

On Two Adventurous Snails

by Anne Whitehouse

This week, I had a moral dilemma with a snail. I was walking across campus at night between bouts of rain, the brisk, humidified air invigorating my soul. As I walked across the quad, I looked at what I thought might be a leaf, and thought about stepping on it, only to realize at the last second that it was a snail. Two snails had ventured out of the planters and onto the sidewalk, driven to higher ground to seek safety from the continual downpour that had started to soak and potentially flood their comfortable flowerbeds.

I wasn't in any kind of hurry, so I stopped and crouched down on my heels to observe the snails more closely. There was no sunlight left in the sky, but the lamp along the sidewalk illuminated the snails. They were beautiful. They glistened in the wetness of the rain, the sparkling pavement, and their own mucus secretions.

I associate life with wetness. Life is where there is water. This is perhaps an even more poignant fact in the desert of Utah Valley, where I am watching these snails. Where there is life, there is beauty. In an oversimplified formula, more water means more life, which means more beauty. There are exceptions to this formula, of course, but I have a Pacific Northwest bias for soggy beauty. These wet, moist snails shimmered with it. I was captivated, even as my legs and ankles started to cramp up.

Ordinarily, when I come across a snail or a slug that has emerged onto the sidewalk after a rain, I return the creature to its now dry and safe flowerbed, seeing no need for them to make themselves vulnerable out on the pavement. Crushed snail shells are always a little heartbreaking, and a squished slug is, if nothing else, a mess. But the showers were intermittent that night. Placing the snails back in the flowerbed might have drowned them, putting them at a greater risk than being on the sidewalk where preoccupied students and faculty may have only noticed the snails when they felt the crunch beneath their shoes.

As I contemplated the situation, I poked one of the snail's shells, perhaps out of some sort of desire to make the snail acknowledge my presence. It retreated partially into its shell; unsurprisingly, I had elicited its defense response. Snails aren't terribly curious when it comes to contact with larger animals. Their instinct is to hide because nothing good ever comes of an encounter with a creature several hundred times their size. It's written into their evolutionary history. Natural selection weeded out the curious ones or the naïve ones that would approach a larger animal.

What worried me about this snail was that, over the few minutes that passed since I poked it, it had sort of emerged from its shell but had stopped its progress across the pavement. It hadn't even inched forward a little. Its companion (who was still blissfully unaware of my presence) was cruising across the sidewalk at a pretty good clip. For a

snail, anyway. It stretched out its tentacles (the protrusions that look like antennae near its head) and glided across the mucus it secreted beneath its body, its foot rippling over it in a wave motion. No waves, ripples, or gliding from snail #1. And I think it was possibly my fault.

I decided to move it out of the walkway, not knowing how long it could be paralyzed with fear or instinct or whatever it was that had it stopped. I pulled on the shell gently as the snail retreated again. It held tightly to the pavement with its foot, but with repeated tugs, I finally broke the seal between the mucus and the pavement. As I held him, he reacted to the novel situation by coming out of the shell and trying to ripple his foot in the air, stretching out for a point of solid contact. Was there a little streak of curiosity still in the gene pool? He found no solid ground and made another retreat.

I put him down behind the lamp, and he sat there motionless for a while before coming out of the shell again. I hoped he would keep that sense of caution on future sidewalk adventures. My attention was turned again to the second snail, who was boldly gliding toward the center of the thoroughfare. There weren't many pedestrians at this hour, but most people don't watch for adventurous snails on the ground in the dark.

I stood there, wondering if I would follow my practice of "saving" the snail. I stood for a few minutes, debating. Something in me wanted to let it keep going. To let it figure out what a sidewalk is and what it means. To let it go find an adventure and encounter something new and strange. I know this sounds trite—it was just a snail. We don't know much about animal cognition, but I doubt the snail would have had any novel "thoughts" when treading new terrain. They're even considered pests in gardens--many people would crush its shell and body on purpose with few qualms.

