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Wild Roots: Ginseng, Conservation, and Nature in the Appalachian South

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by
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Katherine Farley

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Dedicated to the knowledge-holders and caretakers of the Appalachian woodlands: past, present, and future.

ABSTRACT OF THE DISSERTATION

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by

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American ginseng (*Panax quinquefolius* L.) is a medicinal plant native to eastern North America. Though the plant has a history of Indigenous use, wild American ginseng roots have been commercially harvested, primarily for export to east Asia, since the 18th century. There is a long history of harvesting ginseng in Appalachia as a source of supplementary income, as living-wage jobs in the region have historically been scarce. Today, harvesters can make hundreds of dollars per pound of dried, wild-harvested American ginseng roots. However, ginseng populations in the wild today are thought to be substantially smaller than their historical peak, which may be due to the impacts of overharvesting. Ginseng is a slow-growing perennial that can take ten or more years to reach reproductive maturity, so it is thought to be particularly vulnerable to disturbances such as harvesting. Conservationists note that poor Appalachian ginseng harvesters frequently break rules intended to protect ginseng and suggest that ginseng decline is primarily due to irresponsible harvesting practices and a willingness to overlook environmental impact for short-term gain. This dissertation argues instead that many ginseng diggers adhere to a rural, working-class environmentalism that emphasizes sustainable resource use, which is frequently overlooked by mainstream environmentalists who emphasize "pristine," "untouched" wilderness. This dissertation explores the tension between these two environmentalisms through three specific conflicts related to ginseng harvesting and conservation: illegal ginseng harvesting, planting farmed ginseng seeds in the wild, and growing

"wild-simulated" ginseng in habitats crafted to mimic the wild. I show that many poor Appalachian ginseng harvesters care deeply about the health of their local environment and take steps to protect it, and suggest that declining ginseng populations are due to a combination of other factors, including habitat loss, herbivore overpopulation, and a minority of ginseng harvesters who do use unsustainable practices. I conclude with a brief overview of recommendations for landowners and policymakers based on my research that are intended to increase wild ginseng populations as well as benefit the people who rely on ginseng income.

Prologue: Blessings of the Big Mountain

Joe Pigmon is a ginseng digger and self-described ginseng steward from a small town nestled in the hills and hollers of eastern Kentucky. He enjoys writing short essays and creating art (drawings and photographs) about his experiences out in the forest looking for ginseng. Joe shared this story with me, which I have edited for grammar and clarity. Joe also publicly posted a version of this essay to his personal Facebook page so I am using his real name; all other interlocutors in this dissertation are referred to using pseudonyms unless otherwise indicated. Used with permission.

Deep in the thick of all the amazing old growth trees and giant grapevines of eastern Kentucky, at around 1800-2400 feet in elevation where most will never dare to venture, I was hard at it on the hunt to harvest some big old mountain monsters—old growth ginseng. It really isn't about the money to me anymore. Just being able to get in the mountains is the true reward… but making a few extra dollars to squirrel away for the winter months isn't too awful bad to have when needed. This year I was very, very picky on what roots I harvested. As in past years, I only harvest the old growth ginseng, 10-15 years plus in age. I try and average 25 year plus in age of the majority of all roots harvested. Doing this ensures the future of the generations harvesting! Purchasing ginseng seeds to be planted in all areas harvested helps tremendously for these very reasons. For the past decade, I have done my best to procure as many pounds of ginseng seed as possible each year. Some years it was a pound, others it was ten pounds plus.

As I wander through all the awesomeness that I'm blessed to be able to witness, harvest, sustain myself from, I truly am thankful—for everything is always enough!

It's getting steep as a miles face, as the old timers often would say to me when I talked with them about the places they went harvesting in their prime. As I work past a rather rough boulder field, the area starts to look perfect for big old mountain monster four prongs![1]

Figure 1: A three-prong ginseng plant.

I finally make it past the boulders and start slowly working my way up the cliffs and ledges where I know those big pieces of old seng[2] grow! I pull myself up a break in the limestone cliff. That's about ten feet from bottom to top with small ledges throughout. I find nice patch of big four prongs turning golden yellow from the cool fall weather. Look purdy as

[1] Mature ginseng plants have two to four (rarely five or more) palmately compound leaves colloquially referred to as “prongs.” Older and more valuable plants tend to have more prongs than younger plants; some ginseng harvesters will not dig plants with fewer than three prongs for this reason.

[2] “Seng” or “sang” are terms for ginseng commonly used in central and southern Appalachia.

picture! The excitement from this sight after all the climbing, sweating, thrashing my way through the vines and stinging nettle... I could go on about the little aggravating things one in counters while out harvesting. But these things mean little to a man such as myself. Because I know where them big old four prongs grow!

Figure 2: A ginseng plant that has turned yellow in late autumn. Each leaf, or "prong," consists of five leaflets attached at a central point. This is a respectable specimen, but not a "mountain monster."

As I start to slowly dig my way down around the first plant, I see a big fat coil[3] thick as a number two pencil. Oooh man, I'm in the good seng for sure. After harvesting the patch of eight nice four prongs, I make sure to cover all the smaller three prongs up with lots of leaves and such

[3] The "coil" (or "neck") refers to the rhizome, a modified plant stem that grows underground that sends up new aboveground parts each year. The age of a ginseng plant can be roughly determined by counting the number of stem scars on this rhizome.

to ensure they grow for many years more! To one day be the big old mountain monsters like I was blessed to harvest that day. I know the likelihood of me harvesting them is nil to none. This isn't what matters though. It's more about knowing one day someone will have a much better harvest than I could ever have imagined. This is why everyone who harvests ginseng for fun or profit should leave plenty and buy some ginseng seeds.

I'm thinking to myself, man, I'm just getting started and I have dug at least eight ounces out of that one patch already. What am I going to find further up the mountain!?!? As I finally make it through the first rough cliff section, it starts to open up and level out well enough to take a standing rest. This is when you can start getting the lay of the mountains. Certain sections will hold seng better than others.

I look up on the next ledges, seeing three different patches of big old yellow ginseng! WOW those look really big! Some are standing strong, still looking like a proud king's crown!! Ginseng is king of botanicals, which is so fitting. Truly it is something special!! After digging for a couple hours, working my way carefully up the steep cliffs ledge by ledge, looking at every little plant, twig, anything that resembles ginseng, even the things that don't look like seng, I start to think to myself, there's more even bigger plants—older ones—higher up on the ledges above for sure. The big cliffs and ledges in this section of the mountain surely are holding some big seng higher up.

Zigzagging my way through the last thickets above the middle section of the cliffs, it opens up to fifty-foot limestone cliffs, broken in some sections vertically with a few monster old-growth trees growing in some amazing places. Some growing from ledges barely a couple feet across. Or in one of the monster vertical cracks. Seventy-five feet plus wide in some areas that are near ninety degrees. A man has to be "half billy goat and all hillbilly," as one my oldest

lifelong friends says when we get into the really rough sections we like to harvest from. One wonders even how such a tree could take hold there, let alone grow to be one hundred plus years old. If the truth was known, many of these trees most likely are several hundred years old. No way something could grow fast in such a piece of ground—what little ground that actually held some soil.

As I'm scanning slowly across each cliff's ledge that is wide enough to hold that big old seng, I spot something bright golden yellow. It's big. I mean really big! A man might even say it was massive! Standing proud and tall three cliffs above me.

I can't help but say to myself, if that's ginseng, it's going to have a very nice root. That would round out a day of being truly blessed out in the awesomeness, harvesting the blessings of ginseng among many other things I happen to wander upon. So give back! Plant those berries, buy a few seeds.

Keep in mind, three cliffs up is around one hundred fifty feet plus. More likely two hundred. I scale the first cliff's ledges. I'm that much closer. I'm about to focus better on it. Man, that sure looks like a big four-prong. I gotta keep pushing higher to get a good look to be sure. The reason I'm not so sure is that it's mid-October. This means most of the ginseng tops have long died off. Tons of other small plants and tree saplings resemble ginseng very closely at a distance, or even in very close proximity of a harvester at times. I'm not seeing any seng grow on any of the ledges below what looks like a monster four-prong. Finally I pull myself up the last ledge of the second cliff.

I can finally get a clear look at it. It is!! It's a monster four prong, WOW just WOW. It's three foot tall from the looks of it. It's growing on a tiny patch of soil, barely hanging on a chunk of the final cliff's face that is sticking out sharply with divots in it. Various mosses, ferns, nettles

are growing wherever a sufficient chunk has been eroded away from the limestone cliff face, with just that one big four prong growing right in the middle of it all. That plant stood well over all the other plants growing with it. It stood out like a sore thumb. Because everything was green, it being a bright golden yellow sure made it look picture perfect.

As I study on where and how I'm gonna be able to get to that long-sought-after monster four-prong, I noticed a crack with a few little areas eroded away that ran a couple feet directly beside my goal. I wedge the toes of my boots where I can get them to fit solid enough to hold me so I can close in foot by foot, inch by inch. The excitement is just about unbearable! I make it where I can finally really see what I have found. It's as huge as it looked from three cliffs down below it! The stalk is growing from a tiny patch of soil barely holding onto the slightest hint of a ledge. The stalk is the size of my pinky, with massive prongs presenting hand-size single leafs with five perfectly formed on each prong. The berry stem (berries long gone, it being mid-October harvest time) was a good eight to twelve inches plus from the base to tip with a double berry pod. The main pod looks like it had been the size of a golf ball when it was loaded with big fat red berries earlier in the season. Just below it was a ring going all the way around the stem. It looked like it had big berries as well that were reaching full maturity each year.

I found my third plant of the fabled Boone Seng. It's said this genetic variety of ginseng can be traced back to days long past. Times when Daniel Boone[4] himself wandered his way through these mountains harvesting tons of ginseng. I don't know how much scientific facts back this statement. I do know it's interesting to say the least to think of it this way. Following in our

[4] Daniel Boone was an 18th century explorer and frontiersman who, among other feats, blazed a road through the Cumberland Gap along the present-day Kentucky-Virginia border. This opened up the areas west of the Appalachian Mountains to White settlement. Boone later became mythologized as a folk hero and is a popular subject of tall tales in American folklore.

forefathers' footsteps is inspiring to myself. Which adds to the awesomeness we all so need in our daily lives!

After my observations I decided it was time to begin excavation of the big old-growth mountain monster. As I'm pulling the few leaves and twigs from around the plant's stalk at the base I really get to thinking, with a stalk that big at the ground it's going to have a big fat coil with a big old tater[5] sized bulb root. Not to mention the possibilities of monster fat feeder roots swollen with all the nutrients the plant was obviously getting plenty of! I start to dig in the soil to see where the root's coil starts. The soil is soft and spongy. It is composed of mostly decayed and decaying moss from years of buildup. I don't make it far. After I pulled the topsoil away from the big old fat stalk, I have run into solid limestone. Well, either it's growing in a pocket on the closest side to me. or it's growing straight into the cliff in a narrow crack. I can easily pull the broken-down, eroded limestone away from the main cliff to get at the root.

I get the same results as I continue. The soil is spongy, soft, broken-down moss. It sloughs away easily with little effort to reveal solid limestone, with what looks like very fine cracks radiating outward from the largest crack, which was the thickness of my index finger. The stalk came straight out from this crack, barely fitting in it, it was so thick at the base. As I'm hanging there after toenailing myself there so long, my legs and back are getting shaky from the strain. I have been clinging tenaciously to the limestone. So I slide down the face to a lower ledge that's substantial enough to have a break in the level. I ponder if the limestone cliff is going to break away where the small cracks seem to be running deeply next to the vertical finger-width crack. Hmm, makes a man wonder. It surely does!

[5] Potato.

Figure 3: Digging wild ginseng in Virginia. While accompanying a family of recreational ginseng diggers, I learned how to carefully harvest ginseng roots using my hands and a digging tool.

I rest to regain my strength to cling a little longer, up in that oddest of places for a monster four-prong to be growing too well. Over the many years of harvesting ginseng, I have dug lots of big old mountain monster roots. So this has my mind racing, thinking of the size, look, weight, shape of this awesomeness I have worked so hard to finally discover. A root that big would go straight in my special patch of seng I keep growing to propagate the old healthy ginseng genetics going. So maybe one day I can harvest many of them to put back in the mountains for future generations to harvest from the same line as our forefathers had done. As

well as myself. Carrying on the blessing. Our heritage is rich with thoughts of future generations. We must keep that in our minds at all times when harvesting the blessings given to us.

Pushing myself back to this monster hanging so precariously in the limestone, I figure after getting a closer look at the cracks running from the larger fissure I can take a few hard sacks at it with my old mattock[6] that's been so faithful and reliable when harvesting. The head has worn loose from heavy use prying and thrashing about in the mountains. I should have taken the time to fix it by wedging it back as it should be.

If you're a harvester, you know when the season's in for ginseng, that's all you have on your mind! The thrill and anticipation is the best part of ginseng for me. Not about profit or gain! That will come when needed. Just be patient and trust in the Lord. Blessings will be!!!

So I take a good straight whack at the small cracks. Some limestone gives. A few chucks flew away when I made contact. But nothing really substantial broke or fell away. So I take a couple more sacks at it. Still, nothing gives. It's just as solid as it was when I started, less a few chunks I managed to remove with my efforts.

I manage to get comfortable hanging there. I give some deep thoughts on how to go about getting this monster harvested for transplanting. It surely is a perfect specimen! Just amazing how it has grown so well in such a strange spot.

I take a couple more precise hard whacks at it. Still nothing gives. It's even became solid. The smaller cracks were just superficial. They had no real depth to them. I start contemplating what kinda tools I would need to get this amazingly beautifully perfect monster four-prong. A large chisel, a small one maybe for more gentle persuasion, a two-pound short-handle

[6] A digging tool consisting of a two-headed metal blade affixed to a handle.

sledgehammer at the very least would be needed. A good pry bar even could be useful that's for sure. Hmmmmmmm.....

As all this races through my mind—not to mention the thoughts in between of the Ginseng—I stop. What am I doing!!? I think of my grandma. I can hear her now. Saying this clearly: Joseph, some things are just so special they should be as they are when found. The Lord placed things such as this where they are truly meant to be. They are so special no matter how much you want it for yourself. No matter the extent of effort you would go to harvest it, you won't be able to. So leave them as you find them. Appreciate what amazing things you are blessed to find. Learn to recognize this, then you will truly have all you could ever need in life.

With that memory of the most amazing woman I ever had the blessing to have in my life, who taught me what ginseng was, I needed to leave it for her to watch over. This monster is going to stay, no matter if I could come back and chisel it out of the limestone cliff! So the Boone Seng lives on in beautiful perfection as it was meant to be. To keep producing giant fat red berries loaded with many, many seeds. Keeping the fabled Boone Seng alive for many future generations to come.

I'll never forget this super special experience I'm truly blessed and thankful for. From year to year when I'm in that area I'll check on that very special mountain monster. I help it along when time comes, planting its berries all around below it where more big old four-prong mountain monsters will be one day.

Chapter 1: Introduction

The Prologue to this dissertation introduced Joe, an avid ginseng harvester from the mountains of eastern Kentucky. Joe describes the hunt for American ginseng (*Panax quinquefolius*), a medicinal root especially prized in Traditional Chinese Medicine that is worth hundreds of dollars per pound. In Joe's essay, we hear about the physical challenges of digging the roots of this valuable plant—the long hikes, the steep cliffs, the dangerous terrain. Joe conveys his excitement in finding "monster" ginseng plants after a long search. Hunting for ginseng to harvest can be like a treasure hunt or an Easter egg hunt, and Joe, like many ginseng harvesters, loves the thrill of excitement when he finally spots what he is looking for amidst the dense green forest understory. But Joe's essay is not simply a story of excitement and adventure while searching for a rare plant. Joe is also describing a deep love for the mountains and a strong conservation ethic. Joe actively uses forest resources, both for personal use and to sell. This includes ginseng, as he writes about in his essay, but he also regularly harvests other useful species such as slippery elm bark, lion's mane mushrooms, and even poison ivy (the latter is sold to manufacturers of homeopathic remedies). Contrary to ideologies of nature that emphasize pristine, intact wildernesses free from human intervention, Joe does not see himself as causing damage to the woods through harvesting. In his eyes, God put plants and animals in the forest to benefit humans, and as long as humans care for these resources by using them responsibly, then he isn't causing any harm. Planting seeds and caring for wild ginseng populations is an act of reciprocity for Joe, a way of giving thanks to the Creator for giving humankind these "blessings."

At the beginning of my ginseng research, I had not imagined ginseng harvesting to be anything like what Joe describes. I first heard about American ginseng during one of my earliest research trips to Appalachia in 2017. After getting over my initial surprise that ginseng is not in fact a tropical plant (as I had assumed) and that it grows in North America, the first thing I learned is that it is rare and precious. It is not as plentiful as it once was—in fact, I often encountered people who mistakenly believed it to be an endangered species—but can sell for hundreds of dollars per pound.

The second thing I learned was it is often targeted by *poachers*. Harvesting wild ginseng is legal in nineteen states in the US, but much more wild ginseng is sold and exported than could possibly be harvested by legal means (Kauffman 2006). Landowners and recreational ginseng harvesters would talk about poachers who just want to make a quick buck and who don't care about *stewardship*, or the care and management of wild populations of ginseng to prevent harvesting to extinction. They'd tell me about the destruction wrought by harvesters who take every plant they can find, even plants too young to be legally harvested, or who would harvest plants in the early summer before plants set seed and reproduce. Ginseng poachers described as *meth heads* or *pill heads*, linking this kind of illegitimate harvest to the pursuit of illicit drugs.

The third thing I learned was that "wild" ginseng can, in fact, be cultivated. Ordinary cultivated ginseng is not very valuable. The type of ginseng that you might find as an ingredient in your sports drink or in a capsule in the supplements aisle of your local health-food store was probably grown on a large, mechanized farm in Wisconsin and sold for perhaps $30 per pound. Cultivated ginseng does not have the gnarled shape or wrinkled texture that indicates to experts that the root came from a plant that grew in the wild forest. Some growers, however, have learned to *simulate* wild ecosystems in a controlled manner, enabling them to cultivate roots that

are identical (or almost identical) to truly wild roots in appearance, potency, and price. At first glance, *wild-simulated* ginseng seems like a perfect solution. If we can meet demand for wild ginseng using wild-simulated ginseng, the logic goes, then we can ban wild harvesting altogether and let populations recover. The well-being of wild harvesters is a secondary concern. Indeed, if ginseng harvesters just want to "make a quick buck" in order to buy some pills as some conservationists believe, it becomes harder to see cutting off this income source as a problem.

Once I started talking to ginseng diggers, I began to see that the story of ginseng conservation in Appalachia is much more complicated. Formal jobs that pay a living wage can be scarce in rural Appalachia, especially as coal mines, manufacturing plants, and other blue-collar employers shut down or reduce the size of their workforce. About 20% of the population in rural Appalachia lives below the poverty line (Pollard and Jacobsen 2021), and high percentages of the population in the region rely on government assistance. In some Appalachian counties, nearly 50% of the population reports receiving SNAP benefits (i.e., "food stamps") (Marema 2018). Harvesting ginseng can be an important source of supplemental income, which my interlocutors have told me they use to pay for everything from Christmas presents for their children, to family members' medical bills, to heating oil for the winter, to college tuition. Even Joe, who insisted in the Prologue that simply being out in the mountains "is its own reward," admitted that the income from his ginseng harvests is an important supplement to his income from other sources: "making a few extra dollars to squirrel away for the winter months isn't too awful bad to have when needed."

Though ginseng harvesting can be an important component of a rural livelihood, the harvesters I spoke with rarely described harvesting in purely instrumental terms. Ginseng diggers, even the ones who openly admit to regular poaching, tend to express a deep sense of

admiration, attachment, and care for the mountains and forests. “I’ll always, always, always love it,” one ginseng harvester told me, right after casually mentioning taking ginseng from within the boundaries of a National Park, where harvesting of any kind is always illegal (field notes October 28, 2019). Though some poachers might take every plant they can see, others follow defined rules or guidelines for ethical harvest: “We have a lot of rules. You stay off other people’s [informally defined] area, you don’t take everything, you plant the seeds” (interview, December 6, 2019). Sustainable harvesting and folk conservation practices are collectively referred to as *good stewardship*. Joe, the ginseng harvester who shared with me the story in the Prologue, is one such harvester. Joe has a deep love for the woods that cover the steep mountainsides and hollers[7] surrounding his home. He sees himself as a caretaker of the land, someone who can ensure that future generations will be able to enjoy the excitement of hunting and harvesting ginseng. He does this by widely planting seeds purchased in bulk from industrial-scale ginseng farms, working with local landowners to monitor and tend the ginseng that grows on their land, and by promoting sustainable harvesting practices in his community and on social media. I included Joe’s story in the Prologue to this dissertation because it not only illustrates the feel and excitement of being out in the woods looking for ginseng, but it also provides a good example of rural Appalachian environmentalism—an environmentalism that is based on ensuring that future generations will be able to enjoy nature by being able to use and benefit from natural resources, rather than an environmentalism that emphasizes “pristine” wilderness and the separation of the natural and human spheres.

[7] A holler (from “hollow”) is a small, sheltered valley, usually formed by erosion around a mountainside creek or stream.

In this dissertation, I use ginseng as a tool to help us better understand the nature of conflicts over nature in Appalachia. I join a long tradition in anthropology and related disciplines of tracing the economic relationships and cultural associations of a single important commodity in order to provide insight into how and why a society functions in the way that it does. As Arjun Appadurai (1986) points out, commodities have social lives. By being attentive to the different meanings and associations that commodities like ginseng take on as they move through a society, we can learn more about their cultural, political, and economic contexts. Possibly the most famous example of this kind of endeavor is Sidney Mintz's *Sweetness and Power*, which traces the historical development of the modern global economic system through sugar, exploring sugar's domestication, its role in the rise of global trade, and its place in driving relationships between Europe and colonies in the tropics (Mintz 1985). Other scholarly works in this genre have explored the society through the lens of papayas (Cook 2004), coffee (West 2012), low-grade cuts of meat (Gewertz and Errington 2010), and more. The closest parallel to my own work in the "single commodity" genre is Anna Tsing's *The Mushroom at the End of the World* (2015). Tsing follows the various threads attached to the *matsutake* mushroom, a delicacy prized in Japan and in Japanese-American communities, that thrives in forests that have been disturbed by humans. Tracing these connections enables Tsing to discuss how people create value and livelihoods amidst the "blasted landscapes" of late capitalism—places that could be thought of as "ruins" due to their history of industrial disruption, but where new kinds of life can nonetheless proliferate. Like *matsutake*, ginseng is found amidst the "ruins" of a post-extractive landscape and is harvested by people attempting to make a living at the edges and in the interstices of global capitalism. Unlike *matsutake*, however, ginseng survives despite, not because of, the

"blasted" nature of its surroundings, sometimes requiring significant human care and intervention to do so.

Unlike some other single-commodity studies, my work does not attempt to explain the history of the world through a single plant or to make grand global-scale claims through a deep examination of how international supply chains connect distant places and people. The geographic scope of my project is limited to Appalachia, the region where most wild American ginseng is harvested. By examining environmental conflicts associated with ginseng, I show that rural Appalachians, who are often blamed for overharvesting ginseng leading to declining wild populations, have an environmentalism of their own that is based on assumptions about nature that are not always shared by mainstream environmentalists.

Environmental conflicts in Appalachia tend to have two clear "sides"—those who see nature as a resource that can and should be used by humans, and those who see nature as something precious yet precarious, needing to be protected *from* human use if necessary. Though there are exceptions, poor Appalachians who have been living in the region for generations tend to fall on the nature-as-resource side of these conflicts, while relative newcomers to the region—many of whom arrived in search of amenities like beautiful scenery and outdoor recreation opportunities—tend to fall on the nature-needing-protection side. Though the idea that nature is a resource for humans can manifest as support for extractive industries like coal or timber in Appalachia (R. R. Scott 2010), there is also a history of poor Appalachians allying with environmentalists to oppose extractive projects when such projects threaten local residents' ability to access the forest for hunting and foraging (Newfont 2012). Yet the environmentalism of poor Appalachians has historically been overlooked, in part due to disagreements over what environmental protection should look like and who should benefit. I argue that many ginseng

harvesters adhere to an Appalachian environmentalism that values sustainability, in the sense that forests should be managed in order to provide useful resources to humans for generations to come. Doing so, however, often requires active management, which conflicts with mainstream environmentalist understandings of "wildernesses" as places that are truly "natural" and therefore free from human manipulation.

In subsequent chapters, I explore three of the most widespread ginseng-related activities that I encountered during my fieldwork—specifically, harvesting ginseng illegally, restoring wild ginseng populations through seed-planting, and the creation of semi-wild managed landscapes where plants like ginseng can thrive. Illegal ginseng harvesting and planting ginseng seeds in the wild are both activities that involve a significant degree of conflict. In the case of illegal ginseng harvesting, the conflict is immediately apparent—the very concept of illegality suggests a conflict between individual actions and the state, even if illegal activities are tolerated or overlooked (Heyman 1999). The fact that wild population restoration via seed planting is a source of conflict is more surprising, as seed planting out of context sounds like a benign activity and population restoration an unmitigated good. Nevertheless, seed-planting too is a point of conflict, reflecting differing understandings about what the goals of environmental restoration ought to be. In both cases, generational Appalachians who support using the forest as a resource fall on one side of the conflict, while conventional environmentalists who place a higher emphasis on protecting the forest from anthropogenic damage fall on the other. After discussing these two areas of conflict, I go on to explore a less-contentious ginseng activity—growing "wild-simulated" ginseng in a managed landscape. In looking at the ways in which Appalachian ginseng growers and harvesters craft ecologically complex landscapes where ginseng can thrive, I suggest that it may be possible to create landscapes that are *wild* without necessarily being

wilderness. Humans can create wildness, and emphasizing this point could be a way to synthesize the mainstream and rural Appalachian environmentalisms.

As one of my interlocutors told me, "we have to take care of the hillbillies" in our approach to ginseng conservation (field notes, March 16, 2019). This dissertation project is an attempt to do just that. My goal is to take seriously the beliefs, understandings, and needs of Appalachian ginseng harvesters and growers when it comes to ginseng conservation. However, doing so requires re-thinking mainstream environmentalist assumptions about the proper use of nature, the goals of conservation, and even the definition of "wildness."

1.1 Two Environmentalisms

By examining ginseng harvesting and conservation practices in Appalachia, I am able to explore how the tensions and fault lines that surround land management decisions derive from the fact that there are multiple environmental ethics and understandings of human/environment interactions at play. Specifically, I argue that in Appalachia, there are two environmentalisms in conflict: mainstream American environmentalism, and a rural, working-class Appalachian environmentalism. Rural Appalachian environmentalism has historically been overlooked and unacknowledged by policymakers and environmental activists, partly due to stereotypes about "hillbillies" or conservative rural people. (I will explore these stereotypes and their impact on Appalachian environmental policies in Chapter 2.)

Mainstream environmentalism is the environmentalism of the Sierra Club and the Audubon Society, of Earth Day celebrations and "save the rainforest" campaigns. As an undergraduate environmental science and public policy concentrator at Harvard, and later as a master's student at Yale School of Forestry and Environmental Studies, I was trained and immersed in this brand of environmentalism. Mainstream environmentalism rests on a set of core

assumptions. One of the most important of these assumptions is that the human world and the natural world are in two separate spheres—and that the natural sphere is vulnerable and precarious compared to the ever-expanding, ever-polluting human sphere (Marx 1964; Nash 2014). Nature therefore must be protected *from* human interference in most cases, which is often achieved through preventing access or prohibiting specific activities in natural areas. Recreational use of nature—and the infrastructure required for access—is often an exception to the idea that humans must be excluded from nature in order to protect it.

As Dorceta Taylor points out in *The Rise of the American Conservation Movement*, this brand of environmentalism is largely a creation of urban elites (D. E. Taylor 2016). It has its roots in efforts by privileged men who saw nature as an arcadian paradise—or as a crucible for proving manly strength in ways that are impossible in the tame, civilized urban world. However, this conception of environmentalism has always relied on excluding certain categories of people who are deemed unworthy or incapable of appreciating nature in the proper way, such as Indigenous people, immigrants, people with disabilities, and the poor (Finney 2014; Haraway 1984; Ray 2013; Spence 2000).

Appalachian people have long been subject to this exclusion from nature, beginning with the Cherokee and other Native tribes who were forcibly removed from their homelands, and later on with the poor White farmers and homesteaders who settled in the mountains following the removal of Native peoples. As I will explore in greater detail in Chapter 2, stereotypes about Appalachian mountain people historically painted them as morally (and sometimes genetically) inferior to mainstream Americans. Appalachian culture supposedly promotes laziness, violence, substance abuse, and peculiar religious practices—all behaviors that are incompatible with being a civilized, bourgeois, liberal subject in modern America. These stereotypes have historically

been used as a justification for land grabs, in which coal companies and other extractive industries coerced poor Appalachians into selling their land, sometimes using intimidation or deceit (Stoll 2017). The idea was that poor Appalachians could not "properly" manage their land, so such dispossession was ultimately for the greater good. These ideas persist today. Mainstream environmentalists often mistrust poor Appalachians' ability to appropriately protect their natural surroundings. As one of my interlocutors pointed out, "They think we're barefoot, toothless, and illiterate…The culture of Appalachian people, probably next to the Native American cultures, we are probably the most maligned culture in this country" (interview, September 23, 2019).

Despite these assumptions about poor Appalachians, I encountered pro-environment, pro-sustainability sensibilities among my interlocutors. Environmentalisms exist among people who do not think, feel, or behave like mainstream environmentalists, but who nevertheless work to protect and preserve nature out of a desire to maintain their values and way of life. Martínez-Alier (2002) calls this the "environmentalism of the poor." In Appalachia, the "environmentalism of the poor" is not exclusive to poor people, though many of the people who embrace it are indeed poor. This environmentalism is based on the fact that rural communities in America still rely on resources from forests and rivers and other "wild" places to make ends meet (Newfont 2012). Logically, this should make sense. Many rural people rely on natural resources to make a living through formal employment in industries like farming, forestry, or even outdoor tourism. Many more engage in pursuits that blur the boundary between recreation and necessary provisioning, such as gardening and hunting (Halperin 1990). Of course people should want to protect the ecological health of the landscape in which they live when it is the basis of their livelihoods. Indeed, during a research project that I participated in nearly ten years ago before beginning graduate school, I interviewed conventional, highly-mechanized farmers who were

deeply offended by environmentalists who claimed that they were causing harm to nature through their agricultural practices. Everything of value on a farm is ultimately tied to the health of the land, I was told, so only a stupid farmer would intentionally do something to harm it.

