

Opinion: “Understanding the Emergence of Climate, and Cannabis”.

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A seemingly insatiable quest for knowledge and understanding is often stated as a valid reason for further inquiry as it pertains to cannabis research. Historically, it has been clearly demonstrated that cannabis is one of the world’s most useful plant groups. It turns out that the human endocannabinoid system (eCs), one of our most vital systems, also has a biochemical concordance with certain phyto-cannabinoids found in nature.

The endocannabinoid system (eCs) is key to our overall health and wellness because it has a crucial role in regulating some of our major biological functions. Basic biology always teaches us that, our bodies are trying to maintain a narrow operative balance, known as “homeostasis,” and ironically cannabinoid compounds produced internally (endogenous) or externally (exogenous) can trigger the endocannabinoid system to regain this important equilibrium throughout the body as needed.

Botanists, our plant specialists, have a phrase they often use for plants such as cannabis that have been used by humankind historically. They are derived from what is oft referred to as humankind’s “evolutionary garden” — the collection of plants, fungi, and animal secretions that people have cultivated since prehistory, and carried around the world, because of their usefulness for human health and survival as food, medicine, clothing, or other vital supplies.

Most are still embraced today, from honey and grains to caffeine and [aspirin](#). In the past century, however, some cultures have decided it is more plausible to cordon off certain areas of that garden, for seemingly biased reasons, despite a long evolutionary history — and current scientific data — saying otherwise.

In a footnote to his 1977 book “The Dragons of Eden – Speculations on the Origin of Human Intelligence”, Carl Sagan pointed out that cannabis is the only crop of the Pygmies and posited that “It would be wryly interesting if in human history the cultivation of cannabis led generally to the invention of agriculture, and thereby to civilization.”

Regarding humans’ neurological development and nutrition, there is little disagreement among biologists that “Agriculture is really a turning point as the beginning of hoarding and [carbohydrate farming](#), which was different from earlier diets.” “It seems quite plausible to me that cannabis is the first agricultural plant; it’s certainly one of the very, very early ones, and cannabis is unique because it’s so polydynamic and versatile.”

Scientists clearly acknowledge the world over that climate change is affecting virtually every aspect and sector of the agriculture industry, and that is likely to be the case for cannabis too as outdoor cultivation is permitted in more areas. As the global cannabis industry continues to expand across the planet, and climate change, unfortunately, marches on, observers note the inevitability of a more pronounced concern by the cannabis industry.

Unfortunately, indoor cultivation also leaves a large carbon footprint, and the more indoor cultivation that occurs compounds the climate change problem. Indoor cannabis production is a major source of greenhouse gas emissions, and the environmental effects vary significantly depending on location. The lights used to grow cannabis indoors require a lot of energy to maintain a comfortable environment for the plants. That means air conditioners or heaters to maintain proper temperatures. Producers also pump carbon dioxide inside to increase plant growth. This accounts for [11 to 25 percent of facilities' greenhouse gas emissions](#).

But the biggest energy use comes from the need to constantly bring fresh air into growing facilities. All this outside air needs to be treated so that it is the correct temperature and humidity. This is a very energy-intensive process since the air exchange rate is typically so high. All these inputs contribute to greenhouse gas emissions, a lot more in some regions than others.

Without question it seems the role of human inquisitiveness and ultimately selection has prompted the development of cannabis for industrial, nutritional, or medicinal traits since time immemorial. It does not appear that the research and development taking place in the cannabis industry is going to wane anytime soon unless something totally unanticipated occurs. For example, disease, drought, flood, or some other natural or possibly man-made disaster.

Climatologists are pointing to data that suggests agricultural zones for many crops will be shifting in the future as the world gets warmer at the macro level, and extreme weather patterns pick up at the micro-level. The wine industry is often used as an example, with areas historically known for being optimal for growing wine grapes being less so as the years go by due to extreme weather. This phenomenon does not seem to come as a shock to researchers reflecting on change taking place here on our huge, wonderful planet and who are conversely recognizing changes such as with the poles, reversing magnetic north and south possibly?

Cannabis has become a stronger, more diverse, more adaptive, and more widely cultivated plant because of its relationship with us. Can the same thing be said for humans? What has the plant done for us? Cannabis is very different from traditional pharma because the initial evidence for relevant indications is coming from patients themselves rather than from basic research. Clearly, there is a huge bibliography of anecdotal evidence outlined of humans using cannabis in natural settings that points towards much insight and creativity gained from cannabis use. The fact that humans have benefited much from cannabis, and it has benefited much from us. This is a “win-win” form of coevolution known as “mutualistic symbiosis”.