Do I have an obligation to let natural selection run its course and let the snail experience the consequences of its actions? Am I really doing the snail any favors by moving it? If it helps the individual, is it helping the species? Is a common garden snail even worth saving? I'm not sure any of these questions have good answers. As a society, we seem to have decided that some animals are worth saving (spotted owls, pets, bald eagles, manatees, etc.) and some are not (mosquitoes, livestock raised for slaughter, maybe snails, wild rabbits, starlings). Often my own personal sense of ethics dictates that any senseless loss of life that I can prevent should be prevented, whether it's the life of an insect or of a human being. Is the life of an endemic mammal really worth more than the life of a snail? What makes us think we can measure that value? Through this, I have entertained the supposed experiential needs of a snail. Are these perceived needs real?

I'm sure whoever ordered the sidewalk on campus never imagined it would pose a threat to adventurous snails. But at least the snail had a response for potentially dangerous interactions, even if it's potentially ineffective. There are some creatures without a good defense response for certain interactions. In behavioral ecology, this phenomenon is called "prey naïveté". An excellent example of this is the Galapagos marine iguana (*Amblyrhynchus cristatus*).



Not quite as lovely as a snail under lamplight after a rain. But it's the only marine iguana in the world. The ancestral terrestrial iguanas migrated from mainland South America to the Galapagos Islands millions of years ago, and since then the descendants have evolved into their own species. Their squashed snouts are specialized for grazing on seaweed. And they have grown used to life without predators.

But the worry-free life may be coming to an end. Recently (on an evolutionary time scale, which is to say in the last hundred years), a species has been introduced to the islands: *Homo sapiens*. It's not the people themselves that the iguanas have to worry about so much as the cats, dogs, and rats they bring with them. These feral animals eat the eggs of the marine iguanas and can spread foreign disease. The marine iguanas do not have the instinct bred into them to avoid these new, strange creatures. Some of them are even foolish enough to be curious, and approach these threatening invaders. They say curiosity kills the cat, but sometimes it feeds the cat and leaves a pair of iguanas with an empty nest. This apparent naïveté of a species is not confined to the Galapagos—it's a phenomenon observed in many species in isolated island ecosystems all over the world. Strides in understanding this kind of behavior are relatively recent. Some animals can learn to respond to new threats through experience, but every species is still tied to its biology and its genetic heritage. And there's no gene that tells *Amblyrhynchus cristatus* to beware of cats.

Conservationally speaking, invasive species are typically seen as a mistake that we humans need to fix, considering how our actions put species and ecosystems in peril. In an ideal world, conservationists would have left those islands alone and kept those iguanas ignorant of the existence of cats. But is the iguana really better off left in its ignorance? Is the snail really better off safe in the planter? These species would surely survive if left alone, but it's too late for that. Our presence in their lives has changed their world. So do we bag up all the cats and protect the iguana from the dangers of the world...or do we let it get on the sidewalk and risk being stepped on, letting evolution play out?

In North America, the conversation on wilderness has been going on for over 100 years. In fact, there are two thick anthologies published on the “Great Wilderness Debate,” and that’s only a fraction of what is out there. It is complicated philosophically, scientifically, and practically; I am a relative newcomer to the conversation.

I try to wrap my head around things. Our wilderness areas are a testament to our belief that natural things operate best if we keep our hands off and just let them be...sort of. Wilderness areas are still extensively managed. There are trails to maintain, ecosystems to study, resources to understand, and species to try to preserve. We make many well-intentioned, scientifically-informed efforts to keep wilderness like we think it’s supposed to be. It’s an interesting paradox; wilderness, the place where the people *aren’t*, will probably cease to exist without people doing something about it.

Keeping our hands off is certainly a romantic idea—among other things, it seems to be our way of clinging to the wide-open Western frontier that we don’t quite want to accept has all but disappeared. There’s a sentimentalism that goes with wilderness advocacy, and, being a sentimental person, I strongly sympathize with it. I can at least *imagine* that a protected forest has survived the centuries untouched by man, and I can *imagine* that it is entirely its own, existing only by virtue of “natural” processes. We can do a lot of good with this attitude; we can preserve beautiful old-growth forests. We can maintain some part of that delicious isolation one feels in the desert. We can make our mountains the symbols of the best parts of ourselves.

There are many wilderness advocates out there who think we’re managing wilderness too much, and that we ought to remove ourselves completely from those places. The landscape may be “damaged” and we may lose species, but we’d be keeping it and its inhabitants *wild*, which is one of the main reasons we protect them.