However, the Appalachian working-class environmentalism that my interlocutors adhere to does not see the human relationship with nature in purely instrumental terms. They often express a profound sense of love and emotional attachment to the natural world, sometimes (though not always) expressed in terms of reverence for God's Creation. Rural, working-class environmentalists not only care *about* their surrounding natural environment, but they also care *for* it through actively working to "steward" and protect populations of economically-important species and their surrounding habitats, as well as in teaching others about sustainable use.

Mainstream American environmentalism and rural Appalachian environmentalism come into conflict over different understandings of acceptable human activities in "wild" places. Mainstream environmentalists value "untouched" nature and believe that wild places must be protected from harmful human manipulation. The ways in which poor and working-class Appalachians use nature, on the other hand, are often exactly the sorts of activities that mainstream environmentalists think that nature must be protected from. For my interlocutors, the wild is a place of enjoyment, of solace, and even of adventure—but it is also an important place in which to find useful resources. Human manipulation is not necessarily a problem, and landscapes that are intentionally altered or managed to be especially suitable habitat for "wild" resources are not devalued due to no longer being untouched wilderness.

Conflicts over harvesting, cultivating, and preserving American ginseng is useful lens through which to view these contrasting understandings of the human role in nature. Mainstream environmentalism values ginseng conservation and, more broadly, keeping as much of the

woodland landscape of Appalachia as "natural" or "wild" in appearance as possible. Many Appalachian ginseng harvesters are concerned about ginseng conservation as well, but often for different reasons—the goal is to ensure that future generations will be able to harvest, use, and benefit from forest resources like ginseng. There is much less emphasis on the aesthetic value of a "pristine" landscape or concern that human involvement somehow degrades "wild" places.

Looking beyond mainstream environmentalism is particularly relevant in the present-day Anthropocene era. If the Anthropocene can be defined as a time in the Earth's geological history in which virtually all of the earth's biogeochemical systems have been significantly altered by humans (Steffen, Crutzen, and McNeill 2007), and "nature" is a sphere that is both separate from humans and easily rendered no-longer-natural by human interference, then there is an argument to be made that *no* truly wild places exist. Instead of going down the road of questions such as "how *much* human impact is acceptable for a place to be considered a wilderness?" it may be more useful to consider alternate ways of thinking about the wild that allow room for human use and human alteration.

1.2 Outline of Chapters

In this Introduction, I introduced the overarching argument of this dissertation—that conflicts over ginseng harvesting and conservation enable us to see the tensions between two different environmentalisms in Appalachia: a rural working-class environmentalism that emphasizes sustainable resource use, and the mainstream American environmentalism that emphasizes pristine untouched wilderness. I explore three of the most significant ginseng conflicts that I encountered during my fieldwork in three core chapters, chapters four through six. These chapters are written as independently-publishable standalone articles and can be read in any order. I have also written additional chapters to provide important background information

and clarify the ways in which my three core chapters relate to my overall argument. Finally, in my conclusion I draw on my research to suggest some pragmatic recommendations concerning ginseng conservation for landowners and policymakers.

Chapter Two reviews some of the important literature that serves as an intellectual foundation for my project. First, I review the related concepts of "wildness" and "wilderness," with particular attention to how these ideas have been conceived of and operationalized through time in the United States. I then go on to discuss Appalachia and its role in the American public imagination. I pay particular attention to the archetypal figure of the hillbilly, and how hillbilly stereotypes have affected policies concerning Appalachian residents' ability to make their own choices about land management. I then consider the literature on hunting and foraging as a livelihood strategy. Anthropologists and archaeologists have long been interested in foraging among societies of the past or in present-day small-scale societies, but there is considerably less work that looks at foraging and wild food use in Western industrialized societies.

Chapter Three provides a brief historical overview of American ginseng, from its use in Indigenous healing traditions to its "discovery" by Jesuit missionaries in the 18th century, to its present importance as a non-timber forest product. I review some of the plant's botanical characteristics and medicinal uses. I also discuss the legal rules and regulations that govern American ginseng harvesting—specifically, CITES (the Convention on International Trade of Endangered Species of Flora and Fauna) and how CITES rules have been implemented at the Federal and State levels.

In Chapter Four, titled "'We Ain't Never Stolen a Plant': Livelihoods, Property, and Illegal Ginseng Harvesting in the Appalachian Forest Commons," explores some of the tensions that arise from inconsistencies between mainstream American environmentalism and

Appalachian environmentalism. I focus on the problem of illegal ginseng harvesting, which many ginseng conservationists point to as the main factor contributing to declining ginseng populations. Mainstream environmentalists tend to frame ginseng population decline as a tragedy of the commons (Hardin 1968), the result of self-interested harvesters with little incentive or inclination to harvest sustainably. The logical solution, then, is to implement measures intended to combat the tragedy of the commons—quotas, time limits, and removing lands from the commons via enclosure. Despite such rules, illegal ginseng harvesting remains widespread, with harvesters either harvesting out of season, trespassing in order to harvest, or harvesting plants that are too young to be legally harvested. Some observers suggest that the majority of wild ginseng on the market was harvested without following all the rules and regulations (Kauffman 2006). Conservationists tend to think that illegal harvesters are primarily motivated by the desire to "make a quick buck," often speculating that this is due to addiction to opioids or methamphetamines. A person who wants quick cash to buy drugs, in their eyes, is not someone who is inclined to harvest carefully or sustainably. There are harvesters who do resemble this unscrupulous drug-addicted digger figure that conservationists describe, but for many diggers, the reasons behind illegal harvesting are much more complicated. There is a set of practices collectively referred to as "good stewardship" which many harvesters use to sustainably manage wild ginseng stands in the de facto commons, even if these activities occur while legally trespassing or harvesting out of season. Many Appalachian forest users believe the owner of a ginseng root is not the landowner, but rather the person who labored to harvest the plant through finding the ginseng, stewarding the patch, and digging the root. In this chapter, I argue that many illegal ginseng harvesters believe one cannot "steal" a wild plant. I go on to suggest that the lack of attention to folk conservation practices among ginseng diggers risks obscuring some other

major contributors to ginseng population decline—namely, habitat loss through fossil fuel development, timber harvesting, and residential or recreational building projects.

My fifth chapter, "Johnny Appleseeds of Ginseng: The Biopolitics of Seed Genetics and Population Restoration," looks at the practice of planting ginseng seeds in order to replace ginseng plants that have been harvested. Legally, people who harvest wild ginseng are required to remove the seeds from plants they harvest and plant them in the vicinity of the harvest site. The legal ginseng harvest season—September 1 through December 31 in most states—is meant to ensure that seeds can ripen before harvesters dig plants. In addition to re-planting wild seeds, however, many ginseng harvesters also plant ginseng seeds obtained from large-scale commercial ginseng farms in the upper Midwest or in Canada. This practice has generated a controversy—is re-planting with commercial ginseng seeds necessary for ensuring that wild ginseng populations can withstand regular harvesting? Or does this practice "contaminate" wild ginseng by introducing non-native strains into the Appalachian gene pool? I explore this controversy through the lens of biopolitics, the concept initially developed by Foucault to describe how modern power acts to make certain kinds of life flourish while letting other kinds of life die (Foucault 1978). Though this concept was initially developed to describe power over human life and death, scholars in critical animal studies and the environmental humanities have effectively explored the ways in which biopolitics as a concept can shed light on human power over the more-than-human world. I argue that in the case of ginseng seeds and ginseng population restoration, what is at stake is the question of what counts as a population worthy of protection and care. The mainstream environmentalist position tends to favor an approach to ginseng restoration that emphasizes increased distribution of native wild seeds and is willing to accept a reduction in ginseng harvest rates to achieve population restoration using this method.

Many of my poor and working-class Appalachian interlocutors, on the other hand, rely on the forest for supplemental income, and their preferred approach to ginseng population restoration would be to maximize the amount of ginseng available for harvest, even if it requires introducing non-native seeds. I conclude the chapter by considering the implications of these two conflicting perspectives concerning the biopolitics of ginseng conservation on the lives and livelihoods of people who harvest ginseng in Appalachia.

I continue looking at folk harvesting methods in Chapter Six, "Crafting the Wild: Growing Ginseng in the Simulated Wild in Appalachia." This chapter explores the various ways that ginseng harvesters and ginseng growers manipulate their ecosystems in order to create optimal ginseng habitat by comparing wild-simulated ginseng growing methods and various wild stewardship practices. Wild-simulated ginseng is ginseng that is cultivated in forested plots that are carefully managed to mimic a "wild" Appalachian forest ecosystem as closely as possible. Environmental conservationists tend to like wild-simulated ginseng as a way to meet international demand for wild ginseng while taking pressure off of truly wild ginseng populations. Wild-simulated ginseng growers use methods that produce ginseng roots that are virtually indistinguishable from truly wild roots, such as surface wrinkles and dense root tissue. In this chapter, I argue that wild-simulated ginseng is in fact wild, even if it does not come from the wilderness. I argue that wildness and wilderness are not the same thing, even if the two terms are often used interchangeably. Mainstream environmentalism valorizes wilderness defined as an absence of discernable human intervention, but there are very few landscapes in which no human alterations are detectable. Indeed, the habitat that wild-simulated ginseng growers are attempting to emulate— "wild" Appalachian woodlands dominated by an assemblage of "native" plants that pre-date the arrival of Europeans in the Americas—are products of human manipulation. The

present-day Anthropocene era in which virtually all of the Earth's biogeochemical processes have been altered by humans also means that "wildernesses," in the strictest sense, no longer exist. Instead of seeking wilderness by imposing restrictions on human access to nature, I argue instead that humans can work to create wildness by managing ecosystems to add complexity, to foster unpredictability, and to facilitate stress. "Wild-simulated" ginseng is an example of this kind of intentional crafting of the productive unruliness of the wild. I also point out that this kind of crafting of the wild is not limited to forest farms that are intentionally designed and labelled as "wild-simulated" ginseng operations. The folk conservation practices that many Appalachians use to "steward" or care for wild ginseng populations are examples of how crafting the wild has shaped the Appalachian landscape for generations.

In my concluding chapter, I attempt to answer the question that ginseng conservationists would sometimes ask me upon learning about my research: "what is the best way to save American ginseng?" In this chapter, I review some of the ways in which I believe that the current ginseng regulatory regime is inadequate. I consider some of the suggestions that my interlocutors have made concerning changes they would like to see, such as increased law enforcement or third-party certification for sustainable harvesting, and discuss the limitations and advantages of such approaches. Finally, I offer a series of policy recommendations that I believe will help mitigate the problem of ginseng population decline while minimizing the harm to poor Appalachian ginseng harvesters.

1.3 Research Methods

In order to collect data for this project, I conducted ethnographic fieldwork in central and southern Appalachia between February 2019 and July 2020, in addition to shorter periods of preliminary fieldwork during the summers of 2017 and 2018 and a short trip during the summer

of 2021 during which I conducted follow-up interviews. I was primarily based in Black Mountain, NC, a small town in the mountains of western North Carolina about 30 minutes from Asheville, a city with a population of about 95,000 heavily focused on outdoor tourism. Black Mountain is located near Pisgah, Cherokee, and Nantahala National Forests; regions recognized by the US Forest Service as particularly susceptible to intensive ginseng harvesting (U.S. Forest Service 2012). There are thousands of wild herb harvesters living in this region who sell raw plant material to a network of dozens of small-scale local dealers who sell to exporters, wholesalers, and manufacturers (Greenfield and Davis 2003). This location also afforded convenient access by car to surrounding Appalachian states where ginseng is found. I was able to engage in research with ginseng harvesters in Tennessee, West Virginia, Kentucky, and Virginia as well as in North Carolina.

Throughout most of my fieldwork I lived at Earthaven Ecovillage, an intentional community located in the mountains of western North Carolina about 45 minutes from Asheville. Earthaven describes itself as an "aspiring ecovillage," a community that seeks to create an alternative to mainstream American lifestyles through design and governance choices that encourage low ecological impact and meaningful social interconnection (Lockyer and Veteto 2012). In some ways, this was an unconventional choice for the kind of research I wanted to do. Most Earthaven residents can be described as "back-to-the-landers," a term that originated with the 1960s counterculture to describe people who choose to live in a rural environment in order to pursue a lifestyle that emphasizes closeness to nature, despite not necessarily having grown up in a rural area (D. Brown 2011). Many ginseng diggers, on the other hand, come from families that have lived in Appalachia for generations, and tend to view back-to-the-landers somewhere on the spectrum from bemusement to mistrust or resentment. However, I knew that some Earthaven

residents were skilled at growing ginseng and had connections to ginseng growers living elsewhere in western North Carolina, and that several herbalists knowledgeable in the use of ginseng and other Appalachian woodland medicinal plants lived there. I also had concerns about my ability to find suitable housing in a more conventional setting. In the rural United States, finding affordable housing with suitable amenities can be a challenge—especially for a newcomer to the region who is not yet connected to social networks where it is possible to hear about someone's house or outbuilding available for rent. I was also concerned about social isolation. As an ethnographer studying a group of people spread out across a broad geographic area, I didn't have a village square or public market where I could count on meeting my interlocutors simply by showing up. When an opportunity to rent a small cabin at Earthaven arose, I jumped at the chance.

Though I was based in western North Carolina, I also made frequent trips for interviews and participant observation to surrounding states. Though I was sometimes able to stay with friends or with generous and hospitable interlocutors, I still kept a small tent and sleeping bag in the trunk of my car at all times throughout 2019 and 2020.

One of the greatest concerns about this research project was building rapport with my interlocutors. Indeed, as I was in the beginning stages of designing and securing funding for this project, one of the major objections I heard from my mentors and reviewers was that this project wouldn't be feasible because it would be too difficult to gain access to the people I wanted to work with. In Appalachia, ginseng harvesters are notoriously secretive about their work and mistrustful of outsiders (Greenfield and Davis 2003). This is for a few reasons. Since ginseng is a scarce resource that is frequently the target of theft, many ginseng harvesters are reluctant to share any details about what they do or where they go to prevent thieves from finding their

"honey holes" where they can reliably harvest ginseng. Second, many ginseng harvesters engage in illegal harvesting (such as by trespassing to harvest or harvesting out of season) and worry about attracting attention from game wardens or other law enforcement officers. Third, many Appalachians are wary of outsiders, especially when they do not fully understand their motives.

In order to protect my interlocutors' privacy, I use pseudonyms when quoting them in this dissertation and I am intentionally vague about precise locations. I also kept my field notes and interview recordings and transcripts secure and anonymized.

I recruited participants for my research through word-of-mouth recommendations and through social media—the Appalachian ginseng community has a highly active presence on Facebook, in particular. My interlocutors fell into four broad categories:

1. **Wild harvesters:** people who regularly go to the woods to harvest wild American ginseng to sell and/or for personal use.
2. **Wild-simulated growers:** people who cultivate ginseng in a setting that mimics the wild by planting wild-harvested seeds, planting commercially-purchased seeds in a "wild" habitat, or by transplanting whole roots obtained from the wild.
3. **Buyers and exporters:** people who purchase ginseng from harvesters and other dealers, and sell ginseng to dealers, wholesalers, or retailers either domestically or internationally.
4. **Other:** this category includes landowners, environmentalists, policymakers, herbal products manufacturers, and other stakeholders who do not clearly fit into the first three categories.

Many of my interlocutors fit into more than one of these categories, which I illustrate in the Venn diagram in Figure 4, below. Each person-shaped icon in the diagram represents one interlocutor. Icons within overlapping circles represent interlocutors who fit into more than one category.

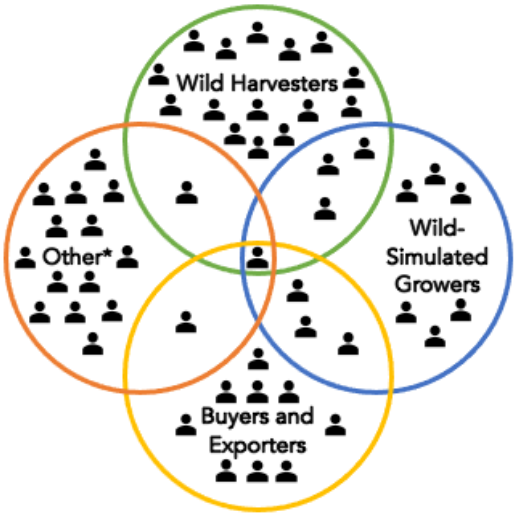

Figure 4: A Venn diagram representing my sample population.

Over the course of my fieldwork, I recorded 63 interviews ranging in length from about 20 minutes to over two hours; most were about one hour in length. During these interviews I touched on a consistent set of topics, but I did not always ask questions using the same wording or in the same order. This let the interviews flow like a natural conversation, allowing me to follow interesting threads and ask follow-up questions without being tied to a structured interview schedule. Sample lists of interview questions are included in the Appendix. Additionally, I engaged in participant observation with several of my interlocutors by accompanying them on ginseng hunting expeditions, assisting with planting and tending ginseng patches, and observing ginseng sales. I documented these activities with photographs and field notes. I transcribed my interviews and field notes and coded them for analysis using the qualitative data analysis program Atlas.ti.

Chapter 2: Literature Review

In this dissertation, I argue that rural Appalachians are not anti-environmentalists, and that we can see examples of Appalachian environmentalism through ginseng harvesting and stewardship practices. Though Appalachians are often blamed for ginseng population decline through overharvesting and inappropriate land management strategies—essentially, for succumbing to the tragedy of the commons (Hardin 1968)—I point out that Appalachians have developed many of their own strategies for managing a common resource like ginseng. I do not claim that Appalachian stewardship methods are perfect or that overharvesting never happens. I do, however, claim that Appalachians receive a disproportionate amount of the blame due to a conflict between Appalachian understandings of the human relationship to nature and the mainstream environmentalist understanding of the human relationship to nature.

This section reviews key literature that supports the premises of my argument. I first review the concept of "wildness" and how ideologies of wildness and wilderness have come to be incorporated into mainstream environmentalism in the United States. Though wildness was once considered to be frightening and dangerous, over time it gained a positive connotation. Modern environmentalism in the United States developed to protect wild spaces in order to provide urban people with a place where they could escape from the pressures and challenges of modern industrialized life—whether through quiet contemplation and relaxation, or through adventure and physical tests of fortitude that are impossible in an urban setting. With the exception of sport hunting, the utilization of useful forest resources has historically not been a priority of American environmentalism. Indeed, harvesting plants like ginseng can be seen as damaging or contaminating an otherwise healthy, intact wilderness.

I continue by discussing Appalachia as a cultural region. Despite its incredible wealth in natural resources, Appalachia has consistently been one of the poorest regions of the United States with a disproportionate percentage of the population experiencing poverty and unemployment. Historically, Appalachian poverty was often popularly understood to not be the product of economic exploitation, but rather due to cultural or even genetic deficiencies in the local culture. Even today, the idea of a "culture of poverty" is present in Appalachia that rewards supposedly pathological behaviors like laziness and interpersonal violence still resonates with many Americans. The long history of portraying poor Appalachians as ignorant and irresponsible is connected with a history of portraying Appalachians as incapable of appropriately managing their land. I suggest that rural Appalachian environmentalisms have been ignored or rejected by mainstream American environmentalists due to this history.

Finally, I review the literature on foraging as a livelihood strategy. Anthropologists have long been interested in foraging as a component of hunter-gatherer lifestyles; there is much less literature on foraging within the context of modern, industrialized societies. Though some studies of foragers in the Global North focus on people harvesting wild products as a recreational pastime, I am interested in people foraging at the edges of the global capitalist system, people who are unwilling or unable to work standard wage-earning jobs in a formal employment setting. In Appalachia, ginseng-digging, as well as hunting and foraging for other useful forest products, has historically contributed to survival in a region where employment opportunities are often scarce, intermittent, or low-paying.

2.1 On Wildness

One of the main issues at stake here is the question of what it means for something to be "wild." What is the human role in "wild" places? Are there certain types of human activity that

can occur in a place without threatening its "wild" state? (And, conversely, what kinds of human activity render a place no longer wild?) Who gets to decide?

Anthropologists have problematized the idea of a nature-culture binary by exploring the many societies in which this binary does not exist (Descola 2014; Latour 1993; Viveiros de Castro 1998). "Nature" as an essentially separate and unique category opposed to the human world of culture is *not* universal, and many cultures do not recognize this difference. However, this binary does exist in the United States broadly and in my field site more specifically, even if there are disagreements about where the dividing line lies. In general, American understandings of the nature-culture dichotomy originate with ancient ideas in the Western intellectual tradition in which "civilization" corresponds with order and "nature" with chaos (Glacken 1996). These correspondences also appear in Christian theology. In the book of Genesis, on the sixth day of Creation God instructs newly-created humans to "subdue" the Earth and to have "dominion" (in other translations, "rule" or "master") over it: "Be fruitful, and multiply, and replenish the earth, and subdue it: and have dominion over the fish of the sea, and over the fowl of the air, and over every living thing that moveth upon the earth." (Genesis 1:28). This passage is the Biblical basis for the contemporary notion of Dominionism, which argues that Christians are the rightful rulers of the entire Earth, including all of its natural resources. This idea has been used to justify animal cruelty, fossil fuel extraction, and other environmentally harmful practices (White 1967; Yates 2009).

Wild places have not historically been considered good or worthy of protection for their own sake. Urban people have romanticized the countryside since Antiquity, but it was the agricultural countryside, not the untamed wild, that was usually held up as a foil for the ambition, greed, and vanity of the city (Glacken 1996; Marx 1964; R. Williams 1973). The wild,

on the other hand, was to be feared. English visitors to the Alps in the 18th century, for example, described the scenery as a "place of torment" full of "horrid and fearful crags and tracts" (Ring 2011). A "good" landscape was agricultural land—orderly and well-managed by humans, consistent with God's instruction to Adam and Eve to "Be fruitful and multiply; fill the earth and subdue it; have dominion over the fish of the sea, over the birds of the air, and over every living thing that moves on the earth" (Genesis 1:28). Early Christian missionaries to Appalachia saw the wildness of the region as morally dangerous, full of people under the sway of Satan due to their distance from the civilizing influence of cities and agricultural land[8] (Fraley 2011).

So how did it become possible for contemporary environmentalists to see nature as something worthy of admiration and protection? In the 19th century, the Romantic movement and the Transcendentalists played in important role in making it possible to see the wilderness as morally and aesthetically positive (Nash 2014). For example, Thoreau sees the wilderness is imagined as a kind of moral refuge, free from the degrading influences of civilization and urban life. Humans might impose civilization on the world around them, yet humans still retain a spark of wildness, reflecting an Edenic savage state before civilization. Thoreau sees civilization is a moral failing, while "all good things are wild and free" (Thoreau 2022, 222). Something—be it an agricultural landscape, a herd of animals, or the human mind itself—is domesticated when subjected to a discipline that forces it to go against its nature, while it is wild when it is "free." Another component of mainstream environmentalist views of the wilderness comes from the idea

[8] Interestingly, traces of this idea of wilderness as evil or threatening still remains in mainstream American culture. For example, consider horror films such as *Deliverance* (1972) or *Cabin in the Woods* (2012), which create a rural "anti-idyll" through depicting the countryside as a place that harbors dangerous hillbillies and wild slashers who terrorize the urban protagonists with whom the audience is meant to sympathize (D. Bell 1997).

that nature can serve as a sort of crucible in which to demonstrate extraordinary power or skill. Many Westerners traveled to "wild" places in order to demonstrate masculine virtues like bravery and strength (Haraway 1984), while special abilities, especially supernatural or occult in nature, have long been ascribed to indigenous people who inhabit "wild" places (Taussig 1986; Krech 2000; Kidd 2009).

But whether or not nature is a moral wasteland or a refuge from the degradations of modern urban life, a firm division between the natural and the human remains. The separation of nature and culture has become an essential aspect of the imaginary of the wild. The idea that wilderness is something that is entirely separate from humans is enshrined in the legal definition of "wilderness" in the United States. According to the Wilderness Act of 1964, "A wilderness, in contrast with those areas where man and his works dominate the landscape, is hereby recognized as an area where the earth and its community of life are untrammeled by man, where man himself is a visitor who does not remain."[9] The wilderness, then, is a place from which humans are excluded. People may be "visitors" to the wilderness, but their impacts upon the landscape must be temporary and the effects of human visitors must be erased once they leave.

If human activity necessarily contaminates a wilderness, then in an age of ever-expanding economic activity and industrial exploitation, the wilderness would be seen as under threat. As John Muir wrote regarding the proposed construction of the Hetch Hetchy Dam in Yosemite Valley in 1912, natural places "have always been subject to attack by despoiling gainseekers and mischief-makers of every degree from Satan to Senators, eagerly trying to make everything immediately and selfishly commercial, with schemes disguised in smug-smiling philanthropy,

[9] Wilderness Act of 1964, 16 U.S. C. 1131-1136 (1964)

industriously, shampiously crying, 'Conservation, conservation, panutilization,' that man and beast may be fed and the dear Nation made great (Muir 2003).[10] This has been one of the keystones of environmental policy in the United States since the mid-20th century (Turner 2012). Of course, as theories of the Anthropocene remind us (e.g., Chakrabarty 2009; Steffen, Crutzen, and McNeill 2007), nowhere on Earth has truly been untouched by humans since the anthropogenic climate change began. Nevertheless, the idea that the wilderness is fundamentally the opposite of modern urban life is one of the foundational ideas of American environmentalism, but this notion masks the various ways in which wildernesses are established and policed by humans (Cronon 1996). Imaginaries of wildness, often produced through media and advertising, can result in the remaking of "wild" places in order to align with consumer fantasies of what wild places are like (Igoe 2010; West and Brockington 2006).

An important factor in the mainstream environmentalist movement's understanding of wildness and wilderness is that it was a creation of (primarily white, male, urban) elites (D. E. Taylor 2016). Wilderness requires the exclusion of humans, but certain groups of humans have historically been more excluded than others. Native Americans were pushed off their land in order to build the national parks (Spence 2000). Black Americans have historically been excluded from many avenues toward rural land ownership and are underrepresented in mainstream environmental organizations, and many report a feeling of being unwelcome in outdoor or environmentalist spaces (Finney 2014). Other groups that have been excluded from

[10] Here Muir is using "conservation" in a different sense than may be familiar today. Muir was a preservationist, which meant that he supported preserving land from all human intervention. Conservationists, on the other hand, advocated for the protection of nature but not to the exclusion of certain forms of economic activity, such as forestry. "Panutilization" is a neologism coined by Muir that refers to the notion that natural resources should be used to their fullest extent (D. W. Hall 2014).

the American wilderness include immigrants and people with disabilities (Ray 2013). This exclusion means that the values and priorities of the mainstream environmentalist movement have largely been consistent with the needs and desires of middle- and upper-class white urban and suburban people.

2.2 Appalachia: The "Other America"

Geologically, the Appalachian Mountains are an ancient mountain range, formed about 270 million years ago when the tectonic plates of today's Africa and North America collided. The resulting mountains were once as high as the Rocky Mountains are today but were ground down by erosion over millennia (Clark 2001). Though the mountain range extends from the hills of northern Alabama and Mississippi all the way north through Canada, the word "Appalachia" usually refers to a more specific region linked by similarities in culture, politics, economics, and language, as well as by geography. This includes portions of southern West Virginia, eastern Kentucky, southwest Virginia, western North Carolina, and east Tennessee. Davis, a historian of the region, refers to this area as "southern core of Appalachia," (D. E. Davis 2005). In Figure 5 below I have included a map of Appalachia as defined by Appalachian studies scholar John Alexander Williams, depicting the area of overlap in all the various official and unofficial maps of Appalachia. In other words, this "consensus Appalachia" is the area that almost all scholars and government officials can agree is included in Appalachia, though it does not include some areas (for example, parts of southern Ohio or western Maryland) that many local residents consider to be part of Appalachia.

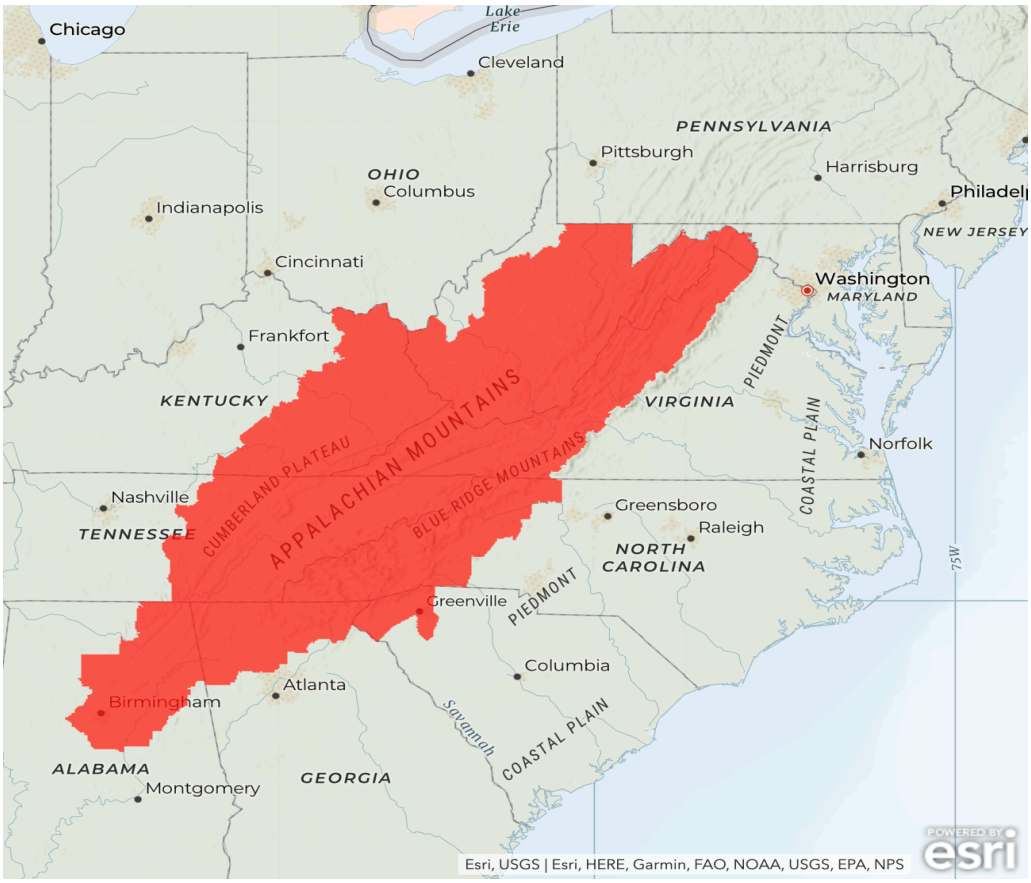

Figure 5: A map of "Consensus Appalachia." (Scales, Satterwhite, and August n.d.; J. A. Williams 1996)

Appalachia often plays the role of the "Other" America in the American imagination (Stewart 1996), a "wild" or "primitive" foil to a modern, civilized, mainstream America. The archetypal Appalachian figure is the hillbilly—a pejorative term, though one that is sometimes claimed with enthusiasm by Appalachians themselves. (Recall Joe describing himself as "half billy goat and all hillbilly" in the Prologue.) In popular culture, the hillbilly is imagined as lazy, ignorant, violent, and inclined toward indulging in immoderate desires—such as sexual relationships between first cousins, or abuse of alcohol, opioids, or methamphetamines (Harkins 2003). Historically, these stereotypes have in part been used as a justification for preventing

mountain people from making decisions about how their land ought to be used through land seizures and other forms of dispossession (Stoll 2017).

