or dead branches on the ground, fires can get big and hot. These fires can spread to the tops of trees and burn down forests.

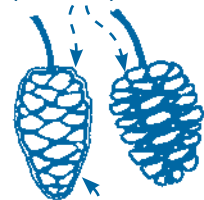
If it goes a long time without raining, all the dry stuff makes fires bigger and hotter.



TREE EGGS

These things fall off of trees. Then they open up and new trees grow out of them.

BABY TREES (INSIDE)



SOFT STUFF

Fires clear away the tall trees that block light from the ground. Some trees make tree eggs that stay closed until there's a fire, so they can get lots of light and grow quickly.

These tree eggs are covered in a layer of clear stuff that keeps them from opening up. When a tree egg gets hot in a fire, the clear stuff gets soft and falls off, the egg opens up, and the tree starts to grow.

TREE EGGS ON THE GROUND





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TREES THAT DON'T MIND FIRE

Some trees are good at living through fires. Their strong, thick skin keeps them safe from heat, and some keep most of their branches near the top to keep their leaves away from the burning stuff on the ground.

BIRDS DROPPING TREE EGGS AS THEY FLY AROUND

GREEN THINGS RETURN

The first things to grow up after a fire are grasses and flowers, like the things you pull up from your garden. They're good at spreading and grow very fast.

QUIT BLOCKING MY SUN!

I WAS HERE FIRST!

TREE FIGHTS

Some trees try to be the first to grow up in the clear space after a fire. If a tree grows taller than the ones around it, it can block the sun's light from the other trees and keep more light for itself.

HIDING TREES

Some trees and green things live through fire even if their top parts burn down. They can grow back up out of the parts left in the ground.

FAST TREES

In the first twenty or thirty years after the forest is cleared away, fast trees grow up. They block the sun's light from reaching the ground, which makes the grasses and small plants die off. These are young forests.

BIRDS THAT EAT SMALL ANIMALS

Some birds that eat small animals like to fly over open fields like this or sit in trees near the edge. When they see something running in the grass, they try to catch it. Since these birds like areas where forests meet open areas, they're often spotted in trees by the side of big roads.

BIRDS THAT EAT OTHER BIRDS (HIDING)

Different animals like different kinds of forest. In some areas, as the trees get bigger, different kinds of birds move in. Some birds are good at flying through trees to catch other birds. Since these birds usually stay away from the edges of forests, people don't see them as often.

SLOW TREES

After the first trees grow up, new kinds of trees start to grow. These newer trees grow slowly, and they don't need as much sun, so they can grow up in the shadows of the faster trees.

OLD FORESTS

Slow trees grow up and take the place of the fast trees. This takes a very long time—longer than a person's life. Forests that are many times older than the oldest humans are special. They have different kinds of trees and animals than young forests have. Many of those older forests have been cut down, and some people are trying to save the ones that are left.

