

This spring I spent a month in Chile, traveling with my dear brother Josh who has been living there. Due to unfortunate circumstances I no longer have the sketchbook that I kept on the trip, but there are some photographs. We wandered high and low through thick and thin, but here I will focus on the botanical mission that was the impetus for my journey. I am immensely grateful to Josh for being my guide and interpreter, as well as providing me with his photos and footage from the trip.

I had long been curious about this corner of the southern hemisphere because of its climatic parallels with the West coast of North America. Southern Chile is home to a treasure-trove of broadleaf evergreen trees and shrubs well-adapted to cool rainy winters and warm dry summers much like our own here in Cascadia (Cistus Nursery outside of Portland carries a number of hardy Chilean plants). And it is the refuge of one ancient and incomparable conifer, *Araucaria araucana*, known to its human dependents as *Pewen*, or among the Chilean populace as simply 'Araucaria' (for the sake of simplicity I will use that name for the purposes of this blog post).



A stream in Araucaria country near the village of Cruzaco, Araucania State.

In the Northwest one may spot the occasional Araucaria, or as we call them, “monkey-puzzle”, towering over an old Victorian house in Seattle or Portland like some giant alien about to go stalking through the streets in search of prey. Part of the reason they look so strange is that they are usually found alone, and this is regrettable. Being dioecious, the trees are male or female individually. They need to be together, at least within a few hundred feet, so that the male’s pollen can reach the female’s seed cones and create viable, edible seeds. Even before I learned of their incredible value as a food crop, the Araucarias fascinated me with their unique appearance, their uncompromising architecture armored in sharp reptilian scales.



In 2010 some Alaskan friends of mine in Portland had a band called Monkey Puzzle, and I recall doing some tentative album-cover sketches. Shortly afterward it was decided that the name was not sexy enough, they became Animal Eyes, and are still making music to this day. (<http://animaleyeband.bandcamp.com/>)

So I wanted to see this tree in its native land. I had read here and there of its crop potential in permaculture publications, but it seemed like a long shot, planting this slow-growing oddball creature in hope of someday harvesting nuts. But what information there intrigued me, the trees' great longevity and resistance to fire and drought. We are daily bombarded with the looming threats of global warming, prophecies of fire and drought. What if I told you there is a crop that has survived every climate catastrophe since the Jurassic while feeding everything from Triceratops to parakeets to Homo sapiens?

I had not located any of the few pollinated female specimens in the Northwest from which to gather seed, and anyways I wanted the choice of seed from an entire forest, from the biggest and healthiest specimens. I went to Chile with two little permits from the USDA, a #587 for importing small lots of seed and #621 for carrying endangered species. The Araucarias were logged extensively in the 20th century for their excellent straight-grained lumber, and are now justly guarded as the precious heritage of Chile and the world.

Throughout southern Chile, it is not uncommon to see thrifty young Araucarias growing in front yards and even median strips. The national tree, it acts as a sort of patriotic symbol alongside the Chilean flag, or more significantly, as a symbol of Mapuche heritage and culture:



Mural with young Araucarias

After traversing the warm, fertile, lower-middle section of Chile from Santiago to Chiloe, through apple orchards, seaweed beaches and dusty backroads, we found our way to the mountain haunts of the Araucaria. At first, I could only see them distantly, pale trunks and dark palm-like crowns lining the ridge-tops above steep valleys swathed in broadleaf forests. For days I strained my eyes staring upward at these reclusive beings.



On the mountain pass to Icalma I got my first close look, after hours of winding upwards on a tortuous gravel road. Passing between these plated pillars, these wizened sentinels of the former

world were a revelation, like traveling through a gateway in time. Their form has changed little since the Mesozoic era, when Brachiosaurus may have chomped at their new shoots, and pterodactyls roosted in their crowns. Fossilized seed cones nearly identical to those of today are commonly found in Argentine Patagonia. Here they stood, bedecked with pale streamers of lichen, scaly limbs stretching out into space, wind-firm and arrow-straight atop the rocky crags.

In the dusty mixture of forest and rangeland around Icalma, among rocky hills and cool blue lakes, we met with *Pewenche*, the people of the Araucaria. I knew from my research that the seeds should be ripening by early March, and I was not disappointed. After weeks of backpacking and bus rides and sidetracks, we found this manna from heaven.