Hillbilly stereotypes in popular culture can be traced to the 19th century "discovery" of Appalachia (Ledford 2000). In the 1870s and 1880s, as Reconstruction in the American South following the Civil War was drawing to a close, travelogues describing American landscapes and regional customs were a popular subject for magazines and other publications aimed at educated, middle-class Americans. Descriptions of poor, White Appalachians from the era are characterized by a sense of fascination with the idea that such an "alien race" or "peculiar people" lives within the borders of the United States (Shapiro 1986). It was around this time that the term "hillbilly" as a description of mountain people first appeared in print (Drake 2001). This period of "discovery" was, Shapiro claims, the period when Appalachia as a region was reified, defined by its inescapable difference from the rest of America.

Another core dimension of the hillbilly stereotype is poverty. Poverty is indeed a major problem in Appalachia. According to the Appalachian Regional Commission, nearly 21% of people living in rural Appalachian counties live under the poverty line, compared to 13.4% for the United States as a whole. About 65% of rural Appalachians participate in the labor force, compared to about 80% for the US as a whole. Nearly 30% of rural Appalachian households lack Internet access, compared to 17% for the US more broadly (Pollard and Jacobsen 2021). Appalachia has long been a region of interest for anthropologists interested in studying how people adapt to living in poverty. This produced ethnographies including *Appalachian Valley* (Hicks 1976), *Rural Community in the Appalachian South* (Beaver 1986), and *The Livelihood of Kin* (Halperin 1990).

Despite these markers of poverty, Appalachia is extraordinarily rich in natural resources, including coal, natural gas, various minerals, timber, agricultural land, and scenic recreational areas suitable for tourism. This creates a paradox—if Appalachia is so rich in resources, why are its people so poor?

In many cases, blame for persistent poverty in Appalachia was placed upon Appalachians themselves. Appalachians were believed to be genetically deficient compared to middle-class, non-Appalachian Americans. Historically, White Appalachians have been racialized as having a particular kind of Whiteness—a not-quite-Whiteness, White with an asterisk (McCarroll 2018; R. R. Scott 2009). This not-quite-Whiteness has historically been described in distinctly derogatory terms. As one 19th century journalist put it, "They are classed in the South as 'poor white trash.' Everywhere they are the same people, speaking the same dialect and living on the same low grade of civilization…In all these regions they hold a social grade below that of negroes. Their origin is enveloped in mystery. No one knows from what nationality they have sprung" (J. M. P. O. 1883). In the late 19th and early 20th centuries, the popularity of the eugenics movement gave rise to the belief that sterilization and other forms of reproductive control could solve Appalachia's supposed problems with genetic deficiencies. One of the most startling examples of the is the case of Carrie Buck, a young Appalachian woman who was committed to an insane asylum at the age of seventeen after being raped by a relative and becoming pregnant. The state claimed that Ms. Buck suffered from "hereditary feeblemindedness" and involuntarily sterilized her after giving birth. Indeed, her experience of rape and pregnancy was used against her as a sign of her status as an "imbecile"—during a court case challenging her sterilization in Virginia, her pregnancy was used as evidence to support the assertion that she "has record during life of immorality, prostitution, and untruthfulness," thereby

making her a suitable candidate for sterilization (Black 2012). Her case ultimately progressed to the United States Supreme Court, and in 1927 Buck v. Bell upheld the right of states to forcibly sterilize people for eugenic purposes. Though some adherents of the eugenics movement may have seen themselves as having benevolent intentions (even though they were misguided in the extreme), the idea that poor Appalachians were genetically deficient was also operationalized to support less-benevolent ends. Appalachian studies scholar Elizabeth Catte (2021) argues that forced sterilization was used as a tool of dispossession in Appalachia. By declaring landholders to be "feebleminded," thereby subjecting them to involuntary committal to a mental institution and ultimately forced sterilization, elites could remove people from their land and reap the profits.

Scholars, journalists, missionaries, and other "outsider" observers of Appalachia have long noted that Appalachian kinship, religion, work ethics, and other aspects of social life did not line up with middle-class morals in the rest of the United States (Weller 1965). One explanation for the persistence of poverty in Appalachia is that the mountains are home to a "culture of poverty" in which local social institutions promote laziness, crime, and instant gratification, and discourage the kind of industriousness and integrity necessary to hold down a good job or get an education. The term "culture of poverty" was coined by Oscar Lewis in 1961 in his book Children of Sanchez, a case study of a family living in poverty in Mexico City (O. Lewis 2011). The idea of the "culture of poverty" was subsequently taken up by political conservatives to explain the plight of Black urban ghettos in American cities (Murray 1994), though this notion has been heavily criticized for blaming Black Americans for the effects of generations of racial discrimination (W. J. Wilson 1987). In Appalachia, the culture of poverty manifests itself in assertions that Appalachian culture is pathological, encouraging laziness and criminal behavior

and discouraging hard work and personal responsibility. An example of this can be found in Hillbilly Elegy, the bestselling memoir by the Ohio venture-capitalist-turned-politician J.D. Vance. Vance suggests that Appalachian poverty is due to "a culture that increasingly encourages social decay instead of counteracting it," where "young men are immune to hard work" and people are inclined to "blame everyone but yourself" for such troubles (Vance 2016, 7).

Many scholars and activists in Appalachia have argued instead that poverty persists in the region because it is, in effect, an internal colony of the United States, not because of any inherent cultural problems. This theory, which draws on world-systems theory and dependency theory (Gunder Frank 1969; Wallerstein 2000) supposes that America treats Appalachia as a source of wealth generated by the natural environment and the labor of its residents. But since the land, the mines, the timber, and so on are owned by capitalists from outside of Appalachia, this wealth is funneled away from the region leaving its people in a perpetual state of poverty—an example of what Sachs and Warner (2001) call "the curse of natural resources." In other words, just as many colonies and former colonies appear to be "underdeveloped" compared to global centers of political and economic power, Appalachia is an "underdeveloped" region compared to the rest of America. For example, in *Night Comes to the Cumberlands*, an influential work that led in part to the creation of the War on Poverty in Appalachia in the 1960s, this is a key theme. Caudill paints a picture of Appalachia as a place where primitive mountaineers engage in violent blood feuds and curious religious practices, but are nevertheless brave, patriotic, and self-reliant. This changed with "the coming of the coal men" who cheated ignorant mountaineers into selling their land for much less than what it was worth, building mines where employees were paid poverty wages while enjoying vast profits from headquarters in New York or London (Caudill 2001).

Similarly, in *Colonialism in Modern America: The Appalachian Case* (H. M. Lewis, Johnson, and Askins 1978), Lewis et al. reject the "culture of poverty" explanation for persistent poverty in Appalachia, which places the blame for economic hardship on Appalachians themselves for engaging in self-sabotaging cultural practices. They also reject the idea that Appalachia is "underdeveloped" simply due to geographic and economic isolation. Instead, they focus on the "domination" of Appalachia by "outside interests," emphasizing that decisions about Appalachian development as well as the profits of timber and mineral exploitation lie in the hands of industrialists from outside the region.

Even today, popular media reinforces negative stereotypes about mountain people. Poor Appalachians are portrayed as "white trash" and are put up for public ridicule through television programs like "Here Comes Honey Boo Boo" and films like "The Wild and Wonderful Whites of West Virginia" (Billings, Norman, and Ledford 2000; Isenberg 2016; McCarroll 2018). Appalachia is a popular topic among investigative reporters, but the articles they produce tend to focus on opioid addiction (e.g., Talbot 2017), the challenges of poverty (e.g., Lowrey 2014), and as of late 2016, the widespread popularity that former President Trump enjoys in the region (e.g., Peters 2017). Reporters and scholars have also made note of the intense, and sometimes perplexing, support for the coal industry and other extractive industries in Appalachia (Bell 2016; Maggard 1994; R. R. Scott 2010). Many Appalachians reject mainstream environmental discourses and generally support right-wing beliefs about the reality of anthropogenic climate change (Hamilton 2011). This portrayal gives mainstream environmentalists reasons to believe that Appalachians don't care about the environment or understand the long-term implications of environmental damage.

2.3 Foraging as a Livelihood Strategy

Foraging, sometimes referred to as "wildcrafting" by my interlocutors, is an often-overlooked practice in industrialized societies of the Global North. For the purposes of this project, we can define "foraging" as the human harvesting and collecting of "wild" plant, animal, and fungal resources that are free-living, i.e., outside of direct human control over their reproduction. Though much of the literature on foraging considers hunting and fishing to be types of foraging (e.g., Hill et al. 1987), in the contemporary United States the term "foraging" tends to refer to collecting plants, fungi, and occasionally mollusks or other sessile animal species. Anthropologists and archaeologists have of course been long interested in foraging as a livelihood strategy in non-Western societies as well as in societies of the past—especially concerning the transition from hunter-gatherer to agricultural lifestyles (C. T. Brown, Liebovitch, and Glendon 2007; Brosius 1991; Kelly 2013; Smith 1998). The literature on foraging practices in modernized, industrialized, wealthy societies is relatively scanty in comparison (J. C. Hall 2021). Wild foods are not a part of mainstream diets in most of the United States or northern Europe, though certain species such as ramps (*Allium tricoccum*), wild asparagus (*Asparagus officianalis*), or blackberries and related species (*Rubus spp.*) may be enjoyed as occasional seasonal delicacies (Conran 2006; Łuczaj and Pieroni 2016; Rivers, Oliver, and Resler 2014).

Foraging practices can conflict with environmentalist conceptions of nature that emphasize excluding humans, as foraging can be seen as "disrupting" or "harming" an otherwise-pristine wilderness (Fletcher et al. 2021; Robbins 2003). Interestingly, hunting has a somewhat more complicated relationship with mainstream environmentalism compared to foraging for plants and fungi. Hunting, like foraging, involves human extraction of useful resources from a "natural" environment. However, unlike foraging, hunting has a history as a

hobby for elites as well as a history of being a subsistence strategy (Boglioli 2009; Marks 1992). Sportsmen's organizations have long played an important role in establishing nature preserves and advocating for conservation policies in order to ensure adequate game populations (Dunlap 1988). More recently, however, tension has emerged between hunters and mainstream environmentalists (Bronner 2008). For example, Dizard (1999) describes conflicts between environmentalists, hunters, and land managers who see hunting as the best strategy for controlling an overabundant population of white-tailed deer in Massachusetts.

There has been some scholarly interest in exploring foraging (and related practices like trash-picking) as a survival strategy for people who live at the edges of industrialized capitalist societies. People who are excluded from formal wage employment turn to the informal economy to make a living through foraging (Millar 2018; Samson 2015). Anna Tsing's work on *matsutake* mushroom hunters in the US Pacific Northwest (Tsing 2015) is particularly notable. Like ginseng diggers in Appalachia, Tsing's interlocutors are people who live at the edges of industrialized society, transforming a product gathered from the wild into a valuable global commodity. *Matsutake* harvesters, like ginseng harvesters, live amidst a "blasted landscape" that has suffered dramatic transformations due to extractive industries. However, unlike ginseng, *matsutake* thrives in disturbed landscapes. In Appalachia—a region long recognized as being on the periphery of the global capitalist system (H. M. Lewis, Johnson, and Askins 1978), many scholars note that foraging and other self-provisioning practices help people survive in a region where formal wage employment can be scarce (Halperin 1990). The Appalachian forest functions as a de facto commons, a source of culturally and economically important resources available for use when needed (Hufford 2002; Piacentini 2021; Puckett 2014; Reid and Taylor 2010). Yet as mentioned above, there are conflicts between mainstream environmentalists and

people who rely on forest resources. Law (2022) notes that this can produce narratives in which Appalachian foragers are painted as the primary force behind biodiversity and habitat loss, obscuring other possible narratives and the need for more data. Newfont (2012) argues that environmental campaigns (such as anti-logging campaigns) tend to be most successful in Appalachia when they emphasize the preservation of open access and use of resources in the Appalachian forest commons, while environmental campaigns that focus on excluding people to preserve “wilderness” places tend to have much less popular support.

Chapter 3: The History, Botany, and Use of American Ginseng

American ginseng is used as an herbal supplement to address a wide variety of ailments. (Indeed, the genus name—*Panax*—comes from the word *panacea*, or universal remedy.) When I asked my interlocutors in Appalachia what ginseng is used for, there were three common responses. First, that it improves (primarily male) sexual function. ("It's the root that gives you a root," joked one ginseng digger I spoke with.) Second, that it enhances longevity by easing the aches and pains associated with old age. And third, that is a stimulant that enhances alertness while reducing feelings of hunger or thirst. Many ginseng diggers I spoke with told me they chew on pieces of ginseng roots while in the woods for energy during long and tiring hikes. The late ethnobotanist Jim Duke even wrote and recorded a song extolling ginseng's virtues:[11]

From the bluegrass of Carolina
To the hills of northeast China
I've been and I'm going back again
Did I really find the truth
Chinese fountain of youth
The herb that the Chinese call renshen

Makes an older man cocksure
And a younger man endure
Makes an older woman younger
And a younger woman hunger
Ginseng, sing gin!
Sing a little thing and swing!
Sing a little thing ginseng!

Searching for the holy grail
On the Appalachian Trail
When I found the herb they call ginseng
Growing deep down in the woods
That's where I got the goods

[11] A video recording of Jim Duke performing this song in 2013 is available on YouTube at https://www.youtube.com/watch?v=vgfUE13LNzc

The herb that turns the autumn into spring

2.1 Ginseng Botany

Ginseng is a slow-growing, long-lived perennial herb in the Araliaceae (or ivy) family. Ginseng plants vary greatly in size depending on available light and growing conditions; I have seen specimens ranging from less than a foot tall to well over two feet tall. Mature ginseng plants have between two and four (rarely, five or more) palmately compound leaves, or "prongs" with five leaflets each—hence the Latin species name, *quinquefolius*, or five-leaved. Ginseng seedlings that are only a year or two old usually have a single leaf with three, not five, leaflets. The leaves are arranged in a whorl around an umbel of small, pale green flowers that bloom in early summer before developing into seeds that turn vivid red when they ripen in August or September.

Figure 6: Ginseng through the seasons. From left to right, we can see ginseng leaves emerging in April, ginseng with ripe red berries in late August, and ginseng leaves that have turned yellow and are preparing to fall off in October.

Later in the autumn, the leaves turn bright yellow before withering and dying. Ginseng plants are often not detectable at all during the winter months; the only aboveground part that occasionally remains is a stalk that is nearly indistinguishable from other dead stalks and twigs in

the winter woods. The leaves emerge once again in April or May. The seasonal changes in ginseng are illustrated in Figure 6, above).

Though ginseng leaves and berries have medicinal qualities (Xie et al. 2004), the root is the part that is most commonly traded on the international ginseng market (See Figure 7, below).

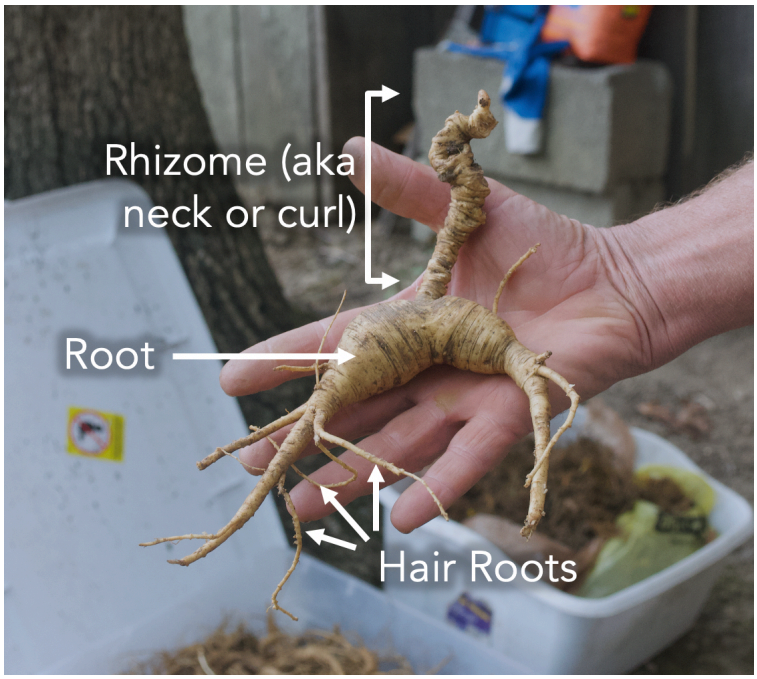

Figure 7: A ginseng dealer in West Virginia displays a particularly large and old ginseng root. I have added labels indicating the parts of the root.

The "neck" or "curl" of a ginseng root—technically, a rhizome—is a modified stem that is found just under the surface of the soil. Each year, the plant's aboveground parts emerge from a bud on the neck. Each winter when the leaves and stem die off, a scar is left on the rhizome that can be used to determine a ginseng root's approximate age. Each bud scar represents a year of growth, similar to tree rings.[12] The neck must be harvested and kept attached to the root when

[12] My interlocutors tell me that ginseng occasionally does not "pop up" in some years. Nobody is entirely sure why, though some speculate that ginseng may remain dormant in years with

sold in order to ensure that the root was at least five years old when harvested, the legal minimum age. The neck has few or no medicinal properties, and I did not encounter anyone who has heard of anyone using it medicinally.

The valuable part of the ginseng root is its fleshy taproot. The root's appearance can change dramatically depending on its growing conditions. A ginseng root grown in soft, well-tilled garden soil is pale, plump, and straight, looking much like a parsnip when harvested. Ginseng roots grown in hard, rocky soil with few nutrients tend to be darker in color and display transverse wrinkles or rings that ginseng dealers say are indicative of "wild character." Occasionally wild ginseng roots will grow into a branching pattern. Home gardeners who have tried planting carrots in rocky or heavy soil may be familiar with this phenomenon when they harvest misshapen carrots with multiple branching taproots. This branching pattern can sometimes give the ginseng root the rough appearance of a human body. Ginseng hunters are often particularly excited to find such roots; my interlocutors would often show me photos on their phones of particularly large or distinctively-shaped "man roots." (From time to time, these ginseng hunters would excitedly draw my attention an appendage at the juncture of the root's "thighs" that looks like a penis.)

Ginseng roots are typically dried before they are sold, though there is increasing demand for "green" or fresh ginseng. A dried ginseng root weighs about 20-25% of its fresh weight, which is reflected in prices. The highest-quality wild ginseng roots—ones that are particularly large, old, or distinctive in shape—are sold whole to the end consumer, sometimes mounted for

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unsuitable weather or other stressful conditions. For this reason, the number of bud scars on the neck is generally thought to represent a *minimum* age, while in truth a ginseng root may be several years older.

display in a velvet-lined shadowbox or similar display case (Figure 8). Such ginseng roots are given as high-prestige gifts. Roots that are of more ordinary size and shape may be sliced or powdered before being sold.

Figure 8: A four-prong ginseng plant mounted for display in a ginseng dealer's home office.

The medicinal uses of American ginseng have been extensively studied in east Asia, where ginseng is an important component of the Traditional Chinese Medicine *materia medica*. In the TCM tradition, ginseng is generally consumed as part of a formula with other herbs in a decoction (i.e., a strong tea made by simmering plant material in water for a period of time), though other preparations, such as capsules and fluid extracts, are also available. In the TCM framework, American and Asiatic ginseng are both believed to enhance *qi*, or the vital life force

of the human body, though many claim that American ginseng is milder and less stimulating than Asiatic ginseng and is therefore more suitable than the comparatively "hot" Asiatic ginseng for certain patients (Dharmananda 2002). The biologically active components have been identified as a class of saponins called ginsenosides. A large number of benefits have been attributed to ginsenosides, including anti-microbial, immunomodulating, anti-diabetes, anti-cancer, anti-fatigue, and anti-obesity qualities (Patel and Rauf 2017). In contemporary Western botanical medicine, American ginseng is considered to be an "adaptogen," a member of a group of herbs believed to enhance the body's ability to endure physical and psychological stress. Adaptogens were first identified in the 1950s in the former Soviet Union when experiments indicated that ginseng and *Eleutherococcus senticosus*, a plant in the same botanical family as ginseng that is sometimes called "Siberian ginseng," appeared to improve endurance in elite athletes (Baranov 1982). Ginseng is also an important medicinal herb among many Indigenous peoples of eastern North America, including the Cherokee, Creek, Delaware, and Haudenosaunee (Moerman 1998).

2.2 Ginseng History

Though ginseng was traditionally used by Indigenous North Americans, the commercial harvest of wild American ginseng has been ongoing for nearly 300 years. In the early 18th century, a Jesuit priest by the name of Joseph-François Lafitau sought to prove that the flora, fauna, and Indigenous people of North America share a common origin with the people of the "old world;" i.e., Europe and Asia (Parsons 2016). The systematic documentation of the useful plants and geography around Europe's colonies had been a part of the mission of the Society of Jesus since its founding in 1540 (Harris 2005). After arriving in Sault Saint Louis (now Kahnawake) near Montreal to take up a post as a missionary, Lafitau received a letter from his brother missionaries based in China. This letter contained a botanical description of the ginseng

plant, but more interestingly, it also contained a description of its habitat. In a report on ginseng that Lafitau sent to the Duke of Orleans, he describes his reaction to the letter:

> While browsing this letter and coming across the place where this Father says, speaking of the nature of the soil where one finds ginseng, that if it could be found anywhere else in the world it should principally be in Canada, whose forests and mountains, according to those who have been there, are very similar to those of Tartary. I felt my curiosity even more piqued by the hope of discovering it in New France"[13] (Lafitau and Orléans 1718, 10, my translation).

The network of Jesuit missionaries and their letters enabled them to find similarities among far-flung places around the world. In this case, a missionary based in Tartary (i.e., the northern portion of central and east Asia) noticed that the landscape of mountains and temperate woodlands was remarkably similar to descriptions given by missionaries and colonial administrators of eastern North America. This gave Lafitau reason to believe that ginseng might be found. Ginseng was known in Europe at the time due to trade with China. According to Lafitau, "The Chinese attribute many other marvels to this root, and they sell it very expensively for three times its weight in silver"[14] (Lafitau and Orléans 1718, 45–46, my translation).

Though Lafitau did not know it, his location in Canada was within the northernmost reaches of American ginseng's native range. In his report, Lafitau writes that he was unsuccessful at finding any ginseng happened by chance to spot a plant with ripe berries: "the vermillion color of its fruit arrested my sight"[15] (Lafitau and Orléans 1718, 14, my translation).

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[13] *En parcourant cette Lettre, & tombant sur l'endroit où ce Père dit en parlant de la nature du Sol où croît le Gin-seng, que s'il s'en trouve quelqu'autre part du monde, ce droit être principalement en Canada, dont les forêts & les montagnes, au rapport de ceux qui y ont demeuré, sont assez semblables à celles de la Tartarie. Je sentis ma curiosité encore plus piquée par l'espérance de le découvrir dans la Nouvelle France.*

[14] *Les Chinois racontent mille autres merveilles de cette racine, aussi la vend-on très-cher aussi et l'on en donne trois fois autent en argent qu'elle pèse.*

[15] *la couleur vermeille de son fruit arrêta ma vue.*

He brought the plant to an Indigenous woman of his acquaintance who identified it as a common remedy, and Lafitau successfully used it to treat her intermittent fever. This led Lafitau to believe that the ginseng he found was indeed the same plant that is so highly valued in China. Interestingly, Lafitau goes on to discuss the Iroquois word for ginseng, *garent-ougen,* which he says means "man-shaped," just like the Chinese words for ginseng—*jan sam* in Cantonese (from which the English word *ginseng* is derived) and *ren shen* in Mandarin. Lafitau concludes that this similarity could only occur due to an exchange of people and ideas, and therefore North America must be connected to Asia somehow.

Commercial harvest and trade of ginseng began in earnest after the publication of Lieteau's "discovery." Reports in the 1720s and 1730s focused on Lieteau's claim that ginseng sells in China for three times its weight in silver, sometimes going even further to promote ginseng's preciousness by claiming that it sells for eight times its weight in silver, or its weight in gold, in China (Harris 2005).

The ginseng trade became particularly economically important in the earliest years of the United States. Americans wanted Chinese tea, porcelain, and other goods, and could no longer rely on British trade. Fortunately for the newly-independent Americans, they had plenty of goods that were in high demand in China—ginseng and furs. The very first ship to trade under the flag of the United States was the *Empress of China*, which sailed from New York to Guangzhou in 1784 with a hold full of American ginseng (Kuriyama 2017).

American ginseng was an economic lifeline not only at the scale of nations, but also at the scale of individuals and families. As the coastal cities and farmland east of the Appalachians became increasingly settled, people began to move west into the mountains in search of "unclaimed" land--which sometimes led to violent conflict with the Indigenous peoples who

already lived there (D. E. Davis 2005). These White Appalachian settlers were largely self-sufficient farmers and trappers who could grow, hunt, or make almost anything they needed. However, there were certain goods that couldn't be homemade—for example, sugar, coffee, firearms, and lead for making ammunition. Mountain settlers could sell herbs, including ginseng, as well as other valuable goods like furs, in order to acquire cash to purchase necessary goods (Manget 2016). Signs of this history linger today in Appalachia—many ginseng-buying businesses have names like Greenbrier Herbs and Furs (in West Virginia) or Wilson's Fur and Ginseng (in Kentucky).

Concerns that overharvesting wild ginseng might lead to its extinction in North America date back at least to the 19th century. In an 1888 article on ginseng in a pharmaceutical journal, the author writes, "With the continuance of pillage in the gathering of the root, that is, if the root is harvested before the ripening of the fruit and the falling off of the seed, destroying the whole plant, the final extermination of *Aralia quinquefolia*[16] is only a question of time" ("Ginseng Root" 1888, 384). The proposed solution to this problem was ginseng cultivation, though due to ginseng's slow-growing nature, cultivation was once thought to be impossible. In 1897, the Pennsylvania Department of Agriculture produced a book by a horticulturist from Penn State to promote ginseng cultivation. The volume begins by noting that many growers who have attempted to cultivate ginseng "testify by their experience that it is impossible to grow our ginseng to maturity with profit" (Butz 1897, 5), but goes on to provide examples of ginseng cultivators who have successfully made a profit growing ginseng. In later decades ginseng

[16] *Aralia quinquefolia* is an older scientific name for American ginseng. Today it is grouped with Asian ginseng, dwarf ginseng, and several other species in the *Panax* genus, which is in the *Araliaceae* or ivy family.

cultivation would be promoted even more enthusiastically. In 1915, the editor of a publication called *The Ginseng and Golden Seal Bulletin*, targeted at growers in the Midwest, New York, and Pennsylvania, wrote:

> One man received $204 for one crop on a space 16 feet square. Figure what an acre of it could yield accordingly. It could have grown on the north side of his house in the shade. It will grow like weeds and we all grow some weeds. Any good vegetable soil will grow Ginseng and Golden Seal. You can sell it to any fur buyer or the firm he deals with (Kirk 1915, 336).

Ginseng cultivation in Appalachia, New York, and parts of the Midwest dwindled during the early years of the 20th century, which may be in part due to a fungal blight that affected crops (Carlson 1986). Fungal diseases remain a problem for commercial ginseng growers, and those who use dense planting methods to maximize yield per acre must regularly spray their crops with fungicides (J. Davis and Persons 2014). However, settlers in central Wisconsin began to establish commercial ginseng farms in the first decade of the 20th century that came to thrive (Carlson 1986). Today, most cultivated ginseng grown in the United States is grown on a handful of large-scale farms in Marathon County, Wisconsin (Cheng and Mitchell 2009). The vast majority of this ginseng is produced using methods that maximize yield at the expense of quality—roots are grown in soft soil under shade cloth rather than forest canopy, using plenty of fertilizer. As a result, farm-raised Wisconsin ginseng sells for a fraction of the price of wild American ginseng.

Demand for wild American ginseng has steadily increased over time, and prices have risen accordingly. For example, in the 1980s a pound of ginseng would sell for under $100 (Schmidt et al. 2019), while in recent years prices in some areas have exceeded $1000 per pound. Some of my interlocutors attribute these prices to rising demand for ginseng from China's growing middle class as they gain the ability to afford expensive, high-prestige products like

ginseng (interview, March 20, 2019). Demand is also rising from Koreans and Korean-Americans, who tend to prefer fresh ginseng to dried, which has resulted in a recent increase in prices for "green" roots (interview, April 22, 2019). Ginseng is also consumed by Americans and Europeans as an herbal supplement for its stimulant qualities, and in recent years it has been marketed as an "adaptogen," a class of herbs that can help the body withstand the physiological effects of stress (Patel and Rauf 2017).

As demand and prices increase, however, ginseng is becoming increasingly scarce. Historically, annual ginseng harvests peaked in the 1870s and steadily declined until the 1990s (Kauffman 2006). Since then, annual ginseng harvests have increased but they are nowhere near their historical peak. It is possible that this may be due to a decline in the rural Appalachian population and a decrease in the number of people interested in ginseng harvesting, or due to declines in wild ginseng populations due to factors like plant diseases. The consensus among the ginseng ecologists, foresters, landowners, and conservationists I encountered in my research is that annual ginseng harvests are declining due to overharvesting in the past leading to smaller ginseng populations today. Furthermore, there is evidence based on herbarium specimens indicating that the average size of individual ginseng roots has decreased over time, suggesting preferential harvest of larger plants over time rather than declining interest in harvesting (McGraw 2001).

