



Environmental Review: Argentine Ant - *Linepithema humile*

I didn't do the dishes last night. After a long day of back-to-back classes, office hours, readings, carbon footprint analyses, and a beer with a discussion around seafood, I just couldn't do it. There wasn't a terrible amount of dishes in the sink. A dirty coffee mug, a Tupperware with some bolognese smears, and an emptied compost container from our camping trip this past weekend. I had planned to wake up early and take the dogs for a walk before starting my day anyway, so I decided to do them the following morning.

My alarm went off at 6:00 am. It was still dark outside, but the feeling of waking up with a smidgeon of sunlight on the horizon brought a smile to my face. As I rose, one of the dogs stole my spot on the bed before I could even remove myself from the covers. Like most dogs, she relishes her owner's smell and warmth. She's a good dog. I walked down to the kitchen to make a shot of espresso and remembered that I had left the dishes from the night before. "I should probably do those."

Something else was doing the cleaning for me. Thousands of those 'somethings' swarmed the bolognese smear like it was the last food left on this planet earth.

I flicked on the light and shuddered at the sight. A swarm of Argentine Ants roaring out of the tiniest crack in the cupboard like the Santa Ynez River after the first big rain in spring. "Good god, not again!" I said to thousands of small black specks. My slow morning was replaced with the culling of thousands of ants. As I wiped up the carcasses, I had a couple of thoughts: How many ants did I just kill? How big is this colony? How many more times am I going to have to do this? The Argentine Ant will be back. They always come back.

The Argentine Ant, *Linepithema humile*, is native to South America and has spread worldwide through seafaring cargo shipments. Now, it is invasive on 5 continents, excluding Antarctica. Invasive Argentine Ants have been found to not only be annoying house pests but also completely change invertebrate communities, with Californian ant colonies being of particular interest.

Actually, a colony is a misnomer. Scientists have discovered that the California chapter of the Argentine Ant is unicolonial — otherwise known as a supercolony¹. These supercolonies consist of a network of hundreds or thousands of nests, each with multiple queens. This results in low genetic diversity, meaning worker ants' aggression is nonexistent, and free movement between nests connects ants on a massive scale. All energy that would have been used by territoriality is exchanged for making more ants. In South America, Argentine Ants have much smaller colonies with intense territoriality. The biggest of these colonies is called "The Very Large Colony". This colony spans from Baja California to Sonoma County in Northern California and consists of an estimated 1 trillion ants. The weight of these ants is similar to the weight of 20,000 adult humans, or slightly less than the undergraduate population of the University of California, Santa Barbara.

There are multiple supercolonies in California, and two of them share a border in San Diego. "The Very Large Colony"² and the "Lake Hodges Colony" have been observed fighting a border war in Escondido, CA, since scientists discovered them in 2004. They estimate that around thirty million ants die each year on the front line — that is more than the total human loss in WW1. It is unclear how long they have been fighting for. The two supercolonies gain and lose territory in a back-and-forth struggle for supremacy that outlines the massive amounts of ants each community has in its armies.

These ants are not just destructive to their own rivals, but also completely change invertebrate communities, resulting in damaged native ecosystems. Where Argentine Ants thrive, native ant species are outcompeted. This loss of native species results in the decline of important plants that rely on native ants for seed dispersal, insectivores that rely upon native ants, and allows for scavenger species to thrive due to increased biomass of dead invasive ants. Argentine Ants have also been found to feast upon the larvae of important pollinator species. The sheer number of these invasive ants is enough to completely disrupt natural ecosystems.

Dr Mark Moffett, renowned ant researcher, explains how large populations can get so much done: “[Ants] actually have chain reactions that can lead to mass actions that are very intelligent. So that even though a single ant may know nothing of what's going on, as a group, the whole response leads them to go to the best food at the best places. It's this mass reaction that makes ants smart.”

The combination of massive numbers of worker ants, multiple queens, and a lack of territoriality with other colonies makes for one terrible competitor for my attention. Cleanliness must be complete. Laziness with dirty dishes must be nonexistent. Ruthlessness in ant extermination must be inconsiderate. Yet, there is a beauty to their success. Such cooperation towards a common goal must be admired. I'm starting to think like Dr. Moffett.

I like to imagine an ant society tackling a 'wicked' problem, such as climate change, with the same tenacity as they scrape off bolognese from my sink. I am sure that they would be able to decarbonize the world without one ounce of governance issues.

The dishes are done. I can move on with my day. I am sure that this isn't the last time that I will be dealing with these ants. At least next time I clean them up, I can daydream about the great clash of invasive ant supercolonies in San Diego.

I give the Argentine Ant two stars. They have admirable tenacity but they can take that tenacity out of my kitchen.

1: Dr. Mark Moffett researched Argentine Ant supercolonies in California and published a paper in 2012 about their societies. He also wrote “The Human Swarm: How Our Societies Arise, Thrive, and Fall”. I'd love to watch the 1954 movie Them! about mutant ants with this guy.

2: Dr. Ted J. Case discovered “The Very Large Colony” as he studied precipitous declines in coastal horned lizards in California. When they went to Argentina to study the ants in their natural habitat it was incredibly difficult to find them. Maybe if they had left their dishes out overnight they would have had better luck.