First we stopped at a little restaurant advertising puree de pinones, as the nuts are called. My only knowledge at this point of the actual taste of the tree crop I had flown thousands of miles to study, was only what I had read in books and articles. The puree was delicious, like mashed potatoes but thicker and with a richer flavor. As I savored this mountain sustenance, staring at carved wooden stirrups and a stone mortar and pestle on the windowsill, the 8 year old son of the restaurant's owner appeared at our table and handed my brother and I four large pinones. It seemed somehow fitting that my first collection of Araucaria seed was given to me by a child.

On a local's tip, we went a little further down the road, almost to the border with Argentina, to the hamlet of Cruzaco, to meet the harvesters themselves. Here the Araucarias grow in open groves in light, volcanic soil, with very sparse ground cover of grasses and shrubs nibbled by livestock. Young trees seemed underrepresented in proportion to mature specimens, and I wondered if goats would chew even their spiny foliage. But the saplings I did see appeared healthy, and it strikes me that Araucarias could work well in pastures. The light shade from their high crowns would scarcely inhibit the grass, the thickness of their mature bark armors them well against livestock, and any excess seed would be readily devoured. The locals attest it is good food for anything from chickens to horses.



In the dust of late summer it felt like high desert, only the size of the trees attesting to abundant winter rainfall. It was dry and sunny, and a strong breeze blew intermittently. We could see full cones high in the crowns of the trees, and here and there pinones were scattered on the ground where a cone had begun disintegrating. We sampled the raw nuts and found them good, with a crunchy texture like a fresh radish or carrot, and a nutty flavor that some liken to jicama or adzuki bean. They are mostly carbohydrate, like chestnuts, with some fiber, and sugar and small amounts of oil and protein.



We met a man walking down the road pushing a bicycle with an oscillating hedge trimmer tied to it. He graciously answered questions from the two grubby and sunburnt gringos, and led us back to his father's house to have lunch. We were treated to horsemeat, fried bread, and mate, and the older man, Manuel, brought out his gear for harvesting pinones. There was a 100' length of rope with a

small iron weight at the end, and a sack tied round the waist for gathering. At the first tree we came to, Manuel began deftly twirling the weighted rope around his head, then took aim at a cone and let go. It was a direct hit, and pinones rained down like confetti. With subsequent throws he flipped the rope over this branch or that, shaking it to loosen more seeds from their cones:

This footage will be part of a documentary Josh is putting together about the struggle for Mapuche land rights, and the audio is still being edited and translated.

In a few minutes of picking them off the ground we had several kilos of pinones, and headed back to the shade of the ranch house. “How much is your permit for?” Manuel asked me in Spanish. “Two and a half kilos” I replied (five pounds in fact) and he weighed out a sack on a scale and handed it to me. I knew I wanted more seed from other trees for the sake of genetic diversity, but this generous gesture struck me as a sign of abundance. Manuel and his son were not rich people in monetary terms, having their sheep and goat flocks, a horse and a bicycle, but no car. But they weren’t starving, and sacks of pinones could be had for no more than the work of harvesting, no irrigation, weeding or fertilizer needed.

On our way back to Icalma, we saw more people harvesting, filling the back of a pick-up truck with sacks of pinones. A woman who gave us a lift in her Subaru station wagon said she was going to make a fermented beverage from the juice of the nuts. Unfortunately we weren’t able to find any ready to drink. I heard of the nuts being threaded on strings for storage, or buried in pits for years at a time, but these aspects of storage and cooking I would like to study more. In 20 years time when my own trees start producing, perhaps I will make another trip to Chile. This blog has more interesting angles on the culinary process: <http://eatingchile.blogspot.com/2009/03/eating-pinones.html>



From Icalma we headed for Conguillio National Park, to see the old-growth Araucarias in a place untouched by livestock and chainsaws. Another long and bumpy ride took us back to Melipeuco, and then into the mountains around the great Volcan Llaima. In the center of the park lies a pristine lake created when a lava flow dammed a river some 800 years ago.

This Lago Conguillio is surrounded by a marvelous mixture of forest types, from Araucaria seedlings sprouting out of bare and baking pumice gravel, to 200' giants looming out of shadowy old growth. The name 'Conguillio' itself apparently translates from Mapudungun as 'water and pinones', describing the two essential resources found in abundance in this mountain refuge.



Getting nutty in a prehistoric forest.