In order to deal with the increasing scarcity of ginseng, a number of restrictions on ginseng have been implemented. The first restrictions on ginseng harvesting were implemented in West Virginia in the late 1800s, when a legal harvest season was established (CITATION). Since then, a patchwork of rules and regulations were put into place on a state-by-state basis, though they were inconsistent and enforced sporadically. In the 1970s [CHECK], however,

American ginseng was included as a species subject to regulation according to international treaties on trade in threatened and endangered species. The details of these regulations and their implementation are outlined below.

2.3 Ginseng Regulation

Today, American Ginseng is regulated under CITES (the Convention on International Trade of Endangered Species of Wild Flora and Fauna). CITES is administered by the UN Environment Programme, but each country that is a party to CITES fulfills its obligations through an internal authority. In the US, CITES mandates are fulfilled through the US Fish and Wildlife Service.

American ginseng is listed under Appendix II of CITES, which includes species that aren't necessarily imminent danger of extinction but could potentially reach that point if harvest and use rates are not somehow restricted or controlled. Trade in Appendix II species is prohibited under CITES unless certain specific restrictions laid out in the treaty are followed. Therefore, trade in ginseng must follow certain rules. Exporting ginseng requires an export permit. Permits should ensure that ginseng plants are obtained in accordance with state environmental protection laws. This means that in theory, there must be a finding that ginseng was harvested legally in order to get a permit to be exported. (In practice, it is exceedingly rare for buyers to regularly authenticate diggers' claims that they harvested their ginseng legally, though some ginseng dealers will refuse to work with diggers who they have reason to believe harvested illegally.) The US Fish and Wildlife Service is required by CITES to monitor wild populations, export levels, and harvest rates of ginseng and other species listed under Appendix II. If rates of harvest and export start to seriously threaten wild ginseng populations, the Fish and Wildlife Service can recommend limits on export permits.

The Fish and Wildlife Service relies on information provided by states and tribal lands where ginseng grows in order to fulfill its monitoring and policymaking obligations under CITES. There are 19 states where ginseng can be legally harvested (Figure 9, below). Ginseng's native range extends beyond these nineteen states, but these states, including Michigan and Massachusetts, have determined that ginseng is not abundant enough to permit wild ginseng harvesting, though harvesting and selling cultivated ginseng is allowed. A handful of other states outside of ginseng's native range, including Idaho and Washington, allow ginseng to be cultivated and sold for export.

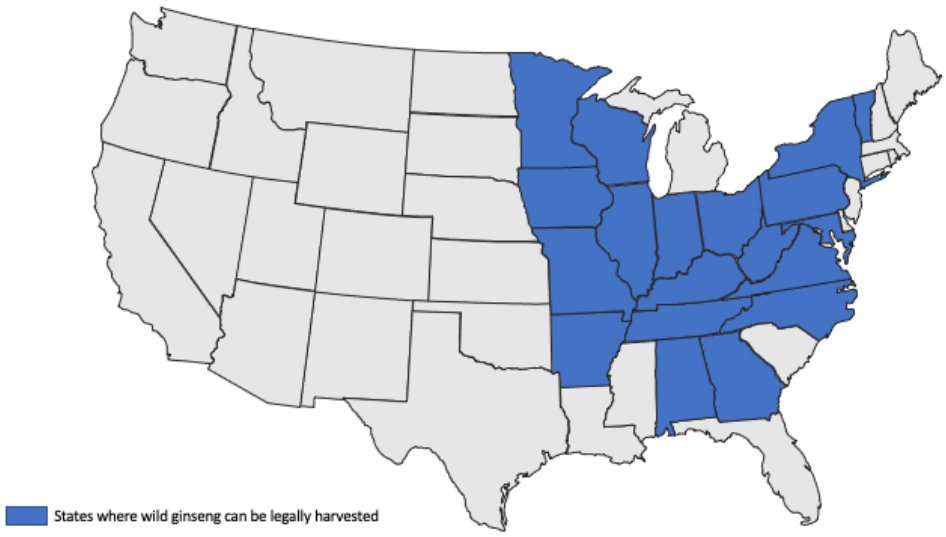

Figure 9: Map of states where wild ginseng can be legally harvested.

Each of these nineteen states has its own ginseng program, usually housed in the state Fish and Wildlife agency (or equivalent)—the same state agency that manages hunting and fishing permits—which determines and enforces the regulations that ginseng harvesters, buyers, and exporters must comply with. In the past, there have been some significant differences in regulations among these states, but within the past few decades there has been a trend toward

making regulations more consistent across states. In general, wild ginseng harvesters must follow the following rules:

- ***Ginseng cannot be harvested outside of the legal harvest season***, which begins on September 1 and ends on December 31 each year. Some states, such as Wisconsin, have shorter ginseng harvest seasons with earlier end dates. In some states, such as Virginia, harvesters who are digging ginseng on their own private property do not need to limit themselves to this legal harvest season. In most states, however, it is always illegal to dig ginseng out-of-season, even on private property. Some states, such as Pennsylvania, prohibit the possession of "green" (fresh, un-dried) ginseng during the spring and summer months to further discourage out-of-season harvest.
- ***Ginseng plants must be at least five years old to be legally harvested.*** Since it is not possible to precisely determine the age of a ginseng root until the "neck" or rhizome is unearthed, some states instruct diggers to avoid harvesting plants with fewer than three (or even four) prongs, or leaves. This is a more conservative requirement since it is not uncommon for plants that are older than five years to have only two prongs.
- ***After harvesting a ginseng root, any seeds remaining on the plant must be immediately removed and planted nearby.*** Some states, such as North Carolina, specify that ginseng harvesters cannot keep ginseng roots and ginseng seeds in their possession at the same time.
- ***Harvesters must obtain appropriate permission from the landowner before harvesting.*** When harvesting from private land, a signed permission form from the landowner is usually required unless the harvester is the landowner. When harvesting on public land, such as in a National Forest, a permit is often required. Permits may allow harvesters to collect a limited amount of ginseng (usually around 1-3 pounds) and are often distributed by lottery. The

number of permits issued is intended to prevent overharvesting and may change from year to year. In North Carolina during the 2021 ginseng season, no ginseng permits were issued for harvesting in the Pisgah or Nantahala National Forests, which are otherwise popular ginseng harvesting spots. Some states do not allow ginseng harvesting at all on public land. Harvesting ginseng from land managed by the National Park Service (e.g., Smoky Mountain National Park or land bordering the Blue Ridge Parkway) is always prohibited.

- ***Ginseng can only be sold to registered legal ginseng dealers.*** To obtain a license, a prospective dealer must annually submit an application and pay a small fee to the state department of fish and wildlife (or the equivalent). Dealers must agree to make their name and contact information publicly available. Dealers are responsible for keeping records of all ginseng purchases and reporting them to the state. In order to sell ginseng out of state, dealers must obtain an export certificate for each lot of ginseng, which requires a brief inspection from a state official

In practice, many of these rules and regulations are followed inconsistently (if at all) by many ginseng harvesters, much to the consternation of land managers and environmentalists. I will explore the logic of illegal ginseng harvesting in greater detail in the following chapter.

Chapter 4: "We Ain't Never Stolen a Plant": Livelihoods, Property, and Illegal Ginseng Harvesting in the Appalachian Forest Commons

A version of this chapter has been previously published in Economic Anthropology.

On a chilly autumn day, I stood by the side of a West Virginia state highway with a wild ginseng harvester named Marvin,1 preparing to harvest ginseng. American ginseng (Panax quinquefolius) is a medicinal root native to eastern North America that has been harvested from the wild for commercial sale and export, primarily to east Asia, for nearly 250 years (Carlson 1986; Manget 2012). The ginseng trade is governed by the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), but ginseng can be legally collected from the wild if harvesters (or "diggers") abide by certain restrictions, which many diggers, including Marvin, routinely ignore. Rates of illegal ginseng harvesting are difficult to, but at least one study suggests that most wild ginseng on the market is harvested illegally (Kauffman 2006; J. McGraw, Souther, and Lubbers 2010). Ginseng diggers can sell a pound of dry ginseng roots for $700 or more; at the height of the season, Marvin can dig enough ginseng in two or three days to make a dry pound. In Appalachia, where formal employment is often scarce and poorly paid, ginseng digging is an attractive pastime. Ginseng digging is not Marvin's only occupation. He explained to me that he makes most of his money selling illegal drugs and that drugs and ginseng are intimately entwined in West Virginia (interview, September 30, 2019). Marvin is one of many rural drug dealers in Appalachia who is willing to exchange ginseng roots for opioid pills or cannabis.

Marvin agreed to take me along on his next ginseng hunting trip, though he thought it was unlikely we would find any.[17] The legal harvest season was open, but it had been an unusually dry year. Other ginseng diggers had been telling me that the aboveground parts of ginseng in the area had died off for the winter weeks earlier than is typical, making the roots impossible to find. Normally Marvin prefers to dig ginseng beginning when ginseng leaves emerge from the ground in April or May, long before ginseng's legal harvest season begins on September 1. According to him, this is a nearly ubiquitous practice: "Any man who says he ain't walked through the woods and dug something before the season come in, he's flat lying to you." Out-of-season ginseng can be easier to spot, and a digger is more likely to harvest it before someone else does.

Marvin knew I was a researcher and that I planned to write about my interactions with him, so I expected him to take me to a place where he had permission to dig ginseng. Instead, we stopped at a stretch of woods along the side of the highway that was owned and managed by the National Park Service as part of what is now New River Gorge National Park,18 where harvesting wild plants is always prohibited. I considered getting back in the car and returning home, but Marvin, bemused by my trepidation, insisted that everything would be fine. The friend who drove the two of us to this site left and would return to pick us up in a few hours. Marvin later explained that this was so that we would not have to leave a parked car for law enforcement

[17] I am protecting the anonymity of and minimizing risk to my interviewees by keeping fieldnotes and other research materials secure and anonymized. I have not recorded the legal names of any of my interlocutors who are potentially involved in illegal activities, and I did not directly observe nor participate in any illegal harvesting.

[18] The New River Gorge National Park and Preserve was established in 2020. Previously, the area was designated as a National River by the National Park Service with similar prohibitions on harvesting.

to spot. Rural West Virginia law enforcement officers know that harvesting on park land is illegal. As Marvin told me, “They’ll run you if they catch you ginsenging anywhere. Here they’ll run [chase] you.” To Marvin, the risk is worthwhile, because park land does not bear the scars of recent timber harvests or coal mining like much of the surrounding land in West Virginia. From the edge of the highway, the terrain sloped steeply down to the river, which we could just make out through the trees.

We entered the woods on a vertiginous north-facing slope full of moisture-loving ferns—ideal habitat for ginseng. Ginseng prefers moist, rich soil, and the steep terrain is a deterrent to casual ginseng hunters without the fitness or skill to “billy goat” up and down a 45-degree slope made slippery with fallen leaves. In preparation for this terrain, Marvin brought a homemade mattock that he used as a walking stick and digging tool. He also carried a .22 rifle spray-painted in a green-and-black camouflage pattern, which he hid in a hollow tree.

Moving across this precarious terrain was slow going. Marvin was an expert “billy goat,” keeping his feet in the stable area on the uphill side of saplings and tree trunks, using his mattock to anchor himself. I had a harder time, despite being an avid hiker. Climbing mountain trails is one thing; traversing steep slopes covered in a slippery and unstable layer of leaves is quite another. At one point I slipped and tumbled twenty feet downhill before catching myself on a sapling. Marvin warned me to keep alert for rattlesnakes.

Eventually, we found a promising damp gully, exactly the sort of place ginseng likes to grow. At that time of year, ginseng leaves typically turn a luminous yellow that almost glows in the forest understory, but even Marvin, with his experienced gaze, could not see any. As expected, we did not find any ginseng, but we did find holes. Even though this was Park Service land and herb gathering was strictly prohibited, someone had already come this way and cleared

out this patch of woods. Marvin was not the first person to come through looking for ginseng to illegally harvest, and he surely would not be the last.

Like many poor Appalachians, Marvin is unable to obtain a formal job that pays a living wage. In his case, he is excluded from the formal economy due to previous felony convictions and regular opioid and cannabis use (which would register in the drug tests he says are required of low-wage workers). Though he can earn a living from the illegal drug trade, he supplements this with resources obtained from the forest—income from selling ginseng and meat from hunting squirrels and other game. In many ways, harvesters like Marvin are the worst nightmare of those who are concerned about the long-term viability of American ginseng populations. According to diggers and conservationists who promote "good stewardship" of wild ginseng, a responsible digger harvests ginseng in ways that are believed to maintain wild populations. Good stewardship practices include harvesting ginseng only when it is in season and obtaining appropriate permissions and permits to dig on specific properties. Good stewards also harvest only the most mature plants. Marvin is not a "good steward." He digs plants too early in the season or plants that are too young, harvesting these plants before they can produce viable seeds. He also trespasses on land where he does not have permission to dig, whether it is National Park land or privately owned forest. Though the possibility of being "run" was always on his mind, it was not a significant concern of his.

Between 2018 and 2020, I spent approximately eighteen months in the mountains of western North Carolina and the surrounding Appalachian states working with ginseng harvesters, growers, and sellers, both licit and illicit. Ginseng harvesters are often secretive and reluctant to speak with outsiders, but I successfully recruited participants via social media and word of mouth. I found that environmentalists and forest managers promote a narrative in which illegal

ginseng diggers like Marvin are greedy, lazy, and irresponsible, willing to steal from others to make a quick buck. I argue instead that many illegal ginseng diggers do not see themselves as thieves and believe that one cannot truly "steal" a wild plant. Many Appalachians treat the forest as a commons regardless of the legal landowner and assume that the owner of a ginseng root is the person who harvested it and not the owner of the land where it is found. At the same time, conflicts over ginseng conservation, illegal harvesting, and "good stewardship" take place amid a landscape that has been shaped and reshaped by extractive industries for more than a century. While Appalachian ginseng harvesters are criminalized for trespassing and are seen as major contributors to the decline of native plant populations, activities like timber harvesting, coal mining, road and pipeline construction, and recreational development impact ginseng populations and habitats at a much greater scale. Efforts to address ginseng conservation often rely on strengthening private property rights and excluding diggers from access to the commons without addressing the ecosystem-scale impacts of extractive industries. Such activities take place on private property yet have broad impacts on surrounding ecosystems and communities. Appalachians thus experience loss of access to forest resources from two sides: first, from well-meaning environmentalists who see ginseng diggers as an ecological threat and, second, from habitat loss stemming from industrial land use.

In this article, I add complexity to understandings of the rural poor who make a living at the edges of the global capitalist system, extracting a valuable commodity (in this case, ginseng) from the forest landscape. More specifically, I aim to contribute to a more nuanced understanding of poor rural Appalachians by exploring the reasons for ginseng digging, a behavior that otherwise might appear consistent with negative stereotypes of Appalachian culture.

4.1 Illegal ginseng digging as a threat

A mature American ginseng plant is between ankle and knee high and has three or four (rarely five) compound leaves or "prongs" with five leaflets each radiating from a central stalk. Every year, plants form a central flower cluster that develops red, seed-containing berries in late summer (see Figure 10, below). In autumn, the leaves turn yellow and fall off, and the plant becomes dormant for the winter; leaves reemerge the following spring. Individual plants can live for decades.

Figure 10: Ginseng plants with ripe berries growing in the wild.

Almost all parts of the plant have medicinal uses, but commercial ginseng trade focuses on the root. Older roots are more valuable because ginseng consumers tend to believe that potency increases with age. Age can be determined by counting the number of scars from previous years' aboveground growth along the "neck" of the ginseng root, which is visible below in Figure 11. Roots that are thirty or even fifty years old are not unheard of, though roots that are fifteen or so years old or younger are much more common in commerce. Plants must be at least five years old to be legally harvested and sold.

Figure 11: A dried ginseng root with the "neck" (rhizome) clearly visible.

Ginseng's botanical characteristics make it vulnerable to overharvesting. It requires a specific habitat— moist but well-drained soil, usually on sloping terrain, and plenty of shade. It also takes many years to reach reproductive maturity. Ginseng populations can take many years to recover from disruption and can only tolerate a low rate of harvest (J. McGraw et al. 2013).

Populations can be destroyed entirely if their forest habitat is damaged, as by timber harvesting, coal mining, or residential development.

Biologists, environmentalists, and forest managers identify overharvesting as the primary threat to ginseng populations in the wild (Kauffman 2006; J. McGraw, Souther, and Lubbers 2010; Schmidt et al. 2019). Many of my interlocutors compared ginseng's present-day scarcity with images of a lost historical forest landscape of plentiful ginseng. I was often told that ginseng had once been the dominant understory plant in the Appalachian forests, evoking images of hillsides covered in a lush sea of ginseng plants, but that all that ginseng had been "dug out." Many of my interlocutors brought up the (possibly apocryphal) story of the explorer Daniel Boone, who filled a river barge with ginseng; when the barge sank in the Ohio River en route to market, Boone was able to fill a second barge with wild ginseng in just a few weeks. Ginseng conservation supporters sometimes offered the story of wild Asian ginseng (*P. ginseng*) as a cautionary tale. As the story goes, Asian ginseng was once abundant in the temperate hardwood forests of northeastern China and the Korean peninsula. Due to the importance of wild ginseng in traditional Chinese and Korean medicine, wild ginseng populations were harvested to extinction by wild herb gatherers who did not know or did not care how to properly manage wild populations to ensure a sustainable harvest. The implication is that if American ginseng harvesters are not careful, the Appalachian forests may face the same fate as the Chinese and Korean forests—the total extirpation of ginseng.

Because wild ginseng is ecologically precarious as well as economically important, ginseng trade is regulated under CITES, which stipulates that states where ginseng is found in the wild must implement strict regulations on ginseng harvest and sales. Details vary from state to state, but the broad requirements are fairly consistent. Ginseng cannot be harvested on private

land unless it is owned by the harvester or the harvester obtains a signed permission form. Rules for harvest on state- or federally managed land differ from place to place, but harvesters usually must obtain a permit, if harvesting is allowed at all. Ginseng can only be harvested after September 1 to allow berries time to ripen. After harvesting, diggers must plant seed-containing berries in situ and cannot take them to another location. Ginseng can only be sold to licensed dealers who are registered with the state government.

Despite these rules and restrictions, biological surveys indicate that wild ginseng populations are still decreasing (J. McGraw et al. 2013). Many researchers, forest managers, and ginseng conservation advocates attribute this to excessive harvesting, especially from diggers who use illegal practices (Kauffman 2006; Schmidt et al. 2019). They suggest that increasing prices for ginseng are exacerbating the problem. According to one state cooperative extension agent, "I would argue that [ginseng] is much harder to find than it was thirty years ago and that the harvesters are not as sustainable as they were thirty years ago. … I think there's a decrease in the respect of the plant" (interview, February 10, 2020). When asked why, he replied, "I mean one word would be just greed. Increased value, it's worth a little more now than it used to be." United Plant Savers, a nonprofit that promotes sustainable use of botanical products, has placed ginseng on its list of "at-risk" plants and notes that "ginseng, while capable on an individual level of surviving extremely minor harvesting is, as a species, wholly incapable of withstanding the level of overharvesting caused by the large international demand for this plant" (United Plant Savers n.d.).

Illegal ginseng diggers are often described in ways that suggest they are immoral and greedy, primarily interested in commercial gain (Pokladnik 2008). Hal, a legal ginseng digger from Kentucky who advocates for sustainable harvesting practices in his community, told me

that illegal ginseng harvesters are primarily interested in digging as much ginseng as they can as quickly as possible, without worrying about whether ginseng populations can sustain themselves. They need money immediately, and they are not concerned about the long-term health of the forest: “They just don’t care. ’Cause they know they’re not going to have to worry about it in the future” (interview, September 23, 2019). At a workshop on nontimber forest products in Virginia, one woman told me, “[Ginseng digging]’s been such a thing through generations. … That’s how they would get by, but they wouldn’t rape it. They’d go in and take a little bit but they’d replant and repopulate. They don’t do that no more” (interview, November 9, 2019). Others in the room nodded in agreement. I asked what caused it to change, and another person said, “It’s an instant gratification thing. They don’t look at the future, they want it now, they want their money now, they don’t see the benefit of waiting a few years to grow.” The first woman added, “And I also think a lot of it is the drugs. They go in, they get it, they sell it, and they buy up their drugs. … That’s what a lot of people told me over there, that they’re just killing off the forest. That’s what they bought their drugs with.” Many Appalachian residents identify illegal drug use as a major threat to their communities (Schoenberg, Hatcher, and Dignan 2008), and drug use is often highly stigmatized by people who do not use drugs. This reflects ideologies that emphasize personal responsibility and free will, in which drug addiction is believed to be a personal, moral failing (Buer 2020; Richard et al. 2020). By emphasizing the connection between ginseng and drugs, they suggest that illegal ginseng diggers are morally deficient, just as illegal drug users are perceived to be.

4.2 Making a living in the forest commons

Digging ginseng is part of a collection of livelihood activities that have long been practiced in Appalachia and that make use of forest resources (Halperin 1990; Piacentini 2021).

Before the arrival of large-scale extractive industry after the Civil War, subsistence farmers in Appalachia gathered ginseng and other valuable forest botanicals; this was a means by which they could obtain cash to spend on goods that they could not grow or manufacture themselves, such as coffee and ammunition (Manget 2012). Even after formal wage employment opportunities became more widely available as corporations sought to exploit Appalachian coal and timber resources, nontimber forest products have remained an important component of Appalachian livelihood strategies. Many Appalachian families have used a combination of formal wage labor and self-provisioning strategies, such as hunting, gardening, and foraging in the forest commons, to make a living. For example, in "company towns," coal companies encouraged the families of workers to keep gardens and livestock; this self-provisioning subsidized low wages (Salstrom 2014; Stoll 2017).

Employment in extractive industries in Appalachia has sharply declined, while poverty rates and unemployment are high (Pollard and Jacobsen 2021; Thomas 2019). Rural populations were once sustained by the promise of "good jobs" in industries like coal mining, timber harvesting, or manufacturing that enabled (mostly) men to support a family without a need for education beyond high school (Maggard 1994; R. R. Scott 2007). These industries have become less profitable; mines and factories have closed, while ones that remain tend to rely on mechanization and no longer employ large numbers of people (Biesel 2021; Hodge 2016; R. R. Scott 2010). "Good jobs" for the working class that pay a living wage are scarce. Jobs that do not require a college degree or advanced training, such as retail or food service jobs, pay extremely low wages (Thomas 2019). Furthermore, many of these service-sector jobs are unavailable to people who have experienced addiction, as many jobs require prospective employees to submit to drug tests and/or reject applicants with a criminal record, which may include offenses like

opioid possession (Buer 2020). As Marvin told me, “All of us done fucked up so much that most people wouldn’t give us a job anyway. What else do they got to do [but dig ginseng]?” (interview, September 20, 2019). In the 2014–18 period, 5.9% of the rural Appalachian population was officially unemployed, which was over a full percentage point higher than the national unemployment rate of 4.8%. However, unemployment statistics do not include people who are unable or unwilling to actively look for formal employment; labor force participation rates may give a clearer picture of the “true” rate of unemployment. Only 64.5% of the rural Appalachian population aged twenty-five to sixty-five participates in the labor force, compared to 77.6% for the U.S. population as a whole (Pollard and Jacobsen 2021).

Many scholars have demonstrated that people experiencing similar economic situations often turn to informal economies as a livelihood strategy, making a living at the edges and in the interstices of global capitalism (Millar 2018; Samson 2015; Tsing 2015). In Appalachia, the declining availability of living-wage jobs provides an incentive for people to seek out forest resources in the commons to make a living. Many scholars of Appalachia have noted that the Appalachian forest functions as a de facto commons, a source of culturally and economically important resources available for use when needed (Hufford 2002; Puckett 2014; Reid and Taylor 2010). Marvin, the ginseng digger introduced at the beginning of this article, described the situation: “We’ve done it our whole lives. Dad did it. Pawpaw did it. But they did it because they were poor. That’s how you fed half your bunch through half the year. You went ginsenging. When the time hits, there’s not much around here. Mines went, this is what we got” (interview, September 20, 2019). For example, Kevin, a ginseng digger from Virginia, had been a coal miner as a young man. When the mines closed, he started digging ginseng full time; he used his ginseng income to supplement unemployment aid money and to pay for college tuition. Kevin

now works full time for the local school system but still goes out to hunt for ginseng recreationally a few days every year.

Not all my interlocutors who dug ginseng as a fallback livelihood strategy admitted to using illegal practices, but some of them did. Maggie is a woman who married into a poor Appalachian family in Virginia; before her marriage, she had suffered a traumatic experience that left her unable to hold down a formal job. "I needed money. … And then [my brother-in-law] said, 'I'm going to take you in the woods and learn you how to make money'" (interview, December 6, 2019). She proceeded to tell me the story of how her family took her to dig ginseng for the first time. Her knack for spotting ginseng meant that she could help support her family and look after her children without needing to find a formal wage-earning job, which in Maggie's area and with her qualifications would most likely be a minimum-wage retail job with little flexibility. For Maggie, digging ginseng was a way to earn money on her own terms when other options were limited. Most of this digging was technically, in her words, "poaching"—digging ginseng out of season or while trespassing on others' land.

The idea of the tragedy of the commons (Hardin 1968) often looms over academic and political discussions of commons resources, including discussions about ginseng in Appalachia. The tragedy of the commons assumes that self-interested harvesters will always overexploit common resources because they can profit from these resources without having to contribute to their production or maintenance. Ginseng regulations are essentially attempts to avert the tragedy of the commons through privatizing harvest rights and setting limits on when, where, and how much ginseng can be harvested.

In rural Appalachia, "good stewardship" practices can help to avert the tragedy of the commons, though to what degree is unclear. My interlocutors emphasize that "old timers,"

elderly Appalachians recognized as custodians of cultural knowledge, teach young diggers a variety of practices that may include harvesting only once seed-containing berries are ripe, avoiding harvesting older "mother plants" that produce abundant seed annually, harvesting only every fourth plant, and so on. Not all ginseng diggers engage in "good stewardship" practices, and some are willing to overlook these practices when they feel that they are experiencing an emergency that justifies more aggressive harvesting practices. For example, Maggie told me that when her aunt's house burned down, her whole family dug up all the ginseng on a local mountain to purchase a new trailer for her aunt to live in. Maggie said it was "tragic" but justified because this was not a regular practice but instead like "tapping into an emergency bank account"—something you hold on to for the future but make use of when needed.

Open access to the commons is becoming increasingly limited. Some of this is due to private landowners ending policies of allowing community members to use land. Some of this is due to forest resources being destroyed or altered by residential development, mining, or timber harvesting. Some of this is due to government policies that prioritize use of common lands for recreation and conservation over provisioning. This last is particularly relevant in Appalachia. Nesbitt and Weiner (2001) argue that Appalachia is the site of conflicting understandings of who should be able to use natural resources and for what purpose, producing disagreements over whether land use policies are out to prioritize conservation goals or manage the land so that it can be sustainably used by humans. Newfont (2012) identifies a rural working-class "commons environmentalism," which values Appalachian forest ecology for its usefulness to humans and opposes wilderness designations and restrictions on harvesting and land access. Hufford (2002; 2003) suggests that the stories and narratives about ginseng hunting that diggers share with one

another—and with curious anthropologists—disrupt the process of enclosure and create space for Appalachians to culturally reclaim the commons.

4.3 Ownership and use rights in the Appalachian commons

American property law is based on Enlightenment-era theories that emphasize an ideology of individual, absolute property ownership. Ownership of land theoretically confers a set of absolute rights, including the right to exclude nonowners and the right to exclusively profit from the products of the land (Berger 2006; Rose 1986). Under U.S. law, forest resources, including timber and nontimber forest products like ginseng, are the property of the owner of the land on which it is found (36 CFR § 223). If permission to harvest has been granted, ownership transfers to the harvester once the harvester takes possession of the resource—in other words, after harvesting. If ginseng has been harvested illegally, it is still technically the property of the owner of the land from which it was harvested, whether that owner is a private landowner, the U.S. government, or another local jurisdiction.

In practice, traditional rural Appalachian understandings of land use, trespassing, and ownership are not so clear. The following quotation from Maggie illustrates common attitudes toward land use and land rights and points of conflict with ideologies of property upon which U.S. law is based:

> I don't consider myself ever to be a poacher. A lot of people that have been doing this forever will look at it like, what do you mean steal a plant? We ain't never stolen a plant. You know, you don't go on land that's marked, you know, we have a very communal-type mind-set in our mind. We have so many absentee landowners, you know, we're on lands nobody cares about, in our mind. Me personally, and other people in the family that I know, where our family have always hunted, a guy bought a section down the mountain, put up signs saying no trespassing. Ain't nobody walked through that man's land. We go all the way down and around the mountain to get around his land. The people who have done this generationally and have been connected to the land, do not want to be where we're not wanted.

Here Maggie defends herself against accusations that she steals ginseng. Legally, she is a poacher—she and her family regularly harvest ginseng without permission on land that does not belong to them. Some ginseng harvesters regularly trespass to dig ginseng without knowing that they are engaging in a prohibited practice. When the landowner is a member of the community, permission may be granted by informal verbal agreement. However, as Maggie points out, a large portion of land in Appalachia is owned by absentee landowners. A large-scale study of land ownership in Appalachia conducted in the late 1970s estimated that 72% of the land area in central and southern Appalachia is owned by absentee landowners, primarily energy companies, timber companies, and other large corporations. In some counties, as much as 90% of the land was absentee owned (Appalachian Land Ownership Task Force 1983). An update to this earlier landownership study is ongoing, but one more recent study that focused on West Virginia found that a large percentage of surface land is still owned by absentee corporate owners (West Virginia Center on Budget and Policy and American Friends Service Committee 2013). Historically, trespassers on many of these absentee-owned lands were rarely prosecuted. The land became part of the commons in what Maggie refers to as the "communal-type mind-set." It is worth noting that this is changing, and some of my interlocutors mentioned that some absentee landowners, such as coal companies, actively exclude trespassers to a greater degree than they did in the past.

