**[Eight Facts about Europe’s Forest Ecosystems](http://www.ecology.com/2014/03/26/facts-europe-forest-ecosystems/" \o "Permalink to Eight Facts about Europe’s Forest Ecosystems)**

Europe is one of the few regions of the world where [forest](http://www.eea.europa.eu/highlights/eight-facts-about-europe2019s-forest-ecosystems/@@search?sort_on=Date&sort_order=reverse&SearchableText=forest) cover has increased over the last century. The European Environment Agency (EEA) takes a look at Europe’s valuable forest ecosystems.

* **In Europe, forests cover around 35% of the land area** (190 million ha), making Europe one of the most forest-rich regions in the world. The recent increase in European forest cover is a result of national legislation, afforestation and natural expansion over the last 200 years.
* **Forests are an economic resource.**Forests generate income for more than 16 million private forest owners, and forest activities have a turnover of almost € 500 billion, employing approximately 3.5 million people.
* **Forests provide unseen services:** Alongside wood and other products, forests are also valuable for their ‘ecosystem services’. For example, more than 20 % of European forests are managed to protect water and soils, mainly in mountainous areas. Other services include preventing floods and filtering air.
* **Forests help mitigate climate change impacts**. European forests absorb approximately 10% of Europe’s annual greenhouse gas emissions, according to the latest [State of Europe’s forests report](http://www.foresteurope.org/full_SoEF).
* **Forest structures in the EU are becoming more uniform**, as the variety of tree species is reduced. This means forest biodiversity is lost, making these ecosystems less resilient to pests, disease and a changing climate. Natural forest once covered most of Europe, but only a very small proportion remains untouched, mostly in isolated pockets.
* **But many forest ecosystems are in poor health.** The effects of poor forest management can be seen in the population of woodland birds, which declined more than 30% in some regions of Europe between 1980 and 2005. The IUCN estimated in 2009 that 27 % of mammal species, 10 % of reptiles and 8 % of amphibians related to forests are threatened with extinction in the EU.
* **Invasive alien species are increasingly a problem for European forests.**There are around 1 800 species in Europe’s forests which are invasive and alien to the natural environment. For example, European forests have been devastated by Dutch elm disease caused by fungi introduced from Asia, and grey squirrels are outcompeting red squirrels. Globally, invasive alien species are one of the largest causes of biodiversity loss.
* **Climate change is very likely to harm forest ecosystems.** One area which may change is the pattern of forest fires. On average, around 400 000 ha of forest currently burns down every year, mostly in the Mediterranean region. Some habitats, such as forest wetlands, are particularly sensitive to climate change.

**Scientists Work to Solve Mystery of Dying Bees**

When a swarm of bees landed on a tree in their yard a few years ago, a [David Suzuki](http://www.ecology.com/2013/06/25/spiritual-ecology-cry-earth-book/)Foundation staffer and her husband became accidental beekeepers. They called an apiarist relative who came over and helped them capture the bees, build hives and round up equipment. Now they’re enjoying fresh honey and wax and have developed a fascination for the amazing insects. Staff shared that wonderment when she brought honeycombs and tools to the office for an impromptu lesson on beekeeping and [bee behaviour](http://www.ecology.com/2013/07/29/bee-faithful/).

Bees are endlessly intriguing, and incredibly useful to us – and not just for honey and wax. If bees disappeared, it would be difficult, if not impossible, to grow much of what we eat. Bees pollinate crops ranging from apples to zucchini. Blueberries and almonds are almost entirely dependent on them. Some experts say they’re responsible for one of every three bites of food we eat. The economic value of pollination services from honeybees alone is estimated at $14 billion in the U.S. and hundreds of millions in Canada.

[Bees](http://www.ecology.com/2013/07/29/bee-faithful/) are good pollinators because – unlike some birds and other insects that are after nectar alone – they also seek out pollen, which they use along with nectar to feed the hive. In the process, they transfer pollen from the male part of one flower to the female part of another, fertilizing plants so they can develop seed-carrying fruits. Wild bees and domesticated honeybees are both important pollinators.

In fact, research indicates wild bees may be more important for food-crop pollination than honeybees. That’s in part because a single species, such as honeybees, is vulnerable to mass disease outbreaks. Wild bees also use a wider range of pollination techniques and visit more plants, and so increase chances of cross-pollination, according to an article in the Guardian.

Sadly, both wild and domesticated bees are in trouble, and that means we could be, too. Causes of phenomena such as colony collapse disorder and other declines in bee populations are not entirely understood, but scientists are getting closer to knowing why bees are dying. Ironically, much of it relates to agricultural practices. Modern methods of growing food are killing one of our biggest helpers in food production.

Wild bees also face threats from climate change and habitat loss. A recent study published in Science found half the wild bee species in the U.S. were wiped out during the 20th century. That’s been partly attributed to “an increasing mismatch between when plants flowered and when bees were active, a finding consistent with climate change,” according to the Guardian.

Causes of honeybee deaths are more complicated. Colony collapse disorder has wiped out millions of hives over the past decade, with pesticide use, parasites and poor nutrition eyed as likely culprits. Scientists from the University of Maryland and U.S. Department of Agriculture recently found pollen collected by honeybees was contaminated with a toxic mix of pesticides and fungicides. It appears the toxins make the bees more vulnerable to a parasite called *Nosema ceranae*, which is believed to cause colony collapse disorder. Pollen samples contained an average of nine different agricultural pesticides and fungicides, and as many as 21 in one case.

The European Union has imposed a two-year ban on three neonicotinoids, a class of pesticides thought to be responsible for the dramatic declines in [Europe’s bee populations](http://www.ecology.com/2012/01/12/city-bee-project-denmark-video/), but only for use on “crops attractive to bees”. However, according to the Maryland study’s lead author, Dennis vanEngelsdorp, quoted in the online news outlet Quartz, “It’s a lot more complicated than just one product, which means of course the solution does not lie in just banning one class of product.”

We need to get a handle on the toxic chemicals we use to grow food. If our practices kill insects and birds that make it possible to grow crops, we’re defeating their purpose and putting ourselves and the rest of nature at risk. As individuals, we can help bees. Stop using pesticides and join the call to ban the worst ones. Plant bee-friendly plants and gardens, make wild bee “houses” and learn more about our fuzzy, buzzing friends. Like our DSF staffer, you could even adopt a hive.