

## **Silver Linings**

By Francie McGowan

In these past weeks of wildfire devastation, and the months of dealing with COVID-19, it is easy to become despondent and downcast. Scores of people have died as a result of both and everyone has been affected. But, despite the seemingly apocalyptic turn of events, there are some silver linings to be gleaned in all the doom and gloom.

Wildfires, although horrific to witness, actually have shaped the forests for millennia. Some plants actually depend on fires for their seeds to crack open and germinate. Rocky Mountain maple, quaking aspen, Ponderosa pine and some oaks, among others, have evolved in response to fire. They respond to fire by respirating root suckers. They also have thick tough bark that can be directly burned without sustaining damage to their vital tissues.

Plants that require fire to reproduce include lodgepole pine, larches and giant sequoias. According to Melissa Petruzzello (Assistant Editor of Plant and Environmental Science), “Eucalyptus and Banksia have serotinous cones or fruits that are completely sealed with resin. These cones/fruits can only open to release their seeds after the heat of a fire has physically melted the resin. Other species, including a number of shrubs and annual plants, require the chemical signals from smoke and charred plant matter to break seed dormancy.”

Fires are also essential in removing exotic plants from the ecosystem, giving an edge to native species so they can germinate and grow. The forest fauna depends on these native plants for food. Dead wood, withering plants and weaker trees are removed by fire, allowing sunlight to stream through the fire-opened areas.

Fire is also a scourge to invasive insects and bugs - like the aggressive bark beetles - that prey on trees. These beetles infest drought-stressed or weakened trees. Their growth over the last decade has burgeoned, causing trees to die off and become fuel for major fires. More trees die each year from insects than from fire. These insects also act as vectors, or carriers, of diseases fatal to many of the forest trees.

After a forest fire burns the upper canopy of trees, wildflowers that have lain dormant for years are the first to bloom the following spring. The burned trees and plants add nutrients to the soil. Once the canopy that inhibited sun-loving plants is gone, a host of shrubs and flowers will now bloom, adding to the diversity of a mixed conifer forest. Smoke and heat from fires inhibit pathogens, like fungal attacks on plants.

Some silver linings for the environment can also be seen during the COVID-19 pandemic. Because of the lockdowns and travel bans, carbon emissions from cars and planes has been reduced by 25% worldwide. There is an entire young generation in Beijing who, for the first time, can see blue skies and bright sunshine.

Social distancing and the closing of beaches has had a positive effect on shorelines, allowing marine life to recover. The canals in Venice, Italy are clearer, and the water is flowing faster due to the cessation of boat traffic that normally roils the water. The silt now has sunk to the bottom.

The lack of tourists on beaches in Acapulco and Barcelona has resulted in clean sand and clear waters along their shores.

The reduction of environmental noise has allowed seismologists in Switzerland to detect much lighter earthquakes because the human traffic aboard boats, planes, trains and in industries has been reduced. Stress due to the rattling of buses and city noises has been lessened because of lockdowns and that has had a positive effect on human health.

So, though the earth looks like a nightmare dystopia right now, there are hopeful signs of regeneration and healing. Let's hope we can learn from this. The impact of humans on the environment is an essential lesson we need to appreciate and mitigate. Mother Nature really doesn't give a hoot about humans, so it is up to us to make our environment livable for us all. Stay safe!

Sources: *Britanica.com*

*:International Journal of Forestry Research, "Physiological Effects of Smoke Exposure on Deciduous and Conifer Tree Species," W. John Calder, Greg Lifferth, Max A. Moritz and Samuel B St.Clair*

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*UCCE Master Gardeners of Tuolumne and Calaveras Counties can answer home gardening questions. Call 209-533-5912 or go to: <http://ucanr.edu/survey/survey.cfm?surveynumber=7269> to fill out our easy-to-use problem questionnaire. Check out our website at: [http://cecentralsierra.ucanr.edu/Master\\_Gardeners/](http://cecentralsierra.ucanr.edu/Master_Gardeners/) You can also find us on Facebook.*