In Maggie's view, the commons is not unlimited. Ordinarily, property boundaries in the forest are often unmarked, making it easy to trespass unknowingly. Maggie suggests that if a person is willing to go to the trouble to put up "no trespassing" signs, she and her family will heed the signs because they "do not want to be where we're not wanted." Crossing a boundary marked with "no trespassing" signs comes with the risk of facing guard dogs, armed property

owners, law enforcement, or security guards. Illegal ginseng diggers come to know which "no trespassing" signs are accompanied by a significant risk of being caught by an angry landowner and threatened with violence and which can be safely ignored. Jerry, a ginseng digger in North Carolina, told me about one particularly good place to find ginseng that was sold, resulting in a loss of permission to access the property. "[The original owner] sold to people from Indiana or something. They're northerners. They don't kind of cotton to [understand or agree with] what the country people [do], you know. They think we're all thieves down here. So they don't want nobody on their property" (interview, February 19, 2020). Though Jerry initially insisted he only uses legal practices, he eventually began telling me about places where he trespasses to dig ginseng. At his friend's property, the "sang's [ginseng] been dug out. There's very little sang left." Ginseng is abundant at an adjacent, exclusive residential community. "You ain't even supposed to be on that property. If they catch you digging a damn wildflower or anything, well, you'll be in trouble." But the risk of getting caught is low. Despite the prohibitions on access, Jerry said, "I know how to get in there. And I've dug some big sang out there." If anyone approaches while he is trespassing to dig ginseng, he can mitigate the risk by hopping the fence back onto his friend's property.

Although diggers like Maggie or Jerry acknowledge that trespassing under certain circumstances might be wrong, they do not see taking plants harvested while trespassing as theft. In the preceding excerpt from the interview with Maggie, she is perplexed by the idea of stealing a plant. The owner of the land where a wild plant grows has little to do with the existence of the plant—in her view, the plant was placed there by God. This is especially true on lands that "nobody cares about," where management practices are minimal or are unconcerned with nontimber forest products like ginseng. Under these circumstances, the owner of a wild plant is

the person who harvested it, not the landowner. The wild plant becomes human property after becoming the object of human labor, which occurs for the first time when the plant is harvested. This is in direct contradiction of U.S. property law, which holds that landowners own all the products of their land, including wild plants.

This attitude toward theft and ownership of wild plants differs sharply with common attitudes toward theft of ginseng that is cultivated using naturalistic "wild-simulated" or "forest-farming" techniques. People who harvest both kinds of ginseng are grouped together under the label "illegal ginseng diggers," but there are important differences to note. Wild-simulated ginseng is ginseng that has been planted and tended by humans, but in an environment that mimics ginseng's natural habitat as closely as possible. Cultivating wild-simulated ginseng at a commercial scale is an expensive and labor-intensive undertaking. Theft of wild-simulated ginseng is common because it can easily be sold as legitimately harvested wild ginseng and buyers have no way to verify. Nearly all the growers I interviewed use a variety of strategies, including secrecy, surveillance, guns, and dogs, to prevent theft. Even with such measures, theft is common. Yet while theft of wild-simulated ginseng is undeniably a problem, it is a separate problem from illegal harvest of truly wild ginseng. With wild ginseng, illegal harvesting is framed as problematic because it offers an existential threat to wild ginseng as a part of the nonhuman mountain ecosystem. Wild-simulated ginseng, on the other hand, is planted and managed by people. Planting or harvesting wild-simulated ginseng does not directly affect truly wild ginseng populations, so theft threatens private property rather than broader ecosystem-level concerns. Many illegal harvesters will steal wild-simulated ginseng, but many do not. These two types of illegal harvest should not be conflated.

4.4 Excluding Appalachians from the commons

At first glance, the property laws pertaining to landownership and plant harvesting seem to suggest that there is little room for a legal commons tradition for wild plants under U.S. property law. As discussed earlier, wild plants are clearly the property of the landowner, and landowners are well within their rights to prosecute illicit harvesters as poachers, even if they have chosen not to do so in the past. However, there is also a history of access to the commons being preserved under certain circumstances for certain activities that are legally recognized as a public benefit. The legal scholar Carol Rose (1986) notes that the law prioritizes exclusive private ownership of property because uncertainty invites conflict and can create a tragedy of the commons. However, there is also a recognition in the law that some things ought to be considered "public property." This includes "plenteous" goods, like the oxygen in the air and the water in the oceans, that would be nearly impossible to confine to the exclusive ownership and control of an individual. Perhaps more interesting are the "public goods," where it is recognized that there is a greater social benefit to the public at large having access to certain goods or property, as opposed to an individual having exclusive control. As a result, there are dozens of examples in the United States in which property rights are *not* individual and absolute but are shared, split, and negotiated. Examples include the right to graze cattle on particular lands, the right of energy companies to access mineral resources under private land, and requirements for landowners to provide rights-of-way for the public to access beaches or navigable rivers. Decisions about *which* forms of collective property ownership are to be validated by the law and which are to be prohibited in favor of private, exclusive property ownership is the result of intentional decision-making about how the law should incentivize particular behaviors. These priorities can also change over time. For instance, recreation and environmental conservation are

now considered public goods, but this is a relatively recent development (Rose 1986). This means that the legal system has the ability to set priorities in terms of what is private property and what is public property, and who gets to benefit from such designations.

It is possible to imagine an alternate universe where the commons tradition of self-provisioning in Appalachia led to a scenario where access to wild plants is considered to be a public good. Instead, restrictions on access to the commons for the purpose of harvesting wild plants are based on the assumption that rural Appalachians are incapable of sustainably managing natural resources and that unregulated access will inevitably result in a tragedy of the commons. Appalachians have long been portrayed as unable to properly manage their land, an argument that has been used to justify land dispossession. Appalachia has historically been imagined as a "strange land" inhabited by a "peculiar people" (Harney 1873). The "hillbilly" archetype looms large in the cultural imagination of Appalachia (Harkins 2003). This figure is thought to live in rustic or squalid conditions, to have little or no formal education, and to be subject to "degenerate" tendencies, such as blood feuds and incest (Billings, Norman, and Ledford 2000). More recently, J. D. Vance's best-selling memoir *Hillbilly Elegy* (2016) has been critiqued by Appalachian scholars and activists for using the story of one dysfunctional family to represent all Appalachians, thereby suggesting that persistent poverty is due to a pathological culture (Catte 2018; Harkins and McCarroll 2019).

Historically, the equating of all poor rural Appalachians with the unruly hillbilly archetype has been used as a justification for dispossessing them from the land. The implication is that the rural poor cannot be trusted to use the land responsibly. Stoll (2017) provides evidence for a thriving peasant economy in the nineteenth century in Appalachia but that outsiders justified land grabs by portraying mountaineers as inept farmers who failed to capitalize on the

profit-making potential of their land. Hillbilly stereotypes were also mobilized to justify the creation of protected lands and recreational areas, such as Shenandoah National Park (Powell 2002) and Great Smoky Mountain National Park (Pierce 1998).

One commonly proposed solution to the problem of illegal ginseng digging is to issue a moratorium on wild ginseng harvesting entirely. Demand for wild American ginseng would then be met by wild-simulated ginseng growers, who cultivate ginseng on private land in habitats that are carefully selected and maintained to resemble areas where wild ginseng tends to grow. Wild-simulated ginseng, in a way, has been part of the Appalachian ginseng harvesting tradition for generations, even if the words "wild-simulated" or "forest-farmed" are not always used. Many ginseng diggers maintain ginseng "patches" in areas they can easily access that they created by transplanting wild plants or planting wild seeds.

Forest farming seems like it should be an ideal solution to the problem of declining ginseng populations because it takes pressure off wild populations and is a practice in which many Appalachian ginseng diggers already engage. However, regulations are set up in a way that makes it difficult for people with few resources to get started. Simply collecting wild roots and seeds and planting them on private land is often not possible. For example, in North Carolina, it is illegal to possess both ginseng roots and seeds at the same time—harvesters must plant ginseng seeds immediately after harvesting the root.

Starting a legal wild-simulated ginseng operation takes time and money. Forest-grown ginseng takes seven or more years to be commercially harvestable. This long timescale also makes growing ginseng risky, especially considering the risk of theft. Additionally, many illegal ginseng diggers dig because they need money immediately. Some of them sell ginseng as soon as

they dig it (instead of drying their ginseng and waiting until prices peak later in the year) because they have an immediate need for cash.

4.5 Digging as forest damage in an extractive landscape

Illegal harvesting is not the only human intervention that is affecting wild ginseng populations. Logging, mountaintop removal mining, road construction, and residential development also have a substantial impact on land use in Appalachia, significantly reducing the available habitat for ginseng. These "blasted landscapes" (Tsing 2015) are not recognizable or exploitable by the ginseng diggers or other poor or working-class mountain residents. When a mountaintop removal mine is built, acres of topsoil, rock, and plants are removed to access the coal lying underneath. This material is dumped into a neighboring valley or "holler." Ginseng habitat is effectively destroyed. Once mines are exhausted, operators are supposed to return the topsoil and introduce plants to initiate the process of forest regeneration via ecological succession. In practice, this rarely happens. Former mine sites are often colonized by aggressive nonnative "invasive" species that outcompete native plants (Cavender et al. 2014). Furthermore, the deep, rich topsoil that characterizes Appalachian woodlands has been removed, leaving behind thin, nutrient-poor soil that may take decades to regenerate (Acton et al. 2011). As a result, disruptions like mountaintop removal mining cannot regenerate into habitat suitable for ginseng without substantial external intervention. Even if no new coal mines are constructed, the effects of existing mine sites will be felt for years to come.

Hal, a ginseng digger who advocates for "good stewardship," discussed with frustration the disjuncture between an emphasis on individual harvesting practices and industrial-scale landscape interventions: "They talk about sustainable harvest? It's ridiculous what could have been sustained if the mountaintop [removal mines] and the holler fills hadn't been allowed"

(interview, September 23, 2019). In other words, individual ginseng diggers, even those who are careful to use good stewardship practices to minimize the impacts of harvesting, can only have a small impact compared to the enormous scale of ginseng habitat destruction associated with coal mining. Marvin, the illegal ginseng digger described earlier, shared similar sentiments about the impacts of logging on the landscape. As we drove around rural West Virginia, Marvin constantly pointed out evidence of timber harvesting on the mountainsides visible from the road. Some of these harvests were recent, appearing as gray-brown clear-cut patches on the forested mountainsides. Other harvests were older, full of slender young saplings and scrubby shrubs. "That logging is devastating. It is. Because what, once they log through these places here, if they go on the west side of the holler and log, why you might as well say it's the dry side of the mountain" (interview, September 20, 2019). In other words, Marvin is suggesting that logging destroys the forest's ability to be a habitat for ginseng ever again.

From the perspective of illegal root diggers, the kind of environmental damage they cause can seem like a drop in the bucket compared to other forms of environmental destruction. Even if a hillside looks "like someone took a rototiller on the side of the hill" after people have come through digging up all the ginseng, it seems trivial compared to the scale of damage caused by logging, surface mining, and recreational development.

3.6 Conclusion

The issue at stake with ginseng regulations in Appalachia is the question of who gets to access the commons and under what circumstances. Rural Appalachians, often stereotyped as "hillbillies," rarely get to set the agenda or make important policy decisions when it comes to conservation. In many ways, ginseng conservation regulations recall policies in many parts of the

world where officials assume that nature must be protected from local people who make a living from natural resources (Blaikie 1985; Tsing, Brosius, and Zerner 2005).

Rural Appalachia is a difficult place to make a living, and lucrative forest resources are a way for rural residents to get some extra income without the constraints of a formal low-wage job or government benefits. An understanding of the forest as a common resource, regardless of formal property boundaries, developed alongside forest product harvesting practices. Above all, the forest is understood as a resource to be used by humans, and conservation goals are meant to ensure that future generations will be able to do the same—what Newfont (2012) calls "commons environmentalism." However, Appalachian understandings of the commons conflict with standard interpretations of American property law. To most ginseng harvesters, a ginseng root belongs to the person who digs it. According to the law, a ginseng root belongs to the owner of the property where it was harvested, unless explicit permission to harvest has been granted. As a result, many ginseng harvesters are labeled as poachers or thieves.

The most commonly given explanation for ginseng harvesting regulations is to protect the health of wild ginseng populations, preventing the tragedy of the commons by limiting rates of harvest. It is certainly possible that illegal ginseng harvesters who are not "good stewards" are major contributors to the possible extinction of wild ginseng. Yet the amount of damage that individual ginseng diggers enact pales in comparison to the scale of forest disturbance that is perpetuated by industries like coal, timber, and tourism.

Chapter 5: Johnny Appleseeds of Ginseng: The Biopolitics of Seed Genetics and Population Restoration

In Appalachia, ginseng diggers are often also ginseng planters. In fact, this is a legal requirement—a person who harvests a ginseng plant must remove any berries from the aboveground parts and plant them in the general vicinity of the parent plant. Compliance with this rule is far from universal, especially among ginseng diggers who illegally harvest ginseng earlier in the summer before the berries mature. Nevertheless, this is not an onerous requirement and many ginseng diggers comply. Many ginseng diggers take pride in planting additional ginseng seeds in the woods beyond what the law requires, hoping to replenish wild ginseng populations that have been decimated by generations of ginseng harvesting. However, a conflict has emerged concerning the best way to go about re-planting seeds. Should ginseng re-planters prioritize quantity by maximizing the number of seeds planted, even if they use inexpensive seeds from commercial farms that might not be suited to the southern Appalachian climate or the rigors of a wild habitat? Or should diggers try to maintain the "purity" of local genetic strains by only planting seeds obtained from local wild stock?

To address these questions, I draw on the idea of biopolitics and the ways in which scholars in the environmental humanities have adapted the concept to discuss the ways that certain kinds of life are fostered while others are killed (or allowed to die) in human interactions with the environment. The idea of biopolitics originates with Foucault's work on modern power and his argument that power in the modern era is distinguishable for its interest in making live and letting die—that is, the active encouragement certain kinds of life to thrive and flourish in

desirable ways, while allowing other undesirable kinds of life to die through neglect or withholding of resources (Foucault 1978). Though biopolitics was originally a concept to describe power over human life, in recent years scholars have adapted these ideas to describe control over life that encompasses the more-than-human. Works in critical animal studies have drawn on biopolitics to discuss the ways that certain kinds of animals (e.g., livestock) are rendered killable, established as lesser forms of life that can therefore be destroyed for human benefit without moral guilt or grief, while the lives of others are allowed to flourish and thrive as companion species or charismatic wild animals (Despret 2016; Haraway 2003; Wolfe 2013).

Historically, however, plants have historically been overlooked as belonging to the *bios* of biopolitics (Nealon 2015). For example, in asking "what forms of life are grievable?" Judith Butler explicitly excludes plants--though they are living things, they lack the agency or personhood required to truly be objects of ethical concern (Butler 2009). Houle (2011) pushes back on this focus on the individual as ethically-relevant unit by inviting the reader to try "thinking plant-thoughts," she argues that it is the assemblage rather than the individual that is the "correct" unit of analysis. The unit of analysis is a compelling framework for describing conservation projects, especially ones that focus on a collective (species, family, group) rather than individuals.

Conservation and restoration activities often involve caring for, protecting, or saving certain living things at the expense of others. Anthropologists and environmental humanities scholars have explored many examples of these tensions, such as a program in the Galápagos Islands where goats were killed to reverse damage to endangered tortoise habitats (Bocci 2017), or calls to eradicate beavers in Tierra del Fuego to restore the forests to their pre-colonial state (Ogden 2018) and "rewilding" projects in Europe and elsewhere that seek to re-create landscapes

of the past by introducing non-native species that occupy similar ecologic niches to extinct species (Jørgensen 2015; Lorimer and Driessen 2011). The question of which species (or subspecies, or individuals) must be saved and which can be safely neglected or killed is inherently biopolitical. The geographer Krithika Srinivasan explores this question in relation to sea turtle conservation in India. She argues that the focus of the "sustainability episteme" is on Olive Ridley sea turtles as a species, a collectivity, while harm to individual sea turtles does not really count as harm. As a result, conservation goals can be made compatible with human economic goals that might otherwise require the death of individual members of a species (Srinivasan 2017).

To return to the biopolitics of ginseng seeds, what is at stake is the question of what counts as a valid member of Panax quinquefolius and is therefore worthy of protection and care via seed planting. The choice of which seeds to use to replenish the forest is less dramatic a choice than choosing to kill certain species in order to save others, especially when animals are involved. (This is not to say that animal death is *not* involved in ginseng conservation—many argue that white-tailed deer overabundance is a major cause of ginseng depletion in Appalachia because deer eat ginseng tops [e.g., McGraw and Furedi 2005], leading some of my interlocutors to suggest that hunting deer could be a way to help increase wild ginseng populations.) Nevertheless, seed choice involves decisions about what kinds of life should be allowed to flourish and what kinds of life can be ignored.

In this chapter, I will explore how my interlocutors in Appalachia see their local woodlands as damaged and the role of seed-planting in repairing this damage. I will then describe in detail two separate approaches to seed-planting—one that maximizes quantity of seeds obtained from commercial sources, and another that involves closer attention to local

strains and genetic variation at the sub-species level. I argue that the conflict between the two approaches can be understood as a biopolitical problem. What is at stake is the question of what counts as a population worthy of protection and care. Should restoration efforts treat all ginseng seeds as equivalent, as long as the end result is a forest with plenty of ginseng in it? Or is it necessary to take a more granular approach to ginseng restoration by encouraging hyper-specific local strains and rare varieties to thrive? Finally, I consider the implications of these two conflicting perspectives concerning the biopolitics of ginseng conservation on the lives and livelihoods of people who harvest ginseng in Appalachia.

5.1 Imagining Ginseng Abundance and Ginseng Scarcity

The idea that ginseng requires restoration efforts to flourish rests on a set of assumptions shared by most of my interlocutors—that ginseng was abundant in the past, that ginseng today is scarce in large part due to overharvesting and anthropogenic changes to the landscape, and that humans are capable of fixing this damage by replenishing ginseng populations through planting seeds.

Many of my interlocutors suggested that they believe the existing landscape is a fallen or degraded version of what once existed in the past. For example, Marvin, a ginseng digger in West Virginia, identified clear-cut logging as a major cause of damage to the local forests: “That logging is devastating… Cause it's scorched earth. Greenbriers and thistles, that's all that will grow back through it” (interview, September 20, 2019). The relatively recent arrival of invasive species is also acknowledged as an anthropogenic source of harm to the ecosystem. I visited on interlocutor’s home in eastern Kentucky, a trailer surrounded by dense, heavy mats of kudzu vines. He told me the kudzu is “scary, you fight it constantly,” while Japanese knotweed that had originally been introduced for erosion control has “taken over all the creek beds” (interview,

September 23, 2019). Many of my interlocutors recognize that the Appalachian woodlands are a "blasted landscape" (Tsing 2015) that have been deeply impacted by a legacy of extractive industries and poor land use management, and that this has made it more difficult for ginseng to grow. A history of ginseng overharvesting compounds the problem.

The present damaged state of the forest contrasts with a past that is imagined to be comparatively pristine and abundant with useful resources like ginseng. Several of my interlocutors told me that ginseng had once been the "dominant plant in the understory" in rich Appalachian cove forests, and indiscriminate harvesting has depleted it to its current state. On the rare occasion when someone finds an unusually large and dense patch of ginseng, people will occasionally suggest that this patch is a remnant of what once was, or a glimpse of what the Appalachian forests of the past might have looked like. For example, one cooperative extension employee shared with me an interaction he had with a ginseng digger on social media who posted a cell-phone video of a particularly abundant patch of ginseng. "But he had found a spot. I mean, it all you could see was ginseng… it is obviously a native population that had never been found. Had never been dug before. I'm just curious, like, how many they actually left [after digging]. Cause it was beautiful. I mean, he's just, 'check it out. It's still here. They're still here. The unicorns are still out there.' And he's filming, and I'm like, Oh, wow. It just like it was, the dominant plant in the understory" (interview, March 20, 2019). Abundant patches today are "unicorns" in my interlocutor's words, but he suggests that such patches were once common.

For many of my interlocutors, the solution to the damage wrought by humans in the Appalachian forests is not simply to leave the forest to its own devices, "protecting" it from human interference and allowing it to regenerate on its own. Ginseng requires human help to flourish through seed planting. As a ginseng grower named Keith told me,

> People have been going out and planting ginseng seeds for many, many generations, even back to Native Americans. So when you take out a group of people that steward the woods, plants are going to suffer. We're no different than, we're no different than the thrush that goes out there and eats the pulp of the berries and spits it out. You know, we're no different than another animal that goes out there and picks that seed as a source of seed dispersal (interview, May 5, 2020)

Keith suggests that ginseng requires a symbiotic relationship with animal species in order to reproduce. That role could be taken up by the wood thrush (*Hylocichla mustelina*), a songbird that has been observed eating and spreading ginseng seeds (Hruska, Souther, and McGraw 2014). Or, as Keith suggests, humans can take on this role, which he suggests is a practice that dates back to the time before European colonization of North America. Marie, an herbalist from Alabama, told me that her family uses Native American practices for sustainably managing and harvesting stands of wild ginseng. "You found your patch in the woods and you sort of farmed your patch and you protected it and you made sure that there was always new plants allowed to come along. You made sure when you harvested you replanted the seeds of the [plant] you were harvesting… I guess it was more of a Native American approach where you just farm the forest with what was already there" (interview, December 3, 2020).

Others suggest that the decimation of wild ginseng populations is more recent. Some ginseng diggers and ginseng advocates look on the forest landscape of their youths as a period of ginseng abundance. Hal told me about a man who he refers to as his pawpaw, or grandfather, who was his mentor in ginseng hunting, who likes to reminisce about how he could once "dig two pounds a day if he wanted to before they took the mountaintops off" (interview, March 23, 2019). Others point to the increased popularity of ginseng hunting as a pastime after several reality television programs were broadcast as a critical moment in ginseng's declining abundance. The most notable of these shows was Appalachian Outlaws, which ran from 2014-

2015 on the History Channel. One ginseng buyer in Tennessee told me that he had many new customers around that time who told him “Oh, I saw ginseng on TV, I wanted to go dig” (interview, August 7, 2019). Many of my interlocutors brought up concerns that “the TV shows” encouraged poor stewardship practices. Aaron, a young ginseng dealer who got started in the business not long after Appalachian Outlaws aired, sighed with frustration after I asked about the impacts the TV shows had on the industry. “I've heard from all the other dealers that there was much more junk ginseng in the market, meaning people they didn't know how to harvest.…And they're out digging the plant out of season before it reproduced. And even the plants they dug, they ruined the quality of it because they didn't know what they were doing” (interview, April 22, 2019). Other diggers complained about newcomers would harvest all the ginseng from patches that they had been managing for many years. One cooperative extension agent who specializes in ginseng even told me about people coming in with bags full of roots they said were from ginseng, but actually came from jack-in-the-pulpit (*Arisaema triphyllum*). Shows like Appalachian Outlaws repeatedly emphasized looking for the red berries on a mature ginseng plant (Figure 12), so inexperienced ginseng harvesters would spot red berries on jack-in-the-pulpit plants and dig up the roots without noticing that the leaf shape is completely different from ginseng (field notes, March 10, 2019).

Regardless of when in the past the ginseng population began to decline, the concern today is that ginseng is in danger of disappearing. When asked about the future of the ginseng industry, one digger said firmly, “It’s going to be gone in ten years” (interview, December 6, 2019). A Korean-American ginseng buyer pointed to overharvesting of wild Asian ginseng as a cautionary tale: “in Korea, it’s extinct. Maybe we get twenty or thirty roots a year” (interview,

April 22, 2019). Others suggested that ginseng might not disappear entirely but might become so scarce and difficult to find that a wild ginseng harvesting industry could no longer be supported.

Figure 12: A side-by-side comparison of ginseng (left) and jack-in-the-pulpit (right) with ripe berries. Ginseng photo by author. Jack-in-the-pulpit photo from Charles de Mille-Isles via Flickr (CC BY 2.0).

5.2 Two Approaches to Restoring Ginseng

Hal is a wild ginseng digger who lives in the shadow of an old coal mine in eastern Kentucky. Hal does a lot of different odd jobs to get by, but what he likes best is looking for medicinal herbs and mushrooms in the woods near his home to sell—especially wild American ginseng. In a good year, ginseng diggers like Hal can earn over $1000 for each pound of dried wild ginseng roots. Compared to cultivated ginseng grown on large-scale farms, which might sell for $30 per pound or so, wild ginseng is precious. In this low-income region of Appalachia, such high prices for this wild root are irresistible for many people, making wild ginseng more and more difficult to find each year. To make matters worse, mountaintop removal mining has destroyed a substantial amount of local ginseng habitat—according to Hal, “it just breaks my

heart because there's so many pretty places around here that should be loaded with [plants] but it's not. There's no mountain left" (interview, September 23, 2019). Hal can imagine a future where there is no more ginseng in the Appalachian forests.

To combat this risk of extinction due to overharvesting and habitat loss, Hal has taken it upon himself to replenish the wild forests near his home with ginseng seed. Hal, like a good number of other ginseng diggers who I spoke with over the course of my fieldwork in southern Appalachia, suggested to me that he is like a "Johnny Appleseed of ginseng," comparing himself to the American historical-figure-turned-folk-hero credited with planting apple trees throughout North America. These ginseng diggers encourage wild populations to grow and expand even as they harvest and kill these slow-growing plants.

Figure 13: Hal (with face obscured) holds up a bag full of ginseng seeds and a plastic planting tool.

Most of Hal's seeds come from an industrial-scale ginseng farmer of Chinese descent living in central Wisconsin. Figure 13 (above) shows a photo that Hal sent me last year after his shipment from Wisconsin arrived in the mail. In his left hand he is holding a plastic bag full of lentil-sized ginseng seeds. In his right hand he is holding a plastic cylinder, a ginseng seed planter devised by large-scale commercial ginseng farmers. It lets Hal quickly plant the seeds at an optimal depth under the surface without having to spend lots of time kneeling or squatting or bending over. To Hal, planting ginseng seeds like this is important because it's "putting it back the way it should be" after ginseng harvesters have come through, so that one day, as Hal says, "there'll be 10 or 100 times as much as I ever found" (interview, September 23, 2019). Hal believes that ginseng and other forest resources are "blessings" from God, and that responsibly maintaining and protecting wild ginseng by planting seeds is a way to give thanks to God for this bounty.

Maggie is another ginseng digger who lives in far western Virginia. It had taken some time to convince Maggie to agree to meet with me—she first thought I was a journalist, and she was wary of journalists from outside Appalachia who were more interested in confirming harmful stereotypes about "hillbillies" than in really listening to people. Maggie cares deeply for the health of the mountain forests where she finds ginseng and other herbs and wants to ensure that future generations will also be able to find ginseng. Like Hal, she carries around ginseng seeds in her pockets and plants them in habitats where she believes they will thrive. The difference is that Maggie only uses seeds that she has collected herself from wild ginseng plants. Technically, this practice is illegal according to state regulations—if you harvest a ginseng root, you must plant the seeds in the immediate vicinity, but you can't just take ginseng seeds and carry them around to plant elsewhere. Maggie doesn't care. She sees the state regulations as

counterproductive to her ultimate goal of restoring wild populations of native ginseng to her part of Virginia.

Maggie believes that ginseng diggers like Hal who are attempting to replenish wild ginseng populations using ginseng seed grown on industrial-scale farms is harmful. In Maggie's words:

> "They [the industrial ginseng farmers] know their genetics are dead. They're selling ginseng seed from bad genetics. The only legal place you can get legal ginseng seed is off a farm. Their genetics are dead. They're giving us bad genetics to go all in our woods…So what are we doing to our woods with these bad genetics and sprayed full of chemicals and all? Then you've got people who buy ten pounds of this seed to start a ginseng farm, invest all that money in a ginseng farm and after five years all their plants start dying" (interview, December 6, 2019).

To Maggie, choosing a source from which to obtain ginseng seeds for planting in the forest is not a neutral decision. Locally obtained seeds are strong and good, well-equipped to deal with the unique characteristics of local soils, local weather, local high and low temperatures, local pathogens. Industrially-produced seeds, on the other hand, have "bad genetics." These seeds come from large-scale farms full of densely-planted ginseng, covered in shade cloth instead of natural tree cover. Farmed ginseng grows rapidly and the seeds can be harvested after as little as three years, while the roots might be harvested after five years. Nice, soft, tilled soil and plenty of fertilizer allows these ginseng roots to quickly grow to a much larger size than wild ginseng, though without the wrinkles and gnarls that are so highly valued in wild ginseng.

Maggie and Hal represent a debate over ginseng seeds with two opposing sides. Not everyone in the ginseng world has a strong opinion that lands them on one side or the other, but both camps have true believers who will vehemently defend their position. One camp, represented by Hal, doesn't think that the provenance of the seeds is particularly important. They're all representatives of the species *Panax quinquefolius*, after all. Since industrial seeds

are relatively easy and inexpensive to obtain in bulk, then why not use them to replant the wild? The end result is still a forest with ginseng in it, even if the ginseng is a non-native strain with reduced genetic diversity. The other camp, represented by Maggie, thinks that using seed from cultivated sources is deeply harmful. At best, people like Maggie believe that cultivated seed will do little to replenish wild ginseng populations in the long run, as cultivated strains are optimized for the comfortable environment of a farm with its tilled soil and plentiful fertilizer and won't survive in the harsher environment of an Appalachian mountainside. Some people who take Maggie's side of the debate argue that at worst, introducing cultivated seed contaminates the local ginseng gene pool with foreign genetics, forever diluting local ginseng populations' adaptations to hyper-local conditions. For ginseng re-planters in Maggie's camp, it is not precise enough to think about ginseng conservation at the species scale, because doing so could lead to the loss of hyper-local genetic strains that are equally deserving of protection and care.

5.3 The Challenges of Obtaining Local Seeds

If wild seeds and commercially-grown seeds were equally available, it is unlikely that the conflict over seed genetics would persist as ginseng re-planters who rely on commercial seeds do not reject on principle to the use of commercially harvested seeds. However, local wild seed is difficult to obtain, especially in quantity. The two "sides" of the ginseng genetics debate differ in how they approach the trade-offs involved in sourcing seeds.