Biologically, we can begin with the realization that hemp seeds do happen to be the best food in the world for humans. I doubt that there are many modern nutritionists who can readily share this type of knowledge with their clients here in the US. Nice of cannabis to evolve into a plant which produces seeds that contain all the essential fatty acids required for complete human

health in the exact ratios required by humans. Coincidence, as some have speculated. Or was the plant trying to get our attention somehow?

Also, worth mentioning, cannabis may have been our first rope and fabric, our first “true” paper, and one of our first medicines. Food, fiber, and drugs.” Meaning that, from just one kind of crop, humans can get an important source of protein and essential fatty acids, fiber for building and crafting, and medical or cultural tools for our minds and bodies. No other plant known to woman or humanity provides all three. The list of physical and mental medicinal actions that cannabis is involved in is a long one and would take many pages to properly outline its entire scope. Suffice to say cannabis medicines may replace up to half of all synthetic medicines when fully researched. Coincidentally, approximately fifty percent of current synthetic medicinals are plant-based.

As desert residents we recognize water use and sustainability is important for all plants and domesticated crops being grown here in New Mexico. Research has shown that cannabis can grow spontaneously in a range of environments disturbed by humans, and its inherently weedy nature and survivability are renown. This has presented a common misconception of its requirements as a crop plant. Economically feasible production of cannabis requires large tracts of arable farmland. Cannabis crops also require large amounts of natural rainfall or irrigation, well drained alluvial soils, and significant amounts of nutrients.

In a perfect world cannabis cultivators could focus on terroir, the geographical and climactic influences which (as for wine vintners) influence a seasonal crop and vintage. In today’s world, however, outside concerns intrude a bit more demonstrably: While environmental conditions have traditionally favored Western states of the United States for the outdoor cultivation of cannabis, the 21st-century’s burden of changing climate conditions is increasingly leaving them vulnerable to some of the most acute drought conditions in the country. Arizona, California, Colorado, Nevada, New Mexico, and Oregon (which collectively account for 71% of the nation’s total cannabis supply, both legal and illicit) are being keenly afflicted, according to the National Oceanic and Atmospheric Administration’s Drought Monitor.

Notably, New Mexico is a majority-minority state. It’s ironic that lots of people are surprised to learn that, by overwhelming margins, the groups of Americans who care most about climate change are Latinx Americans, African-Americans and indigenous people. But, of course, those communities tend to be disproportionately exposed to the effects of global warming: working jobs that keep you outdoors, on an increasingly hot planet, and living in densely populated and polluted areas. (For many of the same reasons, these communities have proved disproportionately vulnerable to diseases such as the coronavirus.) One way of saying it is that money also buys a certain degree of privilege, and white people, over all, have more of it.

In addition human-caused climate change "may have played a key role" in the coronavirus pandemic. That is the conclusion of a new study which examined how changes

in climate have transformed the forests of Southeast Asia, resulting in an explosion of bat species in the region.

The researchers found that, due to changes in vegetation over the past 100 years, an additional 40 species of bat have moved into the region, carrying with them 100 more types of bat-borne coronaviruses. Bats are known carriers of coronaviruses, with various species carrying thousands of different types. Many scientists believe the virus that started the worldwide COVID-19 pandemic originated in bats in southern China's Yunnan province or neighboring areas before it crossed paths with humans.

John Muir, who has some claim to being the original modern environmentalist, once explained that “when we try to pick out anything by itself, we find it hitched to everything else in the Universe.” He was talking about ecosystems, but it turns out that he was more correct than he knew: the political world is hopelessly (and hopefully) intertwined with the natural world. So, for instance, living in a community with high levels of air or water pollution impairs human bodies—it raises blood pressure, increases cancer, and last but certainly not least, lowers property values.

The job of people who care about the future of New Mexico—specifically those in the health and legal communities, including environmentalists, among many others involved in the regulation, research, and education of these industries—is to let everyone breathe easier. But that simply cannot happen without all kinds of change. In the “land of enchantment” some of it looks like opening cannabis license and ownership opportunities in both the medical cannabis and potentially the adult recreational cannabis industry, solar panels for rooftops, and some of it looks like reparations and includes radically reimagined police forces. All of it is hitched together. These are all some of the critical components of the ecosystem we find ourselves in.