

**Second Place Article winner:
The reckless destruction of medicinal potential
by Anna Cookson,**

Earth provides countless cures; half of all modern medicines are developed from plant and animal derivatives. From aspirin - courtesy of the willow tree - to opioids from poppies, clinical practice relies on the backbone of the natural world to treat illness and improve quality of life. Despite this, research into medicinal plants has barely scratched the surface. It is estimated that less than 5% of Amazonian plants have been explored for their medicinal uses, yet 25% of western drugs are procured from rainforest dwelling species. The opportunities to unearth new flora to treat pressing health problems and future pandemics are far reaching. There is a massive, untapped potential in the natural world to sustainably reduce human suffering, an area of research I would love to enter in the future.

There is also the side of medicine that is often overlooked by western media; the 60% of the world that relies solely on traditional medicine with little access to modern drugs. Their methods of healing ailments are even more fundamentally reliant on a diverse range of plants, with varied chemical properties.

The biodiverse wonderlands that span our earth are truly a gift from God - a gift humans are recklessly exploiting.

It is estimated that around one million of the roughly eight million species of animals and plants on earth are at risk of extinction within the next few decades. That is a loss of 1/8 of all species on earth and all the promise for healing and scientific discovery that come with it. Developing countries are being hit particularly hard by this loss. The monoculturation of indigenous areas with species such as palm for palm oil is stripping native communities of the rich variety of plants they used to create traditional medicines and therefore their ability to live a healthy and full life.

But even the developed world is not escaping the effects of this destruction. Current treatments such as Paclitaxel, a lifesaving chemotherapeutic drug, are diminishing in supply. The pacific yew tree species it is derived from has decreased in population by around 50% over the last 30 years and is continuing to decline exponentially, mainly due to deforestation by the medical industry to produce Paclitaxel. This decrease is ironically threatening the production of Paclitaxel in the future, the very reason those trees' bark was stripped in the first place. The damage is already done when it comes to Paclitaxel and, currently, synthetic versions are in clinical trials to try and combat the problem, but responsible management could have prevented the endangerment of the species in the first place while allowing humans to still reap the benefits of this drug. Unfortunately, this is not an isolated case. Worldwide, between 50,000 and 80,000 flowering plants are used medicinally. Of these, at least 15,000 face extinction due to overharvesting and habitat loss. Learning from our mistakes with Paclitaxel is vital to reduce the further mass extinction we sit on the brink of.

One project attempting to collaborate over this problem is the Kukula Traditional Health Practitioners Association, who are working with Kruger National Park to sustainably harvest plants such as the pepper bark tree. The pepper bark tree (*Warburgia salutaris*) is commonly used by traditional healers in South Africa as a remedy for malaria and colds but the over stripping of the bark has pushed the species to endangerment. The indigenous plant nursery in the park is breeding more of these delicate plants (of which seedlings are no longer found in the wild) and is working with the Kukula Traditional Health Practitioners Association to teach the healers sustainable ways of stripping the bark and discuss if other parts of the tree such as leaves can be used instead.

The need for humans to form sustainable relationships like this, particularly between big pharma and the environment is ever increasing. Humans can pretend that we are not reliant on these plants and animals and are just obligated to be stewards to them by Genesis 2:15 but the relationship is symbiotic. In every essence of our lives, from mothers being able to have epidurals to help give birth, through to dying as comfortably as possible with morphine, the plants involved in developing these drugs are fundamental to modern human's lives.

A quote from the bible that perfectly symbolises this tenuous relationship is Jeremiah 2:7: "I brought you into a plentiful land to enjoy its fruits and its good things. But when you came in, you defiled my land and made my heritage an abomination." This is a direct parallel to what we are currently doing to Earth, God has provided us with the wonderful privilege of these resources which greatly enhance our lives, but which we are degrading to our collective detriment and that of future generations.

I believe it is possible to find a balance between making use of the wondrous healing properties of nature and maintaining these precious resources. The work of many communities to challenge big corporations lack of sustainability gives me hope for the future that we will be able to turn this trainwreck of extinction around. One quote that really resonated with me comes from Dr Sandy Knapp, a botanist and cancer survivor who is now an advocate for biodiversity: "I started out from a place where I already appreciated the usefulness of life of Earth. But when it becomes personal, those drugs derived from plants and bacteria actually did save my life. The value of biodiversity itself becomes personal too. I am now determined to fight for its survival even harder than I did before."

This should be personal to all of us. As emphasised by Pope Francis in *Laudato Si'*: 'There can be no renewal of our relationship with nature without a renewal of humanity itself'. We all rely on medicine to improve our quality of life and need to wake up to the fact that the remarkable biodiversity making these scientific advancements possible is fading fast.