Locally-produced wild ginseng seed is difficult to procure for several reasons. Ginseng grows slowly and can take many years in order to produce significant quantities of seed. Plants grown in comfortable environments on farms with plenty of water and fertilizer might produce seeds in as little as three or four years, but plants growing in harsher wild conditions take much longer. There is evidence that plants must reach ten or twelve years of age before they regularly

produce high-quality seeds (Charron and Gagnon 1991; J. McGraw 2020). Secondly, ginseng harvesting regulations often prohibit collecting seed from the wild, though the restrictions vary from state to state. Marvin, a ginseng digger from West Virginia, told me that he once took seeds from wild plants to establish his own private ginseng "patch," but he no longer does this because he is afraid of legal repercussions. "I used to pack seeds, pack em out of the woods with me. And then throw em down behind my mom's house and stuff like that.…But it's illegal to pack 'em out of the woods now. You get caught with that seed and during season you get caught packing one little seed out, you're ruint." I expressed surprise at this point, as the law seemed counterproductive to the broader goal of re-establishing wild ginseng populations. Marvin agreed: "I mean, I don't understand what the problem is with bringing a seed out. I mean, you know if you're bringing it out the feller is probably going to plant it. I mean, it's not like you're selling seeds on the black market" (interview, September 20, 2019). Neil, a wild-simulated ginseng grower in Kentucky, explained his frustration with one-size-fits-all harvest regulations that prohibit him from collecting and planting seed from plants with desirable traits: "And as recent as two years ago, I had a lot of that northern strain. We're trying to preserve that that seed that ripens in July. And so I was wanting to get permission from our from the Department of Agriculture's lawyer to replant my seed when it was ready. And they said, no, I'm subject to jail time and a fine because it's considered harvest" (interview, May 5, 2020).

For ginseng re-planters like Hal who use commercial seed, ginseng genetics is less important than ginseng *quantity*. There is an enormous gulf between the image of the forests of the past in which ginseng was the "dominant understory plant" and the forests of today where ginseng is increasingly scarce. To remedy this, large quantities of ginseng seed are needed. For wild-simulated ginseng, one popular manual suggests planting at a rate of 25 pounds of seed per

acre—assuming half of the seeds germinate, this will result in about two mature plants per square foot (J. Davis and Persons 2014). Even if ginseng planters in wild areas are planting seeds much less densely than a wild-simulated grower would, a very large quantity of seed would be needed in order to approach the density of ginseng that ginseng diggers imagine was once common in Appalachia.

Since obtaining wild seed is such a challenge, ginseng re-planters like Hal instead prefer to purchase seeds in bulk from large ginseng farms outside of Appalachia—mostly from central Wisconsin, though some of my interlocutors have imported ginseng seeds from Ontario or Quebec. According to one of my interlocutors, they get seed from large farms in the upper Midwest for $35 per pound; he told me that the farms he works with are able to harvest seed in bulk using tractors which keeps the prices down (interview, February 20, 2020). This can be an expensive proposition, especially for low-income ginseng diggers. As one ginseng digger in Virginia told me, "if I've got the money, I buy a pound of seeds, just take 'em along with me [to plant when I dig ginseng]" (interview, March 2, 2019). Sometimes ginseng diggers can obtain seeds for free from ginseng dealers or state cooperative extension agents. This can happen in a number of ways. Individuals can sometimes request quantities of free or reduced-price seed from cooperative extension agents, though this is not possible everywhere since not all county offices have extension agents who prioritize ginseng. Some ginseng dealers will give packets of seeds to diggers who come to sell ginseng roots; the idea is that they are replacing the plants that they harvested. Sometimes they will offer ginseng seeds as a prize in a contest, such as the largest root harvested within a particular period of time. For dealers, they perhaps have a self-serving incentive to distribute ginseng seeds for free—they do not want wild ginseng to become so scarce that harvesting is banned. Yet some of these ginseng dealers describe their seed

distribution efforts in terms that suggest they are motivated by a desire to re-establish ginseng populations that goes beyond simple financial benefit. For example, Jerome, a ginseng dealer with a reputation for educating others about sustainable harvesting practices, explained:

> As far as the ginseng seeds go, a lot of those I give away. I really don't want to make a lot of money off of them. Everybody wants to make a lot of money, but that's not really my purpose with them. My purpose is just to get repopulated. And there's so many people that just can't afford to buy some seeds that would like to. So in the fall, we have a lot of different contests on the group. Like last year, I think we paid over $700 for shipping just on seeds we gave away (interview, June 6, 2019).

Importantly, Jerome says that "my purpose is just to get repopulated." His priority is to maximize the quantity of ginseng seeds that are distributed across the forest. Issues pertaining to genetics—such as maintaining diversity or preserving locally-adapted strains—is a secondary issue.

5.4 Ginseng Genetics

My interlocutors use the term "genetics" to differentiate ginseng seeds and individual ginseng specimens. In rural, agricultural settings in the United States, the word "genetics" is frequently employed to discuss significant, heritable differences within plant or animal species. Many of my interlocutors don't have formal training in biology,[19] term "genetics" has nevertheless entered the common lexicon. So what do my interlocutors mean when they talk about ginseng genetics? What are they worried about when it comes to having the "wrong" genetics?

Ginseng re-planters who side with Maggie believe that plants with local, wild genetics are best, while ginseng re-planters who side with Hal believe that there is little difference

[19] Formal educational attainment among my interlocutors varied substantially. Some did not complete high school or obtained a GED. Many have completed at least some college classes. A few have advanced degrees in topics like agriculture or botany.

between seeds obtained from the wild or from a commercial source, or at least not enough of a difference to justify avoiding commercially-harvested seeds. I did not encounter anyone who suggested that commercially-harvested seeds were *better* than wild seeds, or that wild seeds should be actively avoided due to inferior genetics.

When I asked people who share Hal's approach to ginseng repopulation about genetics, I was told that genetics is less important than growing conditions. Soil that is thin, rocky, heavy in clay produces high-quality small, dense, wrinkled roots. Soil that is fluffy and loamy produces large, smooth, carrot-like roots that are much lower in value. In theory, the exact same seed could produce two very different looking plants depending on where it is planted. In fact, there are people who take advantage of this fact, people who call themselves "forest farmers" who grow "wild-simulated ginseng" by carefully selecting and managing woodland plots to have optimal growing conditions for the highest quality ginseng. Most ginseng buyers can't tell the difference, though many insist otherwise. A buyer or consumer would have no way to tell if a "wild" ginseng root was grown from native Appalachian seed or from industrially harvested seed. When exporting ginseng to east Asia, brokers base their assessment of ginseng quality entirely on the physical characteristics of the root—its color, size, shape, density, even smell. As long as a ginseng root meets the physical standards for a certain quality grade, it can be sold for a certain price, regardless of where the seeds originated from. I asked Jeff, an agricultural consultant in North Carolina from a family of ginseng diggers and growers, if seed genetics matters to him. He responded, "Does it seem it to matter? I'm under the impression that it doesn't matter. The same genetics grown conventionally. But when we planted it in our woods and didn't do any of the amendments to it would still grow [with a wild-looking appearance just like local wild seed]" (interview, February 20, 2020). One West Virginia ginseng dealer related

to me a conversation with a state environmental official on a similar topic. “They keep talking about genetics, and I said, I can go to [my acquaintance’s] area at Weston, Buckhannon area, which is the worst area for ginseng in the state, itty bitty little ginsengs, terrible, but I can take the berries off of his ginseng. I can take them over in Pocahontas, the best area in the state for ginseng, and I can plant the berries there and have real nice ginseng in 10, 15 years. So it's all about the climate and the soil, so right there” (interview, July 8, 2019).

Hal’s perspective emphasizes ginseng quantity over quality. This is justified by the fact that growing conditions are thought to be a much more important factor in ginseng quality than genetics—assuming that “quality” can be equated with high prices in international ginseng trade. Since seeds with local native genetics can be hard to obtain, ginseng re-planters in this camp seek out seeds that can easily be ordered in bulk, even if they come from large commercial sources in regions with colder climates.

Other ginseng diggers and environmentalists like Maggie place a much higher value on seed genetics. This group is not convinced that re-planters should focus on planting as much ginseng as possible regardless of the seed source; in other words, they prioritize quality over quantity. I repeatedly heard suggestions that ginseng seeds obtained from commercial sources were actively harming the long-term goal of re-establishing extensive ginseng populations in Appalachian forests. Maggie spoke with disgust about common practices on Wisconsin ginseng farms and her understanding of the implications of using such seeds to replenish wild populations. According to her, Wisconsin ginseng farms “all have the same genetics they’ve been running since the 70s, and they’re dying. The plants won’t live over four, five years. Ok, so

they give it so much chemical that in four or five years, it's creating seed and it's three-prong.[20] Which is not natural at all. Then, because their genetics are dying, they're using all that in the woods as wild ginseng that's planted" (interview, December 6, 2019). Keith, the wild-simulated grower from Kentucky, expressed similar views: "Well, my big question is how many years of growing a plant to only three to five years old, does that affect the long-term viability of those plants? And they're very much, they're very pampered in a cultivated setting, meaning lots of fungicide, lots of herbicide is sprayed to keep those plants healthy. And they do that for three to five years of their life. But then after that, everything's harvested and most seeds are harvested from a three-year-old plant. So I'm wondering what that does to genetics" (interview, May 5, 2020). Maggie and Keith are both suggesting that plants grown from commercially-harvested ginseng seeds might only last four or five years, since plants grown on ginseng farms grow rapidly and die quickly due to use of large amounts of fertilizer and easily-spreading diseases that thrive in a densely-planted commercial ginseng field. This suggests an almost Lamarckian understanding of heritability, in which changes that individual organisms experience during their lifetimes can be passed on to their offspring. Recall that in the wild, ginseng plants often must reach the age of 10 or more in order to reproduce. The implication here is that seeds from cultivated sources produce weak plants that cannot survive long enough to establish a self-sustaining population and are therefore useless for re-establishing wild ginseng populations.

Another concern held by Maggie and other wild seed re-planters is that using seeds from cultivated sources will reduce the genetic diversity in wild populations. Though there aren't any

[20] "Prong" is the common term for ginseng's compound leaves, which consist of five leaflets radiating from a central point (palmate compound leaf). In general, the older a ginseng plant is, the more prongs it has, up to a maximum of four (rarely five or more). Plants are generally considered to be mature and suitable for harvest if they have at least three prongs.

officially recognized subspecies or varietals of ginseng—a seed catalog might have 50 kinds of tomatoes and 20 kinds of lettuce, but only one kind of American ginseng—ginseng harvesters who closely observe the plants note that there are distinct patterns in behavior and morphology. The most commonly-recognized strains are generally referred to as the "northern" strain and the "southern" strain. As Keith explained, "And I know there's different strains of ginseng and we see it out there. There's a variety that that, its seeds mature a lot earlier in the year versus some of the southern strains which the seeds which you know, it'll be late September, October, and you're still, you know, getting seeds that are just turning red. Where versus the northern strain in July. You've got a full, you know, full head of berries that are ready to be picked" (interview, May 5, 2020). In other words, ginseng that is adapted to a northern climate with shorter summers tends to have berries that ripen earlier in the year, while the berries on ginseng plants that are adapted to the South's long humid summers tend to ripen later in the fall. Another strain that ginseng diggers often discuss is called "Boone seng." "Seng" is a term for ginseng commonly used across the South, while Boone refers to Daniel Boone, the American frontiersman who, it is said, made a fortune shipping barge loads of ginseng roots down the Ohio River to be exported (M. M. Brown 2008). Unlike typical strains of ginseng, Boone seng appears to have a small extra set of leaves or bracts growing from the base of the berry pod (Figure 14 and Figure 15, below). It is unclear if Boone Seng is a distinct genetic strain or simply a random mutation that occasionally appears, such as the sudden appearance of a variegated leaf or a double row of flower petals in an ornamental garden plant. Nevertheless, many of my interlocutors speak with pride about times when they found Boone seng out in the woods, and occasionally will try to maintain Boone seng in their own private ginseng patches or gardens.

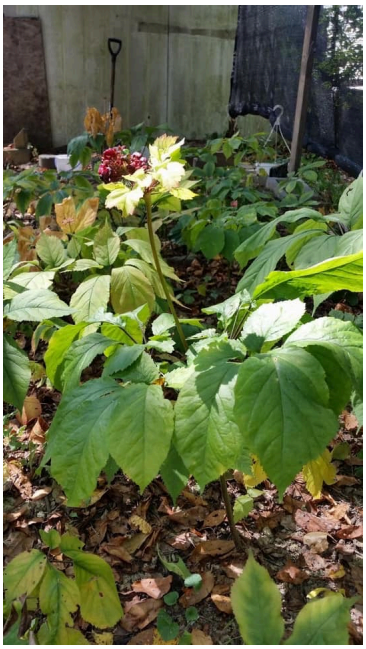

Figure 14: A specimen of "Boone seng" in autumn in a private garden. Photo by David Coates. Used with permission.

Figure 15: Two close-up images showing the "extra leaves" that grow from the base of the inflorescence that distinguish Boone seng. Photo by David Coates. Used with permission.

My interlocutors never explicitly articulated a causal mechanism by which the ginseng genetic diversity might be erased by planting commercial seeds, but it seems to be rooted in several overlapping beliefs. First, the idea that ginseng grown on farms all have identical genetics, second, that ginseng grown on commercial farms has genetic traits that are suited for the northern areas where large ginseng farms are located like Wisconsin and Canada and are not as well-adapted to the mountains of central and southern Appalachia, and third, that heavily planting ginseng with "bad" genetics will eventually make "good" genetic traits disappear. Aaron, a wild-simulated ginseng grower from Tennessee, suggested another possible mechanism—a changing climate might be making it even more difficult for northern ginseng to survive in the South. "Ginseng emerges in the spring as soon as the temperature is there. So we're having earlier and earlier springs, it seems. And the Canadian seed just doesn't work. It wants to grow as soon as spring shows any sign of itself. And then when this happens and we have a late, cool, wet weather, it's disastrous. It kills all the plants that germinated from seed. The older plants can stand a little bit of it. They'll come back even if knocked down. But the young plants [can't survive]" (interview, April 22, 2019). If Aaron is correct, then introducing large numbers of northern ginseng seeds would at best do nothing to replenish wild populations, and at worst cross-pollinate with native southern strains and make existing populations less able to withstand a changing climate.

Genetics provides language for my interlocutors to talk about disagreements over the ontology of ginseng conservation. On the one hand, ginseng re-planters like Hal would like to place all individuals belonging to the species Panax quinquefolius into the "worthy of cultivation and care" category. On the other hand, ginseng re-planters like Maggie use genetics as a way of

describing much more specific forms of ginseng life that ought to be made to flourish, establishing their ethically relevant unit of analysis at the sub-species level.

5.5 Who Benefits from Replanting Seeds?

Since ginseng is an economically-important plant that many Appalachians rely on for income, debates over ginseng conservation can have significant implications for people's livelihoods. Certain kinds of lifestyles and ways of interacting with ginseng are more likely to thrive under a paradigm that emphasizes large quantities of commercial seeds compared to a paradigm that emphasizes small quantities of native seeds only. Ginseng re-planters who fall in Hal's camp envision a future in which many people from across Appalachia can continue to harvest ginseng indefinitely. Ginseng re-planters who agree with Maggie would like to see wild harvest of ginseng greatly reduced, if not prohibited entirely. What is at stake is whether people should be able to harvest ginseng, what limitations there ought to be, and who decides. In other words, who should be able to harvest ginseng? Who are these restoration efforts for?

A regime of planting only locally-obtained ginseng seed from wild sources would mean that much less wild ginseng could be harvested because fewer seeds could be planted to produce new ginseng plants. For some ginseng growers, outdoor educators, and herbal products manufacturers, this means that ginseng should rarely, if ever, be harvested from the wild. For example, in October 2019 I attended a plant-identification tour hosted by a school of herbal medicine. The instructor encouraged "wildcrafting," or wild harvest of plants, in general as a means of "building relationships" with plant species used for healing. However, he specifically exempted ginseng and goldenseal.[21] "I don't think we should harvest American ginseng or

[21] Goldenseal or yellowroot (*Hydrastis canadensis*) is another medicinal plant that grows in similar habitats to ginseng. Though it's not as valuable as ginseng—a pound of dried goldenseal

goldenseal anymore," he told the group. "I think there are some plants that we shouldn't harvest" (field notes, October 20, 2019). On more than one occasion, I heard environmentalists and outdoor educators argue that people should refrain from harvesting wild plants because we are an "invasive species" that damages native ecosystems. At a class on Appalachian medicinal herbs that I attended during a conference, the well-known herbalist repeated as a refrain, "What is the most invasive species? We are!" (field notes, June 1, 2019). At another event that focused on cultivating native Appalachian plants in home gardens, the instructor said, "I consider humans to be the number one non-native invasive species" (field notes, March 9, 2019). The implication here is that, like kudzu or zebra mussels, humans—at least, humans descended from European ancestors—lack a legitimate claim to the land because they are "non-native" and damage local ecosystems by their presence. Seed planting is acceptable in certain circumstances; as one outdoor educator told me, "I think that collecting seeds and creating new patches is an essential part of wild harvesting in the modern age" (field notes, March 9, 2019). But that outdoor educator was talking about using exclusively native, wild seeds as a means of correcting the damage that humans have created as an "invasive species."

One alternative to harvesting wild ginseng that many environmentalists promote is "conservation through cultivation"—the idea that farmers and landowners could cultivate wild-simulated ginseng, ginseng grown in settings that mimics the wild conditions that produce the small, wrinkled roots displaying "wild character" that are so highly valued on the global ginseng market. However, this is not a perfect solution—ginseng cultivation requires access to land, money to buy seeds and equipment, and the willingness to wait for seven or more years before

root might sell for $60-$70—it is popular with foragers and at risk of overharvesting, much like ginseng.

harvest. Prohibiting wild ginseng harvesting while allowing wild-simulated ginseng cultivation would cut off poor Appalachians from an important source of supplemental income. Aaron, a ginseng dealer and grower in Tennessee, advised caution in implementing too many restrictions and regulations on ginseng. "We have to take care of the hillbillies" (field notes, March 16, 2019).

On the other hand, many of my interlocutors reject the idea that people should stop harvesting ginseng entirely. For many of my interlocutors, ginseng can and should always be harvested because natural resources exist for human benefit, often using a conservative Christian interpretation of the Biblical story of Adam and Eve as an example. Sometimes this connection was made explicit—for example, one root digger I met explained that God put all plants and animals on the Earth to benefit humans, citing the verse in Genesis in which God tells Adam and Eve to replenish the earth, and subdue it: and have dominion" over all the living things on Earth (Genesis 1:28, field notes April 12, 2019). Several concepts related to ginseng emerge from this story. First, there is the idea that God placed plants and animals on the Earth to benefit humans. Second, I was often told that God created plants to cure all human ailments and diseases, even if we don't yet know all the uses of such plants. As Harmon, a ginseng digger in Tennessee explained, "There's a reason for everything in them woods. We might not know what some of it is, but there's a reason. God put it there for that reason. So it could be for us, it could be for animals, it's there for something" (interview, September 6, 2019). Third, there is the idea that harvesting and using resources that God placed in the woods for humans to benefit from is a means of expressing gratitude and appreciation for Creation. As Hal explained, "If we pass things like [ginseng] by, in no way are we truly showing respect and appreciation of the blessings. Those who do show such respect and appreciation will be overwhelmed with blessings

of all kinds. The mountains are my church when I commune with the Lord in my heart not with books or a man speaking. I ask and he provides. Whether it be with knowledge, or botanicals and fungi. Even food if needed" (interview, February 8, 2021). In other words, refusing to harvest and use a resource like ginseng is a rejection of a blessing from God. However, such "blessings" should not be harvested with abandon. "Good stewardship" was a term that most of the ginseng diggers I spoke with used to describe proper or ethical ginseng digging behavior, a term that Hal said "means we are not owners, but the caretakers of our future generations' lands" (interview, February 8, 2021). And for Hal and many other ginseng diggers, "good stewardship" means planting ginseng seeds like Johnny Appleseed, even if it means using seeds that came from commercial sources outside of Appalachia.

Planting large numbers of ginseng seeds enables more ginseng diggers to continue to harvest ginseng. The emphasis is on creating potentially profitable ginseng populations rather than on restoring them to a "natural" state that might have existed before human overexploitation. Even though many ginseng harvesters are keenly attentive to the differences among genetic strains of American ginseng, the differences do not matter in the international ginseng trade. In theory, a seed from a commercial ginseng farm and a seed from a Boone seng plant are equally capable of producing high-value roots as long as they are planted in suitable habitats, so if the purpose of replanting ginseng is to ensure adequate supply for the commercial ginseng market, then planting ginseng seeds from commercial sources makes sense. Jared, a ginseng dealer from Virginia, told me that he gives away about fifty pounds of ginseng seeds every year, which he sees as a good business move, investing in a future supply of this long-lived and slow-growing plant (field notes, December 20, 2019). As another ginseng dealer in Tennessee pointed out, "if it wasn't for these cultivated seeds, to where these guys [ginseng

diggers] can afford it to buy, then some of these areas wouldn't even have ginseng in it, because it's getting dug out" (interview, August 7, 2019). Dale, a ginseng digger from eastern Kentucky, compared planting ginseng seeds in the wild to agriculture. He told me that people in his community began to notice ginseng becoming scarce over forty years ago. "I guess we're smart enough, we grew up in an agricultural setting and so forth, and I guess you just realize that things have to re-seed" (interview, September 23, 2019). In a way, ginseng seed planting efforts could be compared to fish stocking programs, in which species popular with recreational fishers, such as trout and bass, are raised in a hatchery facility and released into wild lakes and rivers. In my conversations with Hal, he often spoke with enthusiasm about the possibility of future generations being able to continue using forest resources to make a living in the way that he does. By planting seeds, he's "putting it back the way it should be" so that future generations can find "ten or a hundred times as much as I ever found" (interview, September 23, 2019).

5.6 Conclusion

The "Johnny Appleseeds of ginseng" see themselves as essential to ginseng's survival as a species through their seed planting efforts. The particular type of ginseng fostered through replanting, though, is a matter of some controversy. In this chapter, I follow other scholars in the environmental humanities in adapting Foucault's notion of biopolitics to apply to non-human life. What kinds of ginseng are worthy of protection, fostering, and care? I argue that the answer to this question depends on different understandings of the human role in nature, People who value ginseng digging as a culturally or economically important practice tend to want to maximize seed planting, even if the varieties planted are not strictly "local" or "native." Others see the introduction of non-native genetics as harmful to the overall health of the woodland

ecosystem and would rather limit harvesting rather than introduce large quantities of commercially-grown seeds.

The realities on the ground are not as clear-cut as the split between ginseng re-planters would suggest. If cultivated seeds are as inferior as Maggie and others in her camp believe them to be, then presumably they will dwindle in population and the "superior" genetics of wild varieties will dominate. In that case, planting cultivated ginseng seed might be a waste of time, but wouldn't necessarily be actively harmful to remaining, self-perpetuating populations of native wild ginseng. Interestingly, there does seem to be a significant amount of genetic diversity even on commercial ginseng farms, which ginseng re-planters like Maggie do not acknowledge. Schluter and Punja (2002) suggest that this may be due to ginseng farmers obtaining seeds from different sources and mixing seed lots. This observation is consistent with the fact that most suppliers of bulk ginseng seeds simply indicate that they are selling *Panax quinquefolius* seeds with no indication of strain or varietal. Ironically, this lack of attention to genetic diversity may have helped preserve some genetic diversity, even if it makes it more difficult for purchasers of seeds to obtain varieties that are known to do well in a particular climate or soil type. Furthermore, ginseng harvesters have been planting ginseng seeds from commercial sources in the wild for many years, so many "local" or "wild" plants may actually be descended from farm-raised ginseng in Wisconsin or Ontario. Maggie told me that she believes the ginseng seeds in her area "should have some of the purest genetics on the market" because ginseng brokers in her area did not give away free ginseng seeds, but this can't be verified. It is unlikely that most wild ginseng has "pure" wild genetics.

One potential solution to this problem is to increase the availability of ginseng seeds with native genetics. There have been efforts to establish cultivated plots of ginseng plants that

have “wild” genetics as a seed bank—the idea is that the roots will never be harvested, instead the seeds will be removed and sold every year. Since ginseng seeds from plants found in the wild usually cannot be legally transported and planted elsewhere, ginseng growers interested in promoting wild genetics have a workaround. They purchase freshly-harvested “green” (as opposed to dried) ginseng roots directly from wild harvesters, which they then can plant in prepared beds. Not all ginseng roots transplanted in this manner survive, but enough do to make this a worthwhile strategy for some growers.

Even though the Appalachian woodlands are not in any kind of untouched, primeval state, there is nevertheless a desire to imagine the blasted landscape of Appalachia as wild. There’s a certain degree of human tending that is acceptable—planting and redistributing local seeds, essentially mimicking the kind of role in the ecosystem that animals or birds might play in distributing seeds, as Keith suggests in the quote I included earlier. For someone like Hal, the finer points of the forests’ “wild” status aren’t as important. Ginseng is a resource, and he wants it to continue being a resource, even if the kind of wildness that is important to people like Amos or Maggie must be compromised.

Chapter 6: Crafting the Wild: Growing Ginseng in the Simulated Wild in Appalachia

Figure 16: "Wild" ginseng growing in a wild-simulated forest habitat in southern Ohio.

Ginseng is a valuable commodity, in Appalachia and wild ginseng is an order of magnitude more valuable than farmed ginseng. An industrial-scale ginseng farmer might be happy to sell dried ginseng roots for $20 or $30 per pound, while an Appalachian ginseng harvester who digs roots in the woods might sell dried ginseng for as much as $500 to $1000 or more per pound, depending on the fluctuations of the market. This startling price difference is often attributed to a difference in potency. According to a St. Louis-based doctor of Traditional Chinese Medicine who I contacted in the early phases of my ginseng research, "The components

will be stronger. Even to me, even the taste is different. Wild is stronger" (interview, April 4, 2018). When I had the opportunity months later to taste farmed and wild ginseng side-by-side, I saw first-hand what this TCM doctor was talking about. American ginseng root has a pungent and distinctive flavor that is simultaneously bitter, earthy, and sweet. Those flavors are present in farmed ginseng but seem insipid next to the deeper intensity of wild ginseng collected from the woods. It is like the difference between an ordinary supermarket apple and one picked straight from the tree at the peak of freshness. There is a depth and complexity of flavor in wild ginseng that is absent from farmed ginseng.

If wild ginseng were twenty-five times as potent as cultivated ginseng, then a twenty-five-fold (or more) price difference could be easily explained. However, this is not the case. Wild ginseng might taste stronger than farmed ginseng, but it is still a matter of some dispute as to whether this indicates a significant difference in biological potency. The biologically active compounds in ginseng root are a class of saponins called ginsenosides. A variety of human health benefits are attributed to ginsenosides. Ginseng purportedly has stimulant, anti-cancer, anti-diabetes, antioxidant, and neuroprotective qualities, and many claim it enhances male sexual potency and libido (Patel and Rauf 2017). Ginsenoside content can vary widely among ginseng plants, but some research suggests that this is determined by genetics rather than environmental conditions, and that there is little or no difference in potency when comparing wild and cultivated ginseng grown from genetically-identical seed (Schlag and McIntosh 2006). Other research suggests that there is a meaningful difference in ginsenoside concentration between wild and domestic specimens. For example Wang et al. (Wang et al. 2010) found that wild ginseng has on average about twice the concentration of ginsenosides as cultivated ginseng.

The extraordinary price difference between wild and cultivated ginseng cannot be explained by potency alone. It seems that consumers are willing to pay for provenance more than potency. It is the fact that a particular ginseng root spent 10 or 12 or more years growing in rocky soil beneath a canopy of deciduous tree leaves, rather than in tilled and fertilized soil beneath a polyethylene canopy, that grants wild ginseng its higher value, rather than any pharmacological differences associated with these differences in growing conditions.

As demand for wild American ginseng increases, it is becoming more and more scarce (Case et al. 2007). Every time I accompanied ginseng diggers on trips to the forest, we were lucky to find a handful of ginseng plants. It is possible that diggers were reluctant to share their favorite "honey holes" with a stranger from a university, or that they were unsure of my willingness to hike long distances across difficult, trailless terrain. Nevertheless, the scarcity of ginseng was always a topic of conversation. On one such trip, a digger told me, "Back when I started, why, you go out here with a backpack and put a whole lot in it. Now there's so many people who 'sangs, it's just like this right here. [Gesturing to the forest floor, covered in fallen leaves with no ginseng in sight.] There'd be ginseng right here, you know, it's just so many people out for the money. You know, prices" (interview, September 29, 2019). Prices for wild ginseng have steadily increased since the early 1990s, which has provided a strong incentive for overharvesting in a region where unemployment is consistently much higher than the national average (Pollard and Jacobsen 2021). Because the plant can take ten or more to reach reproductive maturity, populations require many years to recover after excessive harvesting. Furthermore, large-scale deforestation in Appalachia due to timber harvesting and mountaintop removal coal mining has reduced ginseng habitat. In this way, ginseng is the opposite of the *matsutake* mushroom, another valuable wild forest product but one that thrives in disturbed

landscapes (Tsing 2015). As a result, American ginseng has been listed under Article II of CITES (Convention on International Trade in Endangered Species of Wild Flora and Fauna), indicating that it has been deemed susceptible to extinction unless protected by strict regulation.

An alternative to wild ginseng has emerged in the form of semi-wild or "wild simulated" ginseng. Wild-simulated ginseng is grown on forested plots planted and managed to resemble a natural Appalachian forest ecosystem, often in diverse agroforestry settings in combination with a variety of other economically important medicinal and culinary plant species (Hankins 2000). Some conservationists have promoted wild-simulated ginseng as having the potential to reduce the harvesting pressure on truly wild ginseng populations by meeting demand for wild ginseng with an "almost wild" product. Wild-simulated ginseng producers have developed a variety of cultivation and management techniques designed to create a product that is identical in certain key characteristics to truly wild ginseng. For instance, growers may leave rocks in the soil in order to produce roots that are small and gnarled like wild roots, unlike the fat parsnip-like roots that form in well-tilled conventional farm soils. As far as international trade regulations like CITES are concerned, wild-simulated ginseng cannot be distinguished from wild ginseng and faces the same trade restrictions, while farm-raised ginseng is not regulated. Wild-simulated ginseng roots sell for much higher prices than farmed ginseng, but many (though not all) ginseng dealers will offer lower prices for ginseng roots they believe to be wild-simulated and not harvested from the untended wilderness. This price difference suggests a value placed on the provenance of a ginseng root that goes beyond its simple physical characteristics. It is tempting to dismiss wild-simulated ginseng as simply fake or counterfeit wild ginseng, especially for a consumer who purchases wild ginseng in part for the positive associations with nature that the "wild" label can evoke.