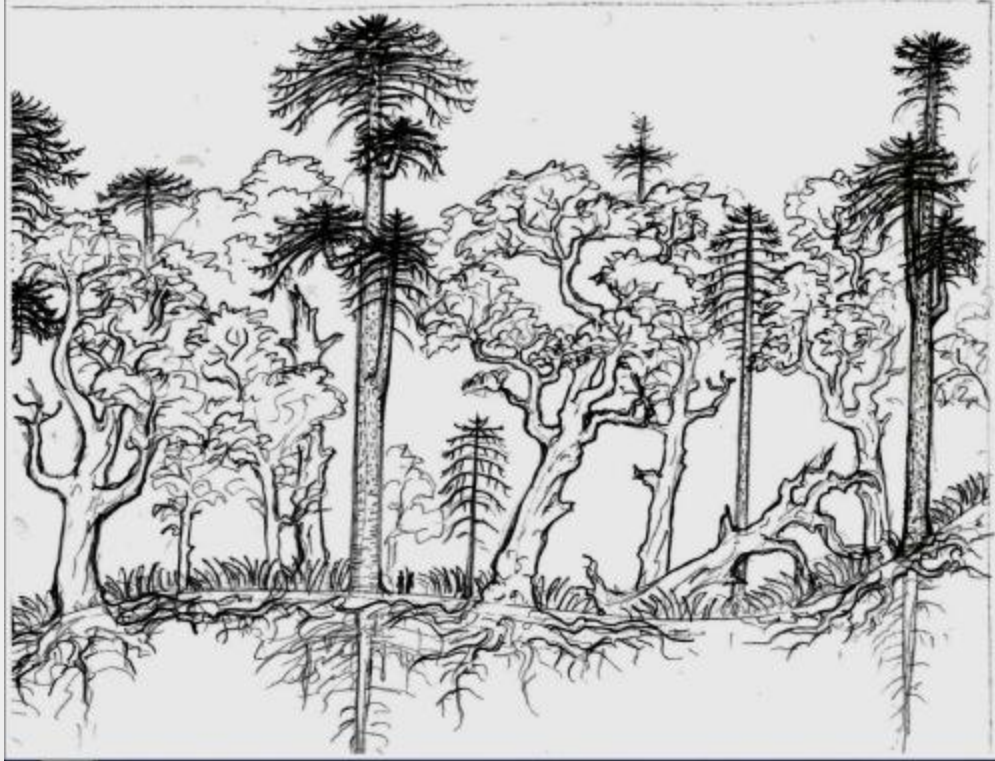
The Araucarias seem to form pure or nearly pure stands primarily on recent lava flows and steep ridges but also intermingle with broadleaf evergreen forests. In more fertile, moist, and sheltered sites, various *Nothofagus* species seem to gradually take over given their greater shade tolerance. Meanwhile a type of native bamboo often dominates the understory in these more mature forests (I believe this was *Chusquea culeou*).



Old-growth Araucaria with bamboo understory.

On the low ridges between Lago Conguillio and a small, marshy lake to the west, along a trail called “Los Carpinteros” after the native woodpeckers, we found ourselves in a truly majestic forest. Dominated by ancient Coigues with gnarled trunks up to 8’ in diameter and perhaps 150’ in height, it was interspersed with giant Araucarias with scaly trunks straight as pillars and emergent crowns looming 200’ high. The largest of them is known as ‘Nuka Pewen’, is over 7’ in diameter, and estimated to be 1,800 years in age. When they reach this massive size, the bark of the Araucarias reverts from hexagonal plates back to a smoother surface with horizontal wrinkles, like the foot of some humongous dinosaur. Mosses and lichens grew everywhere on the trees and in the verdant understory, creating a tapestry of transfixing beauty. It was with reluctance that we left that magical ancient forest.





My sketch from memory of the forest structure. The figures to the left of the large Araucaria give a sense of scale.



Old-growth nearing 200' high



A medium-sized tree growing in the sharply-draining soil of an old lava flow.



An abundant crop of cones.



A crop for the future: Araucaria seed cone.



What does the future hold for this ancient species?



My seedlings from Chile, organized by provenance.

Having returned safely to my island home with around 200 Araucaria seeds from large and healthy trees, I am keeping them watered in a cold frame and eagerly watching their progress. They seem to germinate most readily when just the tip of the nut is stuck into the soil, leaving most of it standing above ground and exposed to sunlight. They are not dormant but require warm temperatures before they will sprout. Plant them out in well-drained soil and a sunny location. Once established they are very drought-tolerant and also wind-firm. When thirty years have flown by and you wake up with

gray hair, you may be pleasantly surprised to find a scaly herd of saurian trees showering you with sustenance and a promise to outlive you by millennia.