As much as I love the idea of letting the wild be wild, I’m not so sure that’s possible. Nature doesn’t distinguish between wild and not wild. It just is. So wilderness, a human concept for a non-human phenomenon, only exists as long as people continue to care about the distinction between “wild” and “non-wild”.

When did we decide that we weren’t a part of wild nature anymore? Was it when we started building cities? Maybe it was when we hunted all the wolves in the Old World to extinction and stopped being afraid of the woods at night (sort of). Perhaps it was when we developed indoor plumbing and started to use electricity, moving into safe homes protected from the elements and the outdoors. Was it, possibly, when we decided there was wilderness, which we later defined as a place “where man himself is a visitor and does not remain”?¹

To define a creature or place as “wild,” it seems that a certain naïveté to humans and human presence is necessary. According to some, the ideal for a wild snail would be for it to not know what a human being is at all. We purposefully remove ourselves from ecological webs and look at species interactions and population dynamics in relation to the “ideal” natural setting—a setting without humans. Does it have to be this way?

We aren't the only ones who affect the ecosystems around us. Limpets are marine molluscs and this species of limpet, in particular, does something few other limpet species do. They garden.



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Gardening limpets develop a close association with a particular species (or sometimes more than one species) of algae. The ammonia in their excrement fertilizes this algae. They keep the place well-watered at low tide by releasing water from beneath their shells. They weed their gardens by removing “foreign” algae from their territories. They even partially graze their choice algae periodically to maximize the algae’s growth rate and edibility. They aggressively defend these gardens from other grazers—I know these little guys look like lumps on rocks, but they can be feisty.

A limpet can manipulate its little patch of land to its advantage and develop a relationship of sorts with that spot, so calling it a “gardener” is truly fitting. It is not too unlike we are—it decides which species live and die, it raises desired species for consumption; it seems to have no problem with essentially controlling the other living things that inhabit its sphere.

Our sphere of influence is a lot bigger than a single limpet’s. We have the power to completely change nearly any ecosystem we encounter—in fact, we can’t seem to help it. Despite efforts to make as little impact as possible, we still end up damaging vegetation at the edge of trails, allowing bears to associate people with food, and altering climate on a global scale. We are troubled with our role as agents of environmental change because we’ve proved that we can cause damage, and our awareness of our capacity for change invokes ethical concerns. The limpet isn’t aware of much outside his garden, so the ethics of the situation goes over his head (shell?).

We can still learn from the limpet’s positive manipulation of its environment. Accepting that we are a part of nature and accepting that we can change the nature around us would probably mean letting go of some parts of that romantic wilderness concept. Wilderness could no longer exactly be defined by the absence of humans. We would have to let go of

dreams of unmanaged forests and ideas of completely “wild” animals. We would have to acknowledge that perhaps we, ourselves, are wild. In this acknowledgement, if everything on Earth is wild, then maybe nothing is, which is a troublesome and dangerous idea.

Can it be okay for us to intervene? To protect the places we care about, maybe we have to become gardeners—perhaps that’s our niche. Most conservationists have already accepted this and are embracing the struggle to fill that role well. Maybe we have to reintroduce wolves. Maybe we ought to plant whitebark pine seedlings with genetic resistance to fungus in the wilderness. Maybe we have to have controlled forest fires regularly and maybe we have to release captive-bred California condors into the wild every few years forever. Maybe we have to put the snails back into the planter or maybe we even have to crush the snails in the planter to preserve the plants they prey on. It depends on what kind of garden we want. It’s a very anthropocentric, even presumptuous idea, if you think about it. But it restores our role of belonging to the web of life. Perhaps we can learn to be good gardeners.

But I’m not a gardener quite yet. I’m still idealistic and sentimental, enthralled by the non-human others that fill our Earth, thrilled by the existence of something that is not us. And, that night on the sidewalk, the snail stretching forward was still beautiful, the wetness accentuating the detailed texture of its tender skin. I wonder if sometimes we do intervene too much, and perhaps we ought to trust that the animals we’re trying to protect might figure out something we couldn’t to adapt to a new world.

I’m not exactly sure why, but I did defect from my tradition of “rescuing” the snail. I left the snail, telling it out loud that it had better be good and take care of itself. It stretched forward, pushing slowly into the unknown.