I contend, however, that wild-simulated ginseng is in fact *wild*, even if it does not come from the *wilderness.* In most cases in the modern industrial world, human management and control of ecosystems tends to rely on simplification in order to achieve specific ends, as is the case with most agricultural ecosystems (J. C. Scott 1998). Here, we're seeing something different—management to maintain if not add complexity, to foster unpredictability, to facilitate stress. The productive unruliness of the wild is intentionally being crafted. Furthermore, the habitat that wild-simulated ginseng growers are attempting to emulate— "wild" Appalachian woodlands dominated by an assemblage of "native" plants that pre-date the arrival of Europeans in the Americas—are themselves the product of human manipulation. Some of this intervention is obvious and ongoing in the form of forest management and conservation schemes, and some of this intervention is perhaps less obvious, part of a long history of human management of forest resources for a variety of purposes.

In other words, wildness and wilderness are not the same thing, even if the two terms are often used interchangeably.

In this article, I begin with an exploration of the idea of wildness as an unruly, unmanageable array of autonomous interactions and systems that persist outside of human control. I then describe some of the specific practices that wild-simulated ginseng growers use in order to craft a plant that has "wild character," the physical characteristics associated with a wild plant, explaining how achieving a root with "wild character" requires the intentional creation of spaces where wildness can flourish—essentially, constructing ecological niches where ginseng can thrive. I go on to explore some of the folk conservation practices that many Appalachians use to "steward" or care for wild ginseng populations. I speculate that many supposedly-wild ginseng populations are actually either anthropogenic in origin or were managed by humans at

some point, either by Appalachian settlers or by Indigenous people. In the time of the Anthropocene, it is becoming increasingly clear that "pristine" wildernesses unaffected by humans no longer exist. Even many landscapes imagined to have been true wildernesses in the recent past are likely the product of human management.

6.1 Wildness and Wilderness

The word "wild" has several interrelated definitions and connotations. The Oxford English Dictionary's first definition for *wild*[22] defines it as "living in a state of nature, not tame, not domesticated" in referring to plants and animals, "uncultivated or uninhabited; hence, waste, desert, desolate," in referring to places. Wildness, then, consists of things that exist outside the sphere of human control and management. Wildness refers not only to the portion of the world that humans have not yet brought under control or which humans are not interested in controlling, but also to that which actively rejects human control. To return to the OED, wild can also be defined as "Not under, or not submitting to, control or restraint; taking, or disposed to take, one's own way; uncontrolled" or "Not submitting to moral control; taking one's own way in defiance of moral obligation or authority; unruly, insubordinate; wayward, self-willed" or even "Fierce, savage, ferocious; furious, violent, destructive, cruel." Wildness is chaotic and disorderly; it resists human attempts to organize, manage, and control. As Jack Halberstam points out, wildness stands in opposition to the Modernist impulses of categorizing, labeling, managing, identifying (Halberstam 2020). The "simplifications" associated with high modernism that Scott describes in *Seeing Like a State* are state-led attempts to reduce the unpredictability and uncontrollability of wildness (J. C. Scott 1998).

[22] "wild, adj. and n.". OED Online. March 2022. Oxford University Press. https://www-oed-com.libproxy.wustl.edu/view/Entry/228988 (accessed March 20, 2022).

Historically in the Western intellectual tradition wildness was thought of as bad, corrupting, destructive. Early Protestant missionaries in Appalachia conceived of the region as a "moral wasteland" far from the civilizing influences of agriculture and urban life (Fraley 2011), while White settlers to the Plains saw the prairie as a "desert…beyond redemption," giving rise to the theme of "prairie madness" in fiction (Scanlan 1990). Horror films like *Deliverance* (1972) or *Cabin in the Woods* (2012) contribute to a rural "anti-idyll" in which the wildness and isolation of the countryside harbors dangerous hillbillies and wild slashers, terrorizing the urban protagonists with which the audience is meant to sympathize (McCarroll 2018; T. R. Taylor 2020).

However, *wildness* isn't a purely destructive force—it can also be creative. In the unruly space outside of human attempts to simplify and control, complex interactions can happen that produce great diversity and ways of being. Compare the complexity and diversity of a typical backyard garden with that of a random plot of similar area in a nearby "wild" forest, for example. As Taussig suggests in *Shamanism, Colonialism, and the Wild Man*, wildness isn't simply the binary opposition to order or civilization, even if it has been treated as such by Christian, colonial, Western powers. If wildness were purely a space of destruction and disorder, then imposing simplifications, reducing complexity, and enhancing the human ability to order and control the environment would be a necessary prerequisite for creativity. But that's not true. Wilderness is unruly and chaotic, but also creative and a place for alternatives to the structures of civilization to grow and flourish (Taussig 1986). Jane Bennett's interpretation of Thoreau's work engages with some similar ideas. Bennett suggests Thoreau sees the wild "not as a definable entity but the shadow of humanity's brave but also relentless quest to domesticate life…Wildness is the remainder that always escapes taxonomies of flora and fauna or inventories

of one's character or conscience; it is the difference of the woods that remains no matter how many times one walks them; it is the distance never bridged between two humans, no matter how well acquainted" (Bennett 2002, 36). Importantly, this vision of wildness suggests that it can exist alongside domesticated spaces. Even in the tamest, most orderly garden, there is an unruly proliferation of microbes and fungi and pollinators, an assemblage of species and interactions that I argue can be considered properly *wild.* This is the kind of wildness that Appalachian wild-simulated ginseng growers are trying to cultivate.

Wilderness links wildness with geography, but in a way that explicitly requires the exclusion of anthropogenic influence. It is "primarily an aesthetic category which relies on absences" (Senior 2018); specifically, the absence of humans. According to the United States government, "A wilderness, in contrast with those areas where man and his works dominate the landscape, is hereby recognized as an area where the earth and its community of life are untrammeled by man, where man himself is a visitor who does not remain."[23] The wilderness, then, is a place from which humans are excluded. People may be "visitors" to the wilderness, but their impacts upon the landscape must be temporary and the effects of human visitors must be erased once they leave. West and Brockington (2006) suggest that this tendency to designate certain areas as "protected" is an example of what they call "virtualism"—the desire to make the real world conform to our abstract models of it. Our idealized, abstract model of wilderness is one in which humans do not exist. Therefore, protected "wilderness" areas must be made so that human interventions are prohibited—even if what appears to be a "natural" or "untouched" landscape is actually the product of a long history of human impacts. Indeed, the "protection" of

[23] Wilderness Act of 1964, 16 U.S. C. 1131-1136 (1964)

wilderness areas in the United States has required criminalizing those who have continued to make use of natural resources in ways that elites have deemed inappropriate (Jacoby 2014). The idea that conservation requires excluding people form nature remains a compelling idea for many environmentalists. For example, E. O. Wilson's Half Earth project suggests that the only way to "save" the natural world and preserve biodiversity is to set aside large portions of land and water for exclusive non-human use (E. O. Wilson 2016).

However, the idea that humans must be excluded for wildernesses to remain wild seems a futile endeavor in the time of the Anthropocene. The Anthropocene can be defined as a period in the Earth's history when virtually all of the planet's biogeochemical systems have been altered by humans (Steffen, Crutzen, and McNeill 2007). One response to this observation is to proclaim that nature no longer exists, it has been irreversibly altered by the corrupting touch of the human. Bill McKibben's *The End of Nature* (2003) is an example of this response. Alternatively, we can look to the kind of wildness that I describe above that can proliferate even alongside human works. This kind of wildness can even be cultivated and enhanced with people, which I suggest is the case with wild-simulated ginseng.

Wild-simulated ginseng involves a set of apparent paradoxes. Wild ginseng gains value through a set of physical characteristics associated with the unruly, untamed growing conditions of the forested wilderness. With wild-simulated ginseng, however, the plant is grown in a habitat that is not actually unruly and untamed. On the contrary, wild-simulated ginseng plots are carefully managed to support particular assemblages of species and physical characteristics that are associated with wild Appalachian forests. If these landscapes were left entirely to their own devices by humans—as demanded by traditional understandings of "wilderness" outlined above—many would not be able to support notable populations of ginseng. In the following

section I describe some of the ways that wild-simulated ginseng growers manage ecosystems and manipulate growing conditions in order to create a high-value "wild" product.

6.2 In the Woods with a Wild-Simulated Ginseng Grower

Brian is a wild-simulated ginseng grower with property near the mountainous border between Tennessee and North Carolina. It is not immediately obvious from a casual glance that Brian is growing anything intentionally on his land. From the road, all that is visible is a steep mountainside covered in wild rhododendrons, a variety of hardwood trees, and a few clusters of dying hemlock trees in the process of succumbing to an invasive insect. Brian himself is quite secretive about what he is doing on his land out of fear that poachers might come and steal his ginseng if word got out about what he was doing. It took some time to persuade Brian of my benign intentions before being invited to visit his wild-simulated ginseng.[24]

Though Brian's land looks like a picturesque "wild" mountain scene, a closer look reveals evidence of a strong human impact on the landscape. Though the forest is dense, many of the trees are slender. This is not an ancient old-growth forest—the slender trees are young and indicate that this land had been clear-cut less than a century ago, perhaps for use as pasture as growing crops would be difficult on such steep terrain. The thickets of native rhododendron and mountain laurel are more abundant than they once were due to decades of suppressing the regular forest fires that once characterized the Appalachian landscape by the U.S. Forest Service and local landowners (Lear and Waldrop 1989). Aggressive non-native ("invasive") species encroach on the forest from the edges—kudzu, multiflora rose, Japanese knotweed, and others. The dying hemlock trees are more evidence of the presence of invasive species, in this case the

[24] All interlocutors' names in this paper, including Brian's, are pseudonyms, and I am intentionally vague about precise locations.

hemlock wooly adelgid, a tiny but prolific insect native to Asia that is usually fatal to Eastern and Carolina hemlocks. The fate of the hemlocks brings to mind the massive chestnut stumps that one encounters from time to time in the woods, the last remnants of trees that once dominated the Appalachian forests but were wiped out by another invasive species inadvertently introduced by humans over a century ago.

Left to its own devices, Brian's land would not revert to a state of wilderness in which human impacts are imperceptible. Humans have changed the landscape and shifted the ecological equilibrium, resulting in forest terrain that is sometimes quite different from what plants like ginseng evolved to thrive in. Brian likes to grow his ginseng in a naturalistic setting without using any pesticides or fertilizers, but doing so still requires some "manipulation," as Brian puts it, in order to maintain a habitat ideal for ginseng. Though ginseng is a shade-loving species, too much shade can stunt its growth. A moderate amount of filtered sunlight is required for ginseng to produce the large "monster" roots that are most prized by Appalachian ginseng harvesters and dealers. Accomplishing this requires Brian to cut back the herbaceous and shrubby species, native and non-native alike, that tend to grow densely on his land and block the sun from reaching the ground where ginseng grows. As a result, the hidden ginseng beds scattered throughout Brian's land appear to be ideal ginseng habitats—sloping land covered in damp, rich soil beneath the shade of towering hardwoods, with relatively few shrubs to block the light from a diverse assemblage of herbaceous plants including black cohosh, wild ginger, bloodroot, and maidenhair fern as well as ginseng. However, maintaining this requires the difficult work of using chainsaws and pruners and digging tools to keep unwanted plants at bay. Brian is indeed *simulating* an ideal "wild" habitat through his labor. He suggests that no

landscape in Appalachia is truly wild: “at this point, even wilderness is managed to be wilderness” (interview, February 24, 2020).

6.3 “The Wild is So Much Prettier”: Crafting Wild Character

Ginseng diggers, growers, and dealers often describe the superior qualities of wild ginseng in aesthetic terms. “The wild is so much prettier,” a ginseng dealer in Virginia told me. When I asked her to elaborate on what makes a ginseng root pretty, she explained that it was from “the rings on it, the color, you know, and the age, all those nice little hair roots” (interview, December 5, 2019). Another West Virginia dealer explained that “beautiful” ginseng can be sold overseas for higher prices. When I asked him to elaborate on what he meant by beautiful, to told me, “So to show that it was wild in the past they [buyers] wanted the rings in the ginseng. They wanted dirt in it to show the rings. So now, [even] if the ginseng is washed good, it’ll have dirt in the rings. It’ll show that it’s wild” (interview, September 19, 2019). See Figure 17 and Figure 18, below, to compare the appearance of wild and farmed ginseng.

As an outside observer, the “prettiness” of wild ginseng isn’t immediately apparent. To the untrained eye, they all look like little wrinkled brown roots. With ginseng, aesthetic terms like “pretty” index a set of physical characteristics that my interlocutors describe with the phrase “wild character.” The most important feature of “wild character” are the wrinkles or rings that appear on wild ginseng roots. As discussed above, these wrinkles are thought to reflect the challenging physical conditions the root grew in. Unlike a cultivated root that has all of its needs met so that it can quickly grow smooth and plump, the growth of wild roots is constrained by access to sunlight and nutrients, rocks and other barriers in the soil, and deer or other herbivores consuming the plant’s leafy tops before it naturally senesces in the autumn. The result is a root

that is smaller and denser than a cultivated root of equivalent age, and with a surface marked by notable ring-like wrinkles. An apt comparison would be a stunted, gnarled pine on a windswept mountaintop that is thousands of years old but remains small enough for a single person to wrap their arms around its trunk.

Figure 17: Wild ginseng roots dug in Madison County, North Carolina. Note the long tendrils or "hair roots" and the prominent wrinkles.

Figure 18: Cultivated American ginseng roots grown in Wausau County, Wisconsin. Note the relatively smooth texture and lack of branches or hair roots. Source: wisconsingrownginseng.com

The dirt that is ingrained into the wrinkles and rings of a ginseng root are another component of their "wild character." Dealers expect diggers to "clean" their roots, which means they expect large clumps of soil to be removed and the surface of the ginseng root to be visible, but some dirt should remain. Denise, a ginseng dealer in Virginia, discussed an occasion when a digger brought in a large quantity of ginseng roots that had been scrubbed clean with a toothbrush until they were "snow white." Denise struggled to find an exporter willing to purchase ginseng from her that was so clean until she dirtied the roots herself: "I just took it out there and just swished it around in that mud hole and then I dried it in the window of my vehicle out here…. Nobody would touch it before and now it goes right on down the line" (interview, December 5, 2019). The dirt highlights the rings by making them more visible but can also be an indication of where the root came from. Some experienced ginseng diggers and dealers claim to be able to look at the color and texture of the dirt and tell where that root had originally grown. The presence of the dirt, moreover, serves as a reminder that the ginseng root is a natural product that is not polished and pristine like an industrially-grown root.

Other less-important factors include the color of the root itself and the presence of hair roots. Though there are exceptions, wild ginseng tends to be darker in color than cultivated ginseng, even apart from the presence of soil on the root's surface. Hair roots are thin hair-like structures that grow out of the main taproot that increase the root's surface area and can penetrate into small pores in the soil that are otherwise unreachable, enabling the ginseng plant to extract more water and nutrients. Wild ginseng tends to have more hair roots than cultivated ginseng, though this can also reflect the skill of the digger who takes time to carefully excavate each delicate hair root from the surrounding soil.

The degree to which a ginseng root displays "wild character" depends on the conditions in which the plant grew, and these conditions can be manipulated. Ginseng growers must strike a balance between growing plants in conditions that are "stressful" or "challenging" enough to produce roots with the desirable physical characteristics associated with "wild character," but also favorable enough to produce roots of a size and quantity to make the endeavor profitable.

Some ginseng growers and dealers will use terms like "true wild-simulated ginseng" in order to describe ginseng that acquires "wild character" by being grown in a naturalistic manner with minimal inputs: "there's people that do true wild simulated and that when [the ginseng] gets 10 plus years old, it looks 100 percent wild. It's you know, they don't use fertilizers. They don't. So if you're doing a wild simulated, you know, basically the only motivating thing you're doing is planting the seeds in that soil area. And then the rest goes to nature and then you end up with a product that looks like wild. It has the potency of wild. It goes into the wild" (interview, December 20, 2019). In other words, "true wild simulated" ginseng involves minimal human inputs—a person simply has to select a promising patch of woods, scatter some seeds, and let nature take its course. No other inputs or manipulations are involved. This "true wild-simulated" ginseng can be thought of as a controlled introduction (or re-introduction) of a wild ginseng population to a suitable habitat. This is a method that many hobbyist ginseng growers use, people who maintain small "patches" of ginseng on their property because they admire the plant, because they have a family history of being involved in the ginseng industry, or because they wish to recall a link to Appalachian history and culture. Some of these small-scale growers may dig and sell some of their ginseng, while others simply value the presence of the plant growing on their land. However, a variety of factors can negatively impact ginseng populations that are being minimally managed, including low germination rates, damage from wildlife, and theft.

Larger scale or commercial ginseng growers often need to manage their ginseng habitats more intensively in order to produce a profitable product that still retains "wild" character.

Brian, the wild-simulated ginseng grower discussed in the vignette at the beginning of this article, grows his ginseng in a habitat that he manages so that it resembles a "wild" Appalachian mountain ecosystem as closely as possible. Most observers, including the dealer quoted above, would agree that his roots are "true wild-simulated" ginseng. Yet even this "true wild-simulated" involves some manipulation of nature in order to craft an ideal habitat for ginseng. Maintaining a landscape dominated by ginseng "companion plants," species of trees, shrubs, and herbs that wild ginseng hunters look for as a sign of promising ginseng habitat, takes work. For some ginseng growers, this involves planting herbaceous species like bloodroot (*Sanguinaria canadensis*) or goldenseal (*Hydrastis canadensis*) "to try to not have a monocrop in my forest" (interview, May 5, 2020). In Brian's case, removing undesirable species is more of a concern than adding desirable ones. In Appalachia, places that are not actively managed by humans are often colonized by aggressive non-native species such as kudzu (*Pueraria montana*), multiflora rose (*Rosa multiflora*), Japanese stiltgrass (*Microstegium vimineum*), Japanese knotweed (*Polygonum cuspidatum*), and garlic mustard (*Alliaria petiolata*). These species grow prolifically and tend to out-compete native species, especially a slow-growing perennial like ginseng. Some of these species, like multiflora rose, possess sharp thorns that make it difficult to traverse the terrain. Some of these species, such as garlic mustard, release chemicals into the soil that inhibit the growth of other kinds of plants. Brian removes some native species that could potentially inhibit ginseng growth, such as buffalo nut (*Pyrularia pubera*), a parasitic shrub that saps nutrients from the roots of nearby plants. As a result, Brian's land looks quite different from land that was left unmanaged and untended. Native plants that existed before Europeans arrived

in North America are prioritized over ones that were introduced, intentionally or unintentionally, after colonization. Even so, not all native plants escape scrutiny, as ones that do not support the growth and flourishing of ginseng are removed or controlled.

Some wild-simulated ginseng growers will undertake more intensive measures to ensure that their roots have the desired "wild character." Lou, the West Virginia ginseng dealer, explained some of these techniques to me:

> So I know a guy here in West Virginia and one that's in Maryland. They usually grow it in a walnut grove, where it stains the soil. That puts that nice golden color on the [root]. And the old man used to lay rocks on the ground to give it weight to make it fight its way to, and he would also grow lots of ginseng together to stunt its growth, to slow it down. He's pretty smart, but the age, the only thing that does that is time, the burls, the neck (interview, July 8, 2019).

Lou is explaining several different techniques here. First, he mentions growers who plant ginseng in a walnut grove. The husks of walnut fruits contain a dark brown pigment that has historically been used to dye fabric and make ink; presumably, these ginseng growers hope that the walnut pigments can seep into the soil from fallen fruits in order to color nearby ginseng roots. This produces darker-colored roots that appear more "wild" than pale cultivated roots. He also explains how a grower would "lay rocks on the ground" so that the root would be physically constrained. Forcing the root to "fight" in this way is intended to produce roots with a desirable shape and stress rings. Likewise, he would also grow ginseng close together. Ginseng is a nutrient-hungry plant, and growing plants close together without adding fertilizers could potentially stunt their growth, leading to small, dense, wild-looking roots. (On the other hand, growing ginseng plants close together makes the plants susceptible to fungal diseases due to the lack of airflow. This is why "sprays" of fungicides and other chemicals are necessary in conventional ginseng farming.) Ultimately, though, growing wild-simulated ginseng takes time.

Older roots are more valuable, and Lou acknowledges that there is no substitute for waiting seven or more years for roots to mature.

Many wild-simulated ginseng growers, even ones using highly naturalistic techniques like Brian, also protect their ginseng patches from predators—both the two-legged and four-legged varieties. Ginseng leaves seem to be a favorite food of white-tailed deer, which are overabundant in eastern North America due to a lack of predators such as wolves and mountain lions that once kept deer populations in check, as well as a history of wildlife management decisions intended to increase the population of game species popular with hunters (Adams and Hamilton 2011; Rooney and Waller 2003). Some research suggests that deer herbivory is having a substantial impact on American ginseng populations (J. McGraw and Furedi 2005). Some ginseng growers complain that wild turkeys will scratch up the forest floor to eat newly-planted ginseng seeds, while voles and other rodents can damage the roots. Some wild-simulated ginseng growers will simply accept wildlife damage as an inevitable problem, but others will use strategies such as constructing fences or cages surrounding ginseng beds, planting individual ginseng seeds at a depth that cannot easily be reached by turkeys, or overlaying newly-planted seeds and seedlings with netting or a wire barrier. Ginseng "poaching," or harvesting ginseng while trespassing or out of season, is also a perennial problem. Secrecy is a first line of defense for many ginseng growers; most are reluctant to publicize their exact locations or to make it widely known that they are growing ginseng on their property. Other strategies include surveillance using re-purposed game cameras, regular patrols with guns and/or dogs, and sometimes even regularly cooking out over a campfire near ginseng patches in order to leave discernable signs of recent human presence in the woods.

Selling wild-simulated ginseng often (though not always) involves a degree of deception. Though some ginseng dealers will offer an identical price for wild and wild-simulated ginseng as long as the wild-simulated roots have sufficient "wild character," many dealers will offer a lower price for ginseng that they suspect had not truly been harvested from the untended woods. According to Lou, "if they can grow it good enough to get by me, I don't worry about it." In other words, if ginseng growers try to sell him ginseng that they grew that is truly indistinguishable from wild, he is happy to give them a wild price. However, Lou suggests that this is rare: "[Ginseng growers] will argue with you. So a few of them will never admit that they grew it, but I've been doing this for 40 years. I've pretty much seen everything" (interview, July 8, 2019). However, other ginseng growers and diggers who I spoke with indicated that they often sell wild-simulated ginseng as wild. Jerry, a ginseng grower and harvester in North Carolina, spent a great deal of our interview explaining how he produces unusually-large ginseng roots that retain "wild character" through a process of transplanting and grafting roots that he claimed to have perfected. But he went on to explain that he sells the roots as truly wild and unmanipulated: "[Dealers] don't know it's growed. It's all wild… When I take it I don't say a thing about where it comes from" (interview, February 19, 2020). Other ginseng growers might sell ginseng roots of a variety of ages or mix wild-harvested ginseng roots with wild-simulated ones. A pile of ginseng roots that are *too* identical, the thinking goes, may look suspicious and result in a lower price.

6.4 The Managed Wilderness

In the previous section, I discussed some of the ways that wild-simulated ginseng growers craft "wild character" through specific growing techniques. I now consider some of the ways that "wild" landscapes in Appalachia more broadly have been managed by people in order

to accomplish specific goals. In this section, I review ginseng "stewardship" methods that have been recounted to me by my interlocutors and suggest that many populations of ginseng found in wild forests are, in a way, "wild-simulated" as well. I suggest that reports of the past abundance of ginseng in the forests of eastern North America do not represent a lost Eden that has been destroyed by generations of human meddling, as the extensive rules and regulations surrounding wild ginseng harvesting might indicate. Instead, I speculate that reports of times when ginseng was the "dominant species in rich hardwood forests" reflect a history of active management, in which people intentionally constructed ecological niches where ginseng could thrive. This once would have been done by the Indigenous people of Appalachia. Today, many Appalachian ginseng harvesters engage in niche construction to promote ginseng through a variety of practices they refer to as "good stewardship" of ginseng. I argue that ginseng management in Appalachia—both in wild-simulated settings and in the "true" wild—is an example of niche construction, a theory initially developed in biology to describe how non-human organisms modify ecosystems in order to encourage more favorable surroundings (Laland, Matthews, and Feldman 2016). Niche construction has subsequently been used to explain the method by which humans first domesticated plants and animals (Smith 2011; Zeder 2016). Domestication is a spectrum, and even "wild" ginseng exists somewhere on that spectrum.

"Wild-simulated" as a well-recognized category for ginseng is relatively new, but the practice of intentionally planting, tending, and harvesting from a managed woodland "patch" of ginseng has a long history in Appalachia. Maggie, a ginseng digger from Virginia, described these "patches" as "emergency bank accounts" (interview, December 6, 2019). Ginseng in these "patches" could be sold when money was tight; Maggie described how her family would use the proceeds from selling ginseng in such "patches" to pay for funerals, and on one occasion to assist

a relative whose house had been destroyed in a fire. Neil, a wild-simulated ginseng grower in Kentucky, told me that he relied on "old-timers"—elderly Appalachians recognized as being custodians of cultural knowledge—when developing methods for his own commercial wild-simulated ginseng operation. "I learned a lot of knowledge by listening to the old timers who used to go out and dig it and had a little patch behind their house. You know, it seemed like every ginsenger also was a grower, but never considered themselves a grower…the old wild crafters are some of the original forest farmers and never even realized they were forest farming" (Interview, May 5, 2020). In other words, Neil was explaining how he learned how to be a wild-simulated ginseng grower by learning from elderly Appalachians who do not consider themselves to be growing or cultivating ginseng. Yet despite the fact that these old timers "never considered themselves a grower," they are using methods that are commonly used by wild-simulated ginseng growers, what Neil refers to as "forest farmers."

Some ginseng diggers discuss establishing their "patches" themselves, or report that the "patches" they manage had been established by parents or grandparents. These "patches" are often first created by transplanting ginseng roots that had been harvested from an untended location in the woods to a more easily accessible spot, often behind a home. These transplanted roots might be left to grow for several years so that they can be sold at an older, more-valuable age, or may be left in the "patch" to grow indefinitely, acting as a source for ginseng seeds to populate the patch with newly-grown ginseng seedlings. Many ginseng diggers I spoke with told me about encountering particularly unusual ginseng specimens—plants with five prongs, rare genetic strains, unusually large "monster roots"—that they dig in the wild to take home and plant in their own patches, so that these special specimens can contribute their "genetics" to the diggers' own patch. These "patches" might be manipulated in various ways, such as with added

fertilizer to subtly enhance growth rates, or with rocks to increase "wild character" as discussed in the previous section. Other desirable species such as goldenseal (*Hydrastis canadensis*) might be added, while other species such as mountain laurel might be removed—or, in the case of prickly or stinging plants like nettle or rose, strategically placed in order to deter potential thieves. Nevertheless, many of the ginseng diggers who maintain ginseng "patches" insist that they're not *really* cultivated. As Dale, a ginseng digger in Kentucky, explained, "I'll use the word 'cultivated' even though that's not it. Those little patches are a throwback to what you find in the wild back years ago" (interview, September 23, 2019).

Other ginseng diggers will insist that they are merely tending or stewarding already-existing ginseng patches. When I asked Marie, an herbalist whose family has dug ginseng for generations, whether she used wild-simulated or cultivated ginseng, she responded:

> It was wild. That's a little complicated question. Nobody actually planted ginseng seeds. But you found your patch in the woods and you sort of farmed your patch and you protected it, and you made sure that there was always new plants allowed to come along. That you made sure you when you harvested you re-planted the seed of the [plant] you were harvesting. So you re-planted that seed right then. Which is still, I'm pretty sure, on the regulations for wild harvesting ginseng today. You need to replant those seeds. So we made sure things like that happened. You know, I guess it was more of a Native American approach where you just farm the forest with what was already there (interview December 3, 2020).

There is an interesting contradiction in Marie's words. "Nobody actually planted ginseng seeds," she says, and yet she continues on to suggest that planting ginseng seeds was a common practice. When members of her family harvest a ginseng plant, they make sure to remove the ripe seeds from the plant's aboveground parts and "re-plant" them nearby, ensuring that the patch of ginseng can reproduce despite regular harvest. Marie notes that this is a common recommendation, or even requirement, for wild harvesting in general. Wild harvesters are commonly instructed to plant the seeds from ginseng plants that they harvest. So while Marie's

family is not actively establishing new "patches" of ginseng, they still claim some sense of ownership over existing ginseng patches by protecting, managing, or tending them—as she says, "you just farm the forest with what was already there."

Finally, many ginseng diggers make a point of planting ginseng seed *en masse* in the woods. More than one ginseng digger that I interviewed over the course of my research declared themselves to be the "Johnny Appleseed of ginseng," comparing themselves to the historical-figure-turned-folk-hero who is credited with planting apple trees throughout eastern North America. Sometimes, these seeds are provided by ginseng dealers—after all, it is in their interest to ensure the continued existence of "wild" ginseng for the long-term survival of their business. Sometimes, seeds are provided by agricultural extension offices or conservation-minded non-profit organizations. Hal, one of my interlocutors, sends me photos from time to time via text message in which he is smiling, holding up plastic bags or cardboard boxes full of ginseng seeds that he purchased by mail-order from a conventional ginseng farm in Wisconsin. Hal then tells me with excitement about his plans to replenish the woods near his home in Kentucky with ginseng that he plants. He might not be the one to benefit from these plantings, but future generations might.

This brings up broader questions about the degree to which humans have been responsible for supposedly "wild" populations of useful plant species. Many scholars have argued compellingly that landscapes in the Americas that appeared to be "pristine" wildernesses by settlers of European descent were actually the product of careful Indigenous land management practices (M. K. Anderson 2005; Denevan 1992; Iriarte et al. 2020). There is some evidence to suggest that useful plant populations were intentionally established in Appalachia. For instance, Wyatt et al. (2021), using a genetic analysis, suggest that many populations of the

fruit-bearing pawpaw tree (*Asimina triloba*) throughout eastern North America were likely of anthropogenic origin. Wildness and domestication are not binary opposites, but rather a spectrum. Neither "wild" nor wild-simulated ginseng is clearly and obviously domesticated, yet often benefits from an intensive and ongoing relationship with humans. Even farmed ginseng does not display some of the characteristic qualities of domestication syndromes that have been identified in many domesticated plants; for instance, ginseng seeds require long periods of exposure to cold in order to germinate and may take two or more years to sprout, while domestic plants often lose the requirement for multiple seasons of prolonged cold exposure in order to germinate. It is uncertain what changes, if any, humans have made to ginseng on a genetic level. However, the *environments* in which ginseng grows have been modified substantially.

