Notes on rapid human assisted dispersal of the Pacific sideband snail in Thurston County, WA

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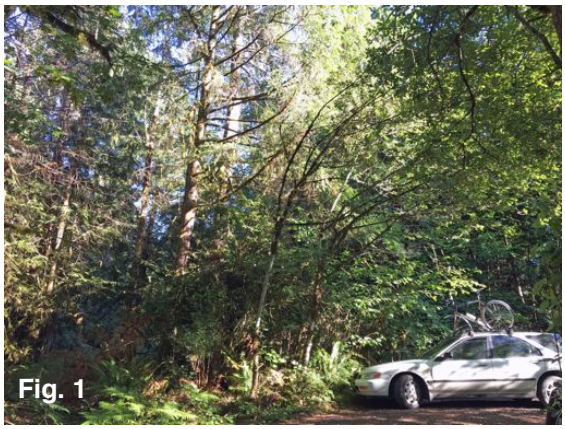
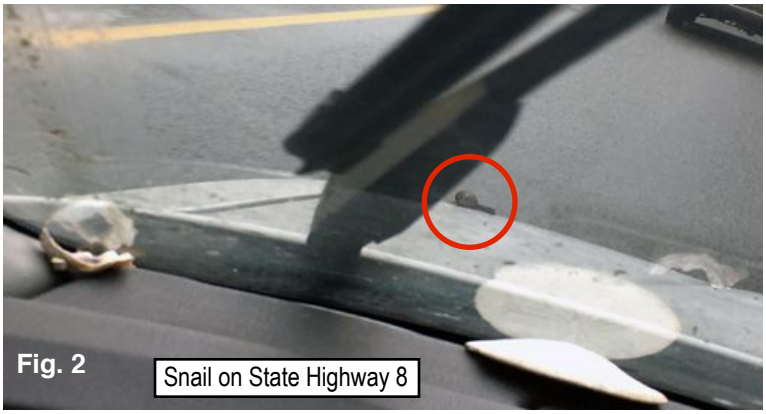
The morning of July 15, 2019 found overcast low stratus clouds hanging over South Puget Sound, temperatures in the low 60's (16 -17º C), and overnight showers following a long warm weekend, giving way to morning drizzle. I wandered to the car parked under an overstory of Bigleaf maple (*Acer macrophyllum*), Douglas fir (*Pseudotsuga menziesii*), Cascara (*Rhamnus purshiana*), and Beaked hazelnut (*Corylus cornuta*), and a shrub layer of Red huckleberry (*Vaccinium parvifolium*), sword (*Polystichum munitum*) and bracken (*Pteridium aquilinum*) ferns enjoying the cool moist morning. **Fig.1** As I left my location near Totten Inlet on the Griffin Peninsula of Thurston County at ~07:55, I observed a pulmonate snail on the extreme port edge of my car near the front wheel well. Likely the overnight precipitation had stimulated the snail from its dormancy and it had taken advantage of the moist conditions to move about.

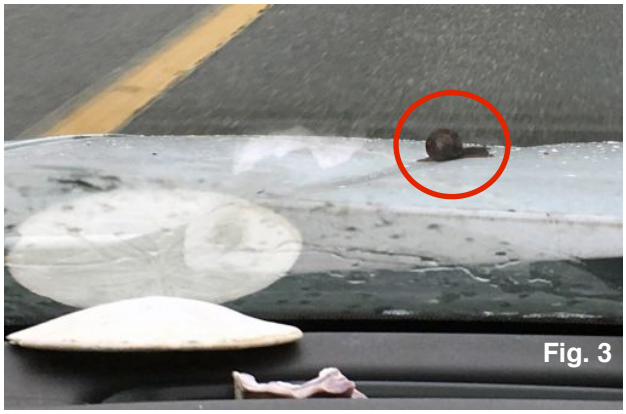


The car parked by the snail's natural habitat

As there was a car immediately behind me, I did not pause to remove and return it, and thought the snail would likely fall off as I approached the speed limit of 40 mph and become crushed crow food. However, this did not happen. In fact, the snail seemed totally unconcerned and continued along its path from port to starboard. I continued off the peninsula and then south onto Highway 101 traveling at a speed of ~65 mph. Further east the speeds varied between a maximum of 70 mph and slowed to ~30 mph as I neared Interstate 5. During the drive I tried to take several pictures demonstrating its tenacity and movement, but realized the danger and how law enforcement might not be sympathetic to my excitement over this observation and quickly stopped. **Fig. 2,3**



Snail on State Highway 8



During this time the snail continued to move towards starboard seemingly undeterred by the speed of travel, vibration, wind, buffeting winds from other vehicles, or what usually feels to me like an uncomfortably warm hood from heat dissipating off the engine. It is possible that laminar flow principles kept the air immediately next to the hood stable around the snail. However, with the variable speeds of driving and turning it seems likely that there was a fair amount of turbulence. Plus, whenever I leave a phone or wallet on top of this car this principle always seems to fail me.

As I approached my exit from I-5 in Lacey, the snail changed directions at about mid-car and started moving forward towards the front (grill) of the car until I arrived at my destination at approximately ~08:30. I then moved the snail from my car to a small Tupperware container with shriveled blue-berries from last week's lunch.

The snail was identified as a Pacific Sideband (*Monadenia fidelis fidelis*) snail measuring 21.7 mm in width and 15.0 mm in height with calipers. **Fig. 4,5**

Overall the car transported the snail 18.7 miles (30.1km) in roughly 25 minutes. The snail itself moved ~ 90cm across the hood of the car in the same period. Unfortunately the snail was able escape before I was able to return it to its place

An easy rider Pacific Sideband (*Monadenia fidelis fidelis*)

of departure. It is somewhere in a small enclosed area that needs cleaning and I have hope that I will be able to find it and return it before the summer is over.

This observation was interesting to me for several reasons:

A creature with what I perceive to have a small home range underwent a rapid human assisted dispersal event of nearly 20 miles in 25 minutes. Seemingly I could have driven to Canada, Oregon, or east of the Cascades with the live hitchhiker.

The snail's seeming obliviousness to the external stimulus including wind, vibration (1997 Honda ≠ smooth riding), light, and heat (from engine)

The adhesiveness of a snail's foot to a smooth surface at high speeds. Note in the images this was not a streamlined snail and it was fully exposed to the wind. I am curious if it would stay on a single prop aircraft.

This observation reinforces our need to understand mechanisms by which individual organisms may be dispersed across frequently traveled areas and help support rationale for observations of single native slugs and snails observed outside their typical range.