

Flowers and Pollinators

In spring, manzanita plants begin to flower. The flower's smell, size and colors attract a variety of pollinators such as bees, moths and butterflies. The pollinator's relationship with flowers can easily be seen as you walk along the trail.



Flowers become Fruit

Many flowers depend on pollinators to reproduce. Pollinated manzanita flowers develop into sour fruits. If you look closely, you can see the tips of the **stigmas** (female parts of the flower) poking out of the berries.



Berry Berry Good - Fertilizer

Some plants depend on relationships with animals to disperse their seeds. Not only do animals such as birds, foxes, and coyotes love the taste of manzanita berries, but their **scat** (poop) provides the seeds with a pocket of fertilizer in which to grow.



Feel the sun beaming through the trees.



Open... Canopy

When dead limbs and trees fall to the forest floor, openings are created in the **canopy** (forest ceiling). This allows more sunlight to reach **understory** (lower level) plants such as manzanita.

Making Connections

Nature's Recyclers

Along this trail a variety of fungi can be found **decomposing** (breaking down) everything from scat to leaf litter to fallen trees. The forest depends on decomposers such as fungi to "clean up" waste materials and recycle valuable nutrients back into the soil.



Can you find a woodpecker hole?



Dead Trees: Good?

Standing dead trees, called **snags**, can provide for more life than living trees. This is because many types of insects live inside dead trees, providing a valuable food source for animals such as woodpeckers and raccoons.

Can you find a snag? (standing dead tree)



Deadly Relationships

When Goldspotted Oak Borers lay eggs on an oak tree, the larvae burrow into the tree to feed on the cambium (produces new xylem and phloem). If there are enough larvae infesting the tree, it can cut off circulation... killing it.

Do you see any fallen logs?



Can you find an insect?



Do you see any unhealthy trees?



Tree Trials

Trees rely on decomposers to unlock the nutrients they need to be healthy. However, sometimes certain conditions cause trees to become weak. Unhealthy trees are vulnerable to attack from parasites and will eventually be decomposed.

Remember, Everything's Connected

In this brochure, only a few of the relationships found along the trail were discussed. Many more relationships are present. How many can you find? Here are some others you can search for:



I Lichen You!

Some fungi and algae "lichen" each other and help each other survive. In this relationship, the fungus protects the algae from adverse conditions and in exchange the algae provides the fungus with food. This is

an example of **mutual symbiosis** (when two different organisms help each other survive).

Killing Trees Softly

Have you seen bunches of leaves on a tree that look different than the rest of the tree? Mistletoe digs its roots into branches of trees and steals the nutrients that the tree is supplying to the branch. In times of drought when these nutrients are most needed, mistletoe can strain the tree enough to kill it.



People and Nature

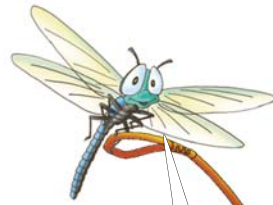
We also have a relationship with nature. When you go to the market to buy an apple, remember that the apple was once a flower pollinated by insects. Your home, constructed of wood, rock, or brick, came from items

harvested from nature. Take the time to slow down and experience your natural world. And remember, everything in nature is connected... even us!

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Nature's Relationships: Everything's connected

"When we try to pick out anything by itself, we find it hitched to everything else in the universe."

-John Muir



Discover how everything in nature is connected

Although this brochure will not guide you to specific locations along the trail, it will tell you a story to help you discover some of the relationships found in nature. Use the pictures and text to locate as many of these relationships as you can. Keep your eyes open and have fun!