

A Fate Worse Than Salt

Written by Jessie Princevalle

Photography Courtesy of Dr. William P. Leonard

Propelling with a single muscular foot, the snail marks its path with a silvery streak of slime. Scoping the scene with a pair of perky tentacles, its teeth roll outward to scrape and scoop bits of fungi from the forest floor. Could it be the Knobby Rams-horn, or the Cinnamon Jugga? Maybe it's the Masked Duckysnail or the Burrington Jumping-slug. Odds are it's just your typical pesky garden snail, chomping on the perfectly plump sun-ripened tomatoes. Beyond the safe confines of the garden, protection for some of these elusive, endangered mollusks is moving at a snail's pace.

The **Center** for Biological Diversity, along with four additional environmental organizations, submitted a petition to the U.S. Fish and Wildlife Service to add 32 Pacific Northwest slug and snail species to the Endangered Species List. To this day, more mollusks have gone extinct than any other large group of animals. They have yet to gain protection by the federal government.

"They're on the operating table and they're about to die, said Dave Wentz, science and conservation director at Conservation Northwest in Bellingham. "You want to make sure you have the best doctor in the room to prevent these species from getting worse.

Rigorous habitat destruction, primarily due to logging, gave mollusks a spot in the 'emergency room' with undivided attention from the best doctor – in this case, protection by the Endangered Species List. Other contributors to their decline include recreational development, road construction and maintenance, cattle grazing, wildfires and urbanization, according to the official petition. Conservation biologists and environmental organizations hope the act will protect and repopulate the underdog species and prevent future extinction.

"Whether you believe that each species was created individually by God or whether you think that a species ended up here as a result of evolution, we need to protect them simply because they exist and we share the planet with them, said Tierra Curry, conservation biologist for the **Center** of Biological Diversity. "All species are inherently deserving of protection and I think snails have the same right to exist.

Despite their petite size, mollusks serve a significant role in the environment than they are often credited for. Slugs and snails are primary consumers in the food chain, meaning they prefer to chomp on greens. They're also food for birds, snakes, amphibians, small mammals and even humans.

As master recyclers, mollusks use rows of retractable teeth to devour microorganisms, plants, fungi and decaying material and turn them into food for other invertebrates, fish, amphibians, reptiles, birds and mammals. According to "Field Guide to the Slug, these small creatures are constantly growing new teeth and bare more rows of pearly whites than some sharks. They also recycle plant and animal matter in soil and water, which not only improves the water quality but also replenishes nutrients in the soil.

But beyond their daily duties in the ecosystem, one coiled creature in particular is charming its way to stardom in the scientific world. The Crater Lake tightcoil, a snail exclusive to the Pacific Northwest, can survive under thick blankets of snow in subzero temperatures thanks to its own natural anti-freeze solution. Given federal protection, this microscopic mollusk, barely measuring a quarter of an inch, could ignite impressive technological advancements.

The 32 petitioned species are located throughout an estimated 24 million acres of old growth forests in Oregon, Northern California and Washington. The petition includes 17 aquatic species and 15 terrestrial species.

Necessary to the survival of the aquatic species is an unpolluted, frigid flow of water. The remaining land species thrive in cool, damp environments with rich ground vegetation and mild sun exposure. According to "Field Guide to the Slug, all species can crawl about .025 miles per hour; this means a slug would have to creep and crawl for more than a day and a half to go one mile.

"They represent something really marvelous about life, Wentz said. "These animals can live for such a long time and so many hundreds of thousands of generations, and become specialized to a particular piece of ground.

With their limited mobility comes another factor feeding into their steadily declining population: inherently low

reproductive rates. Living anywhere from one to ten years, some species reach sexual maturity within a matter of months, while others require up to three years to develop. Once a mollusk has reached its prime, it's equipped with both male and female genitalia. But it still takes two to tango. Upon meeting their mate, the two mollusks spend several hours engaged in a pre-intercourse ritual of slithering around one another in a circle, swiping their tails to and fro. Once the deed is done, anywhere from three to fifty eggs are laid in a cool dark place, as noted in "Field Guide to the Slug. For some, reproduction is a once-in-a-lifetime event.

Their low reproduction rate makes them especially vulnerable to extinction. When the Northwest Forest Plan's Survey and Manage program was abolished in 2007, mollusks were denied further protection. When intact, the plan embraced the conservation of both rare species and those that have little-known about them. It also required loggers to review a specific list of species, including both vertebrates and invertebrates, while surveying potential logging sites. According to the Center of Biological Diversity Web site, the Bush Administration cut the project to make way for logging initiatives. Without federal protection, Northwest mollusks are flirting with the possibility of extinction.

Because of logging, land-based slugs and snails face a reduction in canopy cover, an increase in ground temperature, decreased soil moisture and a transformation in the overall microclimate, according to the official petition. The aquatic species also struggle when trees are removed because water temperatures increase as a result of added sunlight exposure. Rising temperatures also have an adverse effect on dissolved oxygen levels in the water, according to the Center for Education Technologies Web site. And without adequate oxygen, mollusks suffocate.

Chris West, a member American Forest Resource Council, said logging is not to blame. Even though the Survey and Manage Program is no longer in effect, the law still demands loggers check for a specific list of endangered species and other vertebrates before clear-cutting. Invertebrates, like the 32 species of Pacific Northwest mollusks, didn't make the cut.

"The environmental impact statement says blatantly that the program was cancelled to increase logging because it was interfering with desired logging levels, Curry said. "They didn't hedge at all with why they wanted to get rid of it. They wanted to be able to log more old growth timber.

But West said their intent is not to log the last of the old growth forests, especially since 85 to 90 percent of the timber is off-limits to loggers. Although West believes in protecting species and honoring their right to live, he also said he values the benefits of logging. Unlike brick, steel, concrete and aluminum, wood is a renewable material. Whether or not the mollusks are added to the list, he said there will always be an extensive process for surveying wildlife habitat before logging.

Sue Casey, region support leader in the forest practices division of the Department of Natural Resources, said the decision to harvest land is not dependent on the age of the trees, but their location. In order to be a candidate for logging, sites cannot include critical habitats – environments essential to a particular specie's survival.

Curry said most of the old growth forests, older than America itself, have already been destroyed. If protection of the last old growth is compromised, the environmental impact could lead to huge ramifications throughout the food web.

"The petitioners are trying to use and abuse the Endangered Species Act, not to protect species, but to reach other objectives, West said. "That's unfortunately going to waste millions of dollars that the U.S. Fish and Wildlife Service could be using to protect endangered species."

Curry said her sole purpose is to save the scarce soil these unique mollusks inhabit. Whether they live in old growth forests is irrelevant. Curry said she would fight for the protection of their humble abode either way.

Regardless of any alleged 'secret agendas', Northwest mollusks are facing a sticky situation. For the next two years, the U.S. Fish and Wildlife Service will be reviewing the petition and discussing the severity of their condition. In the meantime, the Knobby Rams-horn, the Cinnamon Jugga and the 30 other at-risk species will be crawling the line, unarmed in their battle for survival.

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