The wildness-domestication spectrum for ginseng can be described using the notion of niche construction, which draws from theories archaeologists use to describe the origins of agriculture, which in turn draws on theories developed by population biologists. In a nutshell, niche construction theory comes from the observation that many organisms substantially modify their environments, which can create feedback loops that play important evolutionary roles (Odling-Smee, Laland, and Feldman 2003). Some archaeologists theorize that this theory can be used to explain the mechanism behind the origin of agriculture, as early humans modified their environments to create ecological niches in which useful wild plant and animal species can thrive (Smith 2011; Zeder 2016). These species themselves were initially not domesticated in the sense of exhibiting genetic traits associated with domestication; the environments are simply modified in order to provide suitable habitats. Arguably, this is what is happening with ginseng. People are intentionally crafting environments where ginseng can thrive, but the ginseng plants themselves do not seem to be meaningfully different from ginseng plants that grow "wild" and untended.

At the beginning of this article, I quoted a former Forest Service employee who claimed that ginseng had once been the dominant understory plant in rich cove forests in Appalachia. I went on to discuss the frequent lamentations that I heard from ginseng diggers about the lost abundance of wild ginseng. Is it possible that the previous abundance of Appalachian ginseng is due to a history of active human management of ginseng populations? If this were the case, it would provide a new perspective on the premises upon which discussions about wild ginseng conservation are based. The decline of wild ginseng would no longer be a story of human overuse of nature, a story that fits into the notion that humans do not truly belong in the wild and only contribute to its decline. Instead, the decline of wild ginseng would perhaps become a story of how humans are not interacting *enough* with nature by intentionally managing the forest in order to facilitate the growth of this valuable plant.

6.5 Conclusion

By suggesting that virtually all ginseng exists on a spectrum of domestication, I do not mean to suggest that wild ginseng is not truly wild and therefore should be considered to be less valuable. Likewise, wild-simulated ginseng is not fake or counterfeit wild ginseng that is inherently lesser than "truly" wild ginseng. The environments in which ginseng grows—both in the "true" wild and in wild-simulated settings—are not pure wildernesses, in that they have been actively managed, disrupted, and tended by humans, often quite intensively. Some of these modifications are side-effects of Appalachia's long industrial history. Many parts of Appalachia are a "blasted landscape" (Tsing 2015) suffering from toxic runoff, severe erosion, or biodiversity loss. Yet even places that *appear* to be pristine wilderness are often managed or stewarded by people in various ways. The Appalachian woodlands are not strictly wilderness,

regardless of whether the land in question is a family woodlot, a large tract owned and managed by a coal company, or a portion of a National Forest.

The messy, complex wildness of the non-human world can exist within places that are *not* wildernesses. The idea that "nature" can only be protected by setting aside wildernesses where human impacts are undetectable is likely impossible, given that out present Anthropocene era is characterized by human impacts on virtually everything on Earth. Instead, biodiversity can be preserved by actively cultivating wildness—creating places designed to enable the unruly autonomous ecological interactions of the more-than-human world to flourish. Wild-simulated ginseng in Appalachia is an example of how this can function in practice.

Chapter 7: Conclusion & Recommendations

By using ginseng as a lens through which to understand the relationships between people and plants in rural America, we can clearly see some of the differences between rural, working-class perspectives on human relationships with plants and the environment and mainstream American environmentalist perspectives on such relationships.

I began by introducing American ginseng, a valuable medicinal plant native to eastern North America which has been harvested and exported to east Asia since the 18th century. Though this plant can be farmed, wild roots can sell for more than twenty times the price of farmed roots. High prices for ginseng, combined with low availability of living-wage jobs has made harvesting ginseng a popular pastime in Appalachia. However, ginseng harvesters, as well as biologists, foresters, and landowners, have noticed that wild ginseng populations are declining. One of the most common reasons that my interlocutors give for this decline is overharvesting, but other factors, such as habitat loss and deer overabundance, are also factors.

I argue that responses to the problem of ginseng conservation reveal the existence of two different environmentalisms in Appalachia: mainstream American environmentalism, and a rural, working-class Appalachian environmentalism. Mainstream American environmentalism has its roots in efforts by urban elites to preserve "pristine" wilderness places as refuges where they could engage in recreation and adventure. Rural Appalachian environmentalism, on the other hand, views the forest as a resource; sustainability is important because it will ensure that future generations will continue to benefit from forest resources and participate in a culture that values self-reliance and living off the land.

In order to explore how the conflict between mainstream environmentalism and rural Appalachian environmentalism play out with respect to ginseng, I focused on three significant problems or conflicts in the ginseng world. First, I consider the problem of illegal ginseng harvesting. Illegal ginseng harvesters are often understood by environmentalists and landowners to be greedy, lazy, and either ignorant of or unconcerned by the environmental impact of their actions. I argue that there is a great deal of variation among illegal ginseng harvesters. Though some illegal harvesters do live up to the common stereotypes, many others are simply trespassing due to an understanding of property rights in the commons that is inconsistent with the American legal understanding of property rights. Many of the illegal ginseng harvesters I spoke with exhibit rural Appalachian environmentalism by engaging in various folk conservation strategies to help mitigate the effects of the tragedy of the commons.

Next, I turned to ginseng seed planting. In contrast to illegal ginseng harvesting, seed planting sounds benign, even beneficial—after all, the intention is to replenish the wild populations of ginseng, returning them to the state of abundance that many of my interlocutors believe existed before overharvesting rendered ginseng scarce as it is today. Yet this, too, was a point of contention. Should the goal of seed planting activities be to ensure that enough ginseng proliferates in the woods to sustain a robust culture of harvesting ginseng, even if it means introducing new seed genetics or active management strategies? Or is it more important to restore ginseng populations as part of a broader effort to re-create pristine ecosystems of the past, even if it means dramatically reducing or even eliminating ginseng harvesting? I argue that rural Appalachian environmentalism is consistent with the idea that seed planting should attempt to maximize wild ginseng populations, even if it is at the expense of genetic purity or authenticity. The idea that restoration activities should focus on (re)creating an "authentic" "native"

ecosystem, even if it has less capacity to support harvesters, tends to find more support among mainstream environmentalists.

Finally, I discussed the idea of wild-simulated ginseng. This last major content chapter did not focus on a major conflict in the sense of there being active disagreements on the topic in the ginseng community. In a few instances did encounter resentment towards wild-simulated growers among some wild harvesters, mainly among wild harvesters who cannot access the land or resources to establish their own wild-simulated projects. For the most part, though, there were few objections among my interlocutors to the idea of humans mimicking wild ecosystems to produce a ginseng root that looks wild for all intents and purposes. The conflict here is more subtle. I argue against the notion that the Appalachian woodlands can or should be considered to be a pristine "wilderness." With wild-simulated ginseng, we can see how humans can create complex ecosystems that can exist stably and autonomously without excessive human micromanagement. Even though such places are not "wilderness" in the mainstream American environmentalist sense, these areas can nonetheless be thought of as "wild." Considering that the Anthropocene era has left us with virtually no ecosystems left that are truly wildernesses where human impact is imperceptible, perhaps environmentalists should focus on *creating wildness* over *protecting wilderness*.

It is perhaps unconventional to conclude a dissertation in anthropology with a chapter that outlines concrete recommendations for landowners, policymakers, and environmentalists. Graduate-level training in anthropology encourages us to analyze and critique, but there is decidedly less emphasis on developing or elaborating upon potential practical solutions to the various problems we identify. However, the question of *what should be done about ginseng* was a consistent question throughout my time in the field and afterwards. My interlocutors deserve an

answer to that question. My recommendations here are in a small way part of my effort to give something useful back to the many people in the field who generously shared their time and knowledge with me out of a deep concern about the future of wild ginseng in Appalachia. I anticipate that there will be some people in the ginseng world who disagree with my assumptions, desired goals, and approach. Above all, my goal is to find a path toward a future where many kinds of life can thrive—including ginseng and the people who rely on it.

7.1 Defining Goals

As I have explored in various ways throughout this dissertation, there isn't a true consensus in the ginseng world about what it means to protect or save ginseng. The mainstream environmentalist perspective would be to prioritize the preservation of "intact," "native" landscapes. Watson et al. (2018), in an opinion piece in *Nature,* lament the loss of "intact" ecosystems around the world and argue that policymakers around the world ought to prioritize the preservation of large contiguous areas of "wilderness-quality" land. They reject the idea that "fragmented" or "otherwise degraded" ecosystems that are actively utilized by humans have the same ecological value as "intact" wildernesses. This opinion piece is in line with the American environmentalist attitude that low-impact recreational use of nature is acceptable, but extracting resources is damaging. As one scholar of non-timber forest products in the United States points out, American environmentalists are "primarily urban middle class–based, preservationist, and misanthropic—and therefore antiextractive" (Love 2002). It is not uncommon for conservation areas to forbid foraging of any kind, even small amounts of low-impact products like mushrooms or berries, let alone harvesting plants like ginseng that require higher-impact harvesting methods like digging.

There are some signs that attitudes are changing. In recent years, I have noticed a great deal more awareness of and interest in the notion that many "wilderness" landscapes today are actually the product of human landscape management in the past. As annual wildfire seasons in the American West become more and more severe, mainstream newspapers print articles about how Indigenous burning practices likely reduced the frequency and severity of large wildfires while also enhancing biodiversity (e.g., Cagle 2019). On social media, I see friends and acquaintances—many of whom would self-identify as environmentalists—enthusiastically sharing articles about Mayan or Amazonian "food forests" that appear to be pristine wildernesses at first glance but actually reflect a history of human management to encourage the proliferation of useful plants. There have also been several articles in the popular media calling for alliances between (primarily left-leaning) mainstream environmentalists and (primarily right-leaning) hunters (e.g., Bergman 2019; Rinella 2018). Though the idea that hunters should be welcomed into the environmentalist fold is not universally popular—some environmentalists will reject any land management strategy that involves killing charismatic game species like deer (Dizard 1999)—such articles suggest that some mainstream environmentalists are increasingly willing to accept lands that are managed to support hunting (and are therefore not pristine wildernesses) in order to accomplish greater goals such as preserving biodiversity, blocking environmentally-destructive industrial activities, and fighting global climate change.

Changing attitudes about the environmental benefits of non-timber forest product management in North America is also evident in some of the large environmental organizations. For example, the Trust for Public Land (TPL), a large environmental organization, has partnered with the US Forest Service to establish a Community Forest program, which TPL describes as a way to give communities a say in how their forests are managed. The introduction to a report

promoting the program suggests that non-timber forest products as a potential benefit of Community Forests, giving maple syrup and firewood as specific examples. Nearly all of the case studies presented in the report emphasize the ways that Community Forests are being used recreationally, but a few highlight the ways in which the Community Forests program helps local communities manage their forests to provide useful resources like timber and medicinal plants (The Trust for Public Land 2021).

These changing attitudes suggest that it may be possible to reach a place where mainstream American environmentalists are willing to accept the rural Appalachian environmentalist perspective, which sees the forest as a source of useful resources. For my interlocutors, the forest is a place of aesthetic enjoyment, recreation, and even spiritual solace, but these views of nature exist simultaneously with an understanding that the forest is full of resources that are directly useful to humans. The use of forest resources in Appalachia has additional importance due to the high levels of poverty and unemployment and lack of living-wage jobs in the region (Pollard and Jacobsen 2021). Resources like ginseng can be an essential source of supplementary income in a region where it can be very difficult to make a living. Interestingly, there is a history of international environmental NGOs supporting community-based conservation programs centered around non-timber forest products management and harvesting. The idea is that developing markets for non-timber forest products provides local and Indigenous communities with an economic incentive to protect forests and other natural areas from more ecologically destructive activities like timber harvesting (Arnold and Pérez 2001). Similar programs are rare in the United States, but could potentially be used as a model for conservation programs that encourage the harvest of ginseng and other plants and fungi (Love 2002).

In proposing goals for ginseng conservation, I reject the idea that wildernesses must remain "intact" and free from human interference. Sustainably harvesting ginseng and other useful forest resources can and should be a component of managing healthy forests in Appalachia. Furthermore, ginseng (and other non-timber forest products) should be managed in a way that local residents—including the poor and people who do not have access to large tracts of private land—can benefit from. Ginseng management in Appalachia should therefore be designed around the following objectives:

1. Stabilize or increase wild populations of American ginseng.
2. Maintain genetic diversity within ginseng populations.
3. Support local residents' ability to use forest resources for personal use and for seasonal supplementary income, both in the commons and on private land.
4. Develop regulations and harvesting best-practices in partnership with experienced wild ginseng harvesters.

7.2 Limits of the Current Approach

Many of the existing policies relating to ginseng are not particularly useful or successful in achieving these goals. The current approach emphasizes restriction and regulation—in other words, it's all stick, no carrot. However, this top-down, restrictive regulatory approach is not entirely effective. As we heard from Marvin in Chapter 4, existing restrictions are easy to avoid. Though an illegal ginseng harvester ginseng illegally runs the risk of getting caught by game wardens or park ranger, the chances are low enough to make the risk worthwhile. Marvin explained how easy it is for ginseng harvesters who need some quick cash (or access to illicit drugs) to sell ginseng out of season, before ginseng plants have a chance to set seed and perpetuate the population—people can dig ginseng as soon as the leaves appear in late spring or

early summer, then sell the roots to an illegal dealer for much lower prices than the typical in-season market rate, or for an equivalent quantity of substances like opioid pills or cannabis. The illegal dealer can then dry this out-of-season ginseng so that it will last until the fall, when he (or rarely, she) can pretend to have dug it personally during the appropriate season when selling to a legitimate dealer for a substantial profit. The ease with which people like Marvin can buy and sell illegally-harvested ginseng frustrates other ginseng harvesters who see such behavior as cheating as well as damaging to wild ginseng populations.

Many advocates of ginseng suggest that the solution would be to have regulations be even stricter, with increased enforcement and harsher punishments, even outright bans on harvest and export of wild ginseng. I frequently heard complaints from interlocutors about the inability of local law enforcement officials to uphold existing regulations. Jerome, a ginseng dealer and wild-simulated grower in Virginia, criticized local law enforcement officials for laziness, citing their frequent refusal to prosecute ginseng poachers: “we see a lot of law enforcement officers, not just regular police, but the forest service, you see a lot more of them coming up with all these different excuses why they can't arrest and convict a poacher. And I personally feel like a lot of them's on a permanent coffee break basically” (interview, June 6, 2019). Aaron, a ginseng dealer and harvester in Tennessee, suggested that the problem is a lack of personnel rather than mere laziness: “Around here, for example, we have a sheriff's department, call the sheriff and you say, well, how about the ginseng? We can't prove it's your ginseng. …Next call goes to the Wildlife Enforcement Agency. There's only two of them on shift for three counties at any time. It's a lot of land and a lot of rugged, mountainous land. So you've got a police department that don't even want to touch it because they can't prove it. And you got the feds who stay so busy they can't show up” (interview, April 22, 2019). The logic here is that poaching and unsustainable

harvesting practices can be prevented with a more robust police presence who can arrest, and possibly fine or imprison, illicit harvesters.

I do not think that an increased law enforcement presence is the most effective strategy for reducing unsustainable harvesting practices. For one thing, I would be concerned that more comprehensive law enforcement coverage could make harassment and other abuses by police more widespread. Though there is little literature on police violence in rural Appalachia, I suspect that it does occur even if it is unacknowledged. In recent years, there has been greater attention paid to urban police violence due to incidents being recorded on smartphones by passers-by (Richardson 2021). However, passers-by are fewer and further between on isolated country roads or deep in the woods, enabling police violence to occur unwitnessed and unchecked. Many Appalachians also tend to support right-wing narratives that insist that police protect law-abiding citizens and that people who experience police abuse must have done something to deserve it, that only a "thin blue line" protects civilized people from deviant lawbreakers (Wall 2020). Indeed "Thin Blue Line" flags and bumper stickers depicting an American flag rendered in black and white with a single blue stripe, are a common sight throughout the region. Such attitudes toward police, combined with a lack of public visibility of police-citizen interactions due to the low population density, suggests that an increase in police presence in rural Appalachia could easily lead to an increase in police abuses that would go unrecognized, even if the purpose of the increased law enforcement presence was ostensibly to protect wildlife.

In addition to the potential for abuse, increasing law enforcement coverage in Appalachia to monitor and enforce ginseng collecting laws would not be an efficient use of limited funds. Several of my interlocutors who wish for more comprehensive law enforcement coverage

complain that there might be only two or three officers who are responsible for expansive jurisdictions covering dozens or even hundreds of square miles—much of which is densely-forested, mountainous terrain. It is difficult to imagine how many officers would be required to comprehensively monitor and track activities throughout such geographically large areas, and achieving such coverage would likely be prohibitively expensive. As I have noted elsewhere, poverty in rural Appalachia is disproportionately high compared with the United States as a whole (Pollard and Jacobsen 2021) and services like health care, childcare, schools, or public transportation are often unavailable, too geographically distant to be useful, or provided by charity organizations in the absence of government services. If any additional government funds became available in rural Appalachia, more people would benefit if they were to be used for services like schools or assistance for people with disabilities, not for law enforcement.

7.3 Recommendations

In practice, many of the restrictions and regulations surrounding ginseng are governed by CITES. It seems unlikely to expect American ginseng to be removed from the treaty's appendices and no longer subject to its restrictions. The following recommendations represent my own opinions regarding the most effective strategies that I outline above. They should be compatible with CITES rules, meaning that they could potentially be implemented without lengthy and politically fraught changes to the legal framework that governs ginseng harvesting and exports that is currently in place.

Implement programs to connect local landowners with local ginseng hunters. As I discussed in Chapter 6, one potential solution to the problem of declining ginseng populations is wild-simulated ginseng. Wild-simulated ginseng is the practice of managing an area of land to resemble ginseng's native woodland habitat as closely as possible, allowing growers to cultivate

roots that are virtually identical to wild roots. Appalachian ginseng harvesters have long grown "wild-simulated" ginseng by planting and maintaining personal, private ginseng patches in easily-accessible areas, even if they do not necessarily use the term "wild-simulated." Personal ginseng patches might be on land that is formally owned by the ginseng harvester or his or her family, but that is not always the case. As we saw in Chapter 4, many ginseng harvesters do not always recognize property rights in the same way that the United States legal system does and may consider a patch to be "theirs" even if it is planted on land that doesn't formally belong to them. Much of the time, ginseng from these private patches is sold as—and is regulated as—truly wild ginseng. If policymakers decide to restrict wild ginseng harvesting in favor of promoting wild-simulated growing operations, there is a risk of excluding poor Appalachians who lack land or other resources from accessing ginseng. Growers who own or lease land and have records from purchasing seeds or transplants can prove that they are not harvesting plants from wild, untended forests. Ginseng harvesters who maintain patches cannot always do the same thing.

One possible solution to this problem is to build a program that connects local harvesters with landowners willing to allow harvesters to collect ginseng (and possibly other non-timber forest products, such as mushrooms) in exchange for planting, monitoring, and managing populations. This is something that already happens informally. It is not uncommon for landowners to grant permission to individual harvesters to take the ginseng on their land. This works well in communities where this is a well-known practice and where the landowner knows that the harvester is trustworthy. However, as more and more outsiders arrive in Appalachia, I have heard from my interlocutors stories about being excluded from traditional harvesting areas. In Chapter 4, I quoted a ginseng harvester named Jerry who complained about losing access to

one of his favorite ginseng-harvesting spots when outsiders purchased the land: "[The original owner] sold to people from Indiana or something. They're northerners. They don't kind of cotton to [understand or agree with] what the country people [do], you know. They think we're all thieves down here. So they don't want nobody on their property" (interview, February 19, 2020). In other words, newcomers to the region who do not understand how Appalachians use the commons and are disconnected from local social networks that would help them assess an individual's trustworthiness are reluctant to allow outsiders to harvest from their land. An official program could help teach landowners about local understandings of the commons as well as connect them with harvesters who can be trusted to manage the populations they harvest from sustainably.

Issue permits to diggers. Currently, ginseng diggers in most states do not need a permit or other form of official permission in order to dig ginseng. There may be restrictions associated with digging on certain types of land, such as the permits that some National Forests require diggers to obtain, or the signed permission forms that diggers must get from landowners to dig on private land, most states do not have a centralized permitting system that applies to all diggers. The first time a ginseng harvest becomes officially legible to the state is when the ginseng digger sells his or her haul to a local buyer. Individual buyers have no way of ensuring that the roots they are purchasing were harvested responsibly.

Ideally, a permitting program should meet the following criteria:

- Permits should be administered and distributed by state wildlife conservation departments, or whichever office is responsible for distributing hunting and fishing licenses. Hunting and fishing for recreation and subsistence is a popular activity in rural Appalachia (J. C. Hall, Gum, and Pietkoski 2020) so the process of obtaining the

appropriate licenses should be familiar to prospective ginseng harvesters. The process of obtaining a ginseng harvesting license should be similar to the process of obtaining "tags" that entitle hunters and anglers to harvest specific quantities of desirable species. This should make the process of obtaining a license more familiar for rural Appalachians who already hunt and fish regularly.

- Discounts on permits or increases in harvest limit should be available to harvesters who participate in an educational program about sustainable ginseng harvesting practices. One model for such a program could be the "hunter's education" courses that most states require people to complete before obtaining a hunting license. Such programs can usually be completed in the classroom or through an online module, and cover the basics of hunting, tracking, and outdoor safety. A ginseng education program could discuss the life cycle of the ginseng plant and best practices for sustainable harvesting, including an overview of local practices recognized as "good stewardship."
- Permits should be available in (at least) two categories tied to harvest volume. Recreational permits should be easier and less expensive to obtain, entitling harvesters to dig relatively small amounts of ginseng (perhaps on the order of one dry pound or four fresh pounds annually) for personal use or to sell. Commercial permits that allow harvesters to sell larger quantities of ginseng should be available but should require additional oversight to ensure that these harvesters are obtaining their ginseng appropriately.
- Permits should be non-transferrable. If an individual obtains a ginseng permit and does not harvest all the ginseng he or she is entitled to, the harvester should not be able to transfer their unused harvest allowance to someone else.

- A centralized database should keep records of how much ginseng individuals sell. This would prevent harvesters from skirting harvest caps by selling to multiple ginseng dealers. Dealers could possibly be required to pay a fee for any ginseng they purchase above the harvester's permitted quantity—the goal of this provision would be to encourage dealers to pay diggers lower prices for excessive quantities, creating a disincentive for diggers to attempt to harvest ginseng above their limit.
- Proceeds from any ginseng permitting program should be used to fund conservation programs, such as seed-planting or native seed cultivation projects.

Admittedly, a permitting program that includes all the elements I propose here could be complicated and expensive to administer, especially considering the limited budgets and staff available in most state wildlife conservation offices. A ginseng permitting program would not entirely prevent illegal or unsustainable ginseng harvesting from occurring. Just like many ginseng harvesters today harvest ginseng illegally, ginseng harvesters under a permitting program will find ways to evade oversight. However, such a program could play an important role in limiting thefts of wild-simulated ginseng or destructive large-scale ginseng harvests while ensuring that ordinary Appalachians who dig ginseng recreationally or for supplemental income still have access to this important resource.

Modify or eliminate legal restrictions on certain wild-simulated ginseng growing practices. When speaking with ginseng harvesters and growers about the rules surrounding wild-simulated ginseng or establishing personal ginseng "patches," there was a great deal of inconsistency in my interlocutors' understanding of which specific practices are and are not illegal. For example, Marvin, the ginseng harvester I describe in detail in Chapter 4, complained that it is "illegal to pack 'em [ginseng seeds] out of the woods now," but that he doesn't

understand why—" I don't understand what the problem is with bringing a seed out. I mean, you know if you're bringing it out the feller is probably going to plant it. I mean, it's not like you're selling seeds on the black market" (interview, September 20, 2019). When I asked Neil, a wild-simulated ginseng grower, if he was purchasing local wild seed to use for his ginseng operation, he replied, "I couldn't. It was illegal. It was illegal to sell any seed. It was illegal for me to sell any seed. Technically, it was illegal for me to even be in possession of seed and resell the seed" (interview, May 5, 2020) He went on to explain that wild-simulated ginseng is treated exactly like wild ginseng in the eyes of the law. All restrictions that apply to wild ginseng, including harvest dates, requirements about planting seeds within the immediate vicinity of the mother plant, and so on, must be followed. This can complicate efforts to establish and manage wild-simulated ginseng businesses. On the other hand, harvesting entire ginseng roots in order to transplant elsewhere to establish a ginseng patch seems to be perfectly permissible in most states, though it is a more labor-intensive method of establishing a new ginseng patch compared to simply planting seeds. However, roots dug for transplanting purposes must be dug during the regular ginseng harvesting season—posing a barrier to people who wish to "rescue" ginseng plants from being destroyed by mining or construction projects, or to wild-simulated ginseng farmers who wish to move individual ginseng plants around on their land.

Current restrictions on collecting and transporting ginseng seeds and roots would make sense if ginseng could *only* grow in the untended wild. The rule that prohibits people from collecting seeds and requires them to plant seeds in the immediate vicinity of any ginseng roots they harvested makes sense as a way to ensure that ginseng plants can reproduce in habitats where they have been proven to thrive. However, this leaves many people who wish to establish or restore new populations of ginseng—either in the wild or on private land as part of a wild-

simulated operation—feeling as though they must skirt the law, or that there is no way for them to proceed legally. These restrictions should be re-evaluated in order to provide guidance to people who wish to harvest wild ginseng or wild ginseng seeds to propagate rather than to sell.

Support native seed cultivation projects. In Chapter 5, I described a controversy among people who wish to restore ginseng populations in Appalachian forests. On the one hand, there are people who wish to maximize the amount of ginseng planted, even if it means using non-native seeds obtained in bulk from commercial ginseng farms in regions with very different climates like Wisconsin or Ontario. The goal is to ensure that "wild" populations of ginseng are prolific enough to withstand relatively intensive harvesting pressure. On the other hand, some people believe that this practice is harmful because it introduces "foreign" genetics to the local ginseng gene pool, diluting the prevalence of traits in native strains of ginseng that have evolved to be perfectly suited to hyper-local conditions in Appalachia. For the most part, people in the population-maximizing camp are not strictly *opposed* to the idea of using seeds from wild-harvested sources. Many of them collect and plant native seed as well as seed purchased from commercial sources. The problem is that native Appalachian ginseng seed is difficult or even impossible to find, especially for people who wish to buy it by the pound to distribute in the woods.

There are some efforts to rectify this problem by attempting to cultivate plants taken from the wild for their seed. For example, in Watauga County, NC, the local cooperative extension office obtained a grant from the US Department of Agriculture specialty crops program to purchase about sixty pounds of freshly-dug, green, wild ginseng—not to sell or process, but to plant (interview, March 20, 2019). Freshly-dug ginseng roots can often survive this kind of transplanting and will send up leaves and a flower stalk the following spring. The extension

office plans to prevent the roots of these transplanted wild ginseng plants from being harvested, instead harvesting and distributing the seeds. The ultimate goal is to establish a reliable source of native North Carolina ginseng seeds for wild replanting or commercial use.

Even if the genetic difference between wild ginseng and cultivated ginseng isn't as significant as some ginseng advocates assume, wild seed projects could help preserve the genetic diversity of ginseng populations. Ultimately this could help wild ginseng in Appalachia become more resilient to disruptions such as plant diseases, habitat loss, and even climate change.

7.4 Conclusion

For much of my life, I took the mainstream environmentalist perspective for granted—a perspective that sees nature as a world that is separate from the human world, but is simultaneously precarious, constantly under threat by the encroachment of humans with all of their accompanying pollution, habitat destruction, and other disruptions. Nature was a place that I could visit and enjoy, but I didn't live there. Like many mainstream environmentalists, I viewed the harvest of forest products with suspicion. Small quantities harvested for personal use might be fine, since the impact was low, and the practice made me imagine romantic images of people of the past living off the land. But harvesting forest products in any quantity significant enough to make a noticeable change to the ecosystem, *especially* if such harvesting was done for commercial purposes, represented a threat from the human world and the corrupting influences of money and greed. In rural Appalachia, on the other hand, I noticed a very different attitude toward the natural world among many of my interlocutors. Nature wasn't a place that you visit from time to time for recreation, it was the place where you lived. Nature was also an important source of resources, whether through hunting, fishing, collecting wild greens or berries, or digging roots like ginseng. For some people, engaging in such activities might be a way of

feeling connected to Appalachian cultural heritage. Yet a number of my interlocutors rely on forest resources for at least some of their subsistence needs.

For my interlocutors in rural Appalachia, using forest resources is not necessarily harming or contaminating nature. This mentality was often explained in explicitly Christian terms, with references to God's instructions to Adam and Eve following their Creation: "Be fruitful, and multiply, and replenish the earth, and subdue it: and have dominion over the fish of the sea, and over the fowl of the air, and over every living thing that moveth upon the earth" (Genesis 1:28). As Denise, a ginseng dealer from Virginia explained, "[Ginseng] has to be respected because the good Lord put it out there. You don't have to plant it, you don't have to tend to it, you don't have to do nothing. But the good Lord put it out there and you can go make money on it…you know, take care of your family" (interview, December 5, 2019). In other words, God placed ginseng and other useful plants in the forest for the express purpose of benefitting humans, so it is only right that humans take advantage.

While my interlocutors were confident that they had the moral right to make use of forest resources, there was also a strong sense that they needed to do so responsibly. My interlocutor Hal told me that good stewardship, or responsible harvesting and tending of ginseng populations, is a way to give thanks to God for bestowing "blessings" like ginseng upon humanity. In Hal's words, "those who do show such respect and appreciation will be overwhelmed with blessings of all kinds" (interview, February 8, 2021). Not all ginseng harvesters share Hal's attitude, of course. There are ginseng harvesters who dig indiscriminately without an eye toward sustainability, and wild ginseng populations do indeed seem to be declining. However, my research suggests that ginseng harvesters who truly do not care at all about sustainability are in the minority, and perhaps other factors, such as habitat loss, are just as much or more to blame

for ginseng population decline. Sustainability can go hand-in-hand with the regular use of forest resources. We don't have to put the forest on a pedestal with a "keep out" sign in order to protect it or maintain its wildness.

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