

THE NORTHWESTERN PERCOPSIS, THE SAND ROLLER  
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The order Percopsiformes includes numerous North American oddball fish. These resident weirdos include the six Amblyopsidae cave fishes, the swamp-loving Pirate Perch (Aphredoderus sayanus), and the relatively plainer family Percopsidae. Percopsidae contains only two species: the much more widespread Troutperch (Percopsis omiscomaycus) and the range-restricted Sand Roller (P. transmontana). In the past I had the opportunity to reside in the ranges of both Percopsis species, and therefore I will be making comparative observations throughout this article. Also within this article, I will report on an abortive spawning attempt that yielded apparently unfertilized eggs.

The Sand Roller ranges from western Idaho in the lower Snake River westward throughout the lower Columbia River, and also throughout the Willamette River drainage of Oregon. The spot map in the Atlas of North American Freshwater Fishes indicates sporadic localities. From my experience in catching these fish, I can attest that they are found in many drainages not indicated in the Atlas.

The upstream regions of both the North and South Forks of the Yamhill River contain the Sand Roller, as does the upper Tualatin River. It would be reasonable to speculate that the Sand Roller inhabits many more rivers of southern Washington and Northern Oregon.

The Sand Roller's scientific species name, transmontana, which literally means "across-the-mountains," perhaps suggests where some Troutperch crossed the continental divide before evolving into Sand Rollers. The Troutperch is found in extreme Northwest Montana, and the upper tributaries of the Columbia River which contain the Sand Roller also flow through Northwest Montana. This point of species transfer probably accounts for many western species, particularly cold-tolerant fish that could survive in these northerly climates.

The preferred habitat of the Sand Roller is highly variable, though shows some consistency. Young-of-the-year Sand Rollers, much like Troutperch, occur primarily in weed bays or waterways directly adjacent to the main river. Slightly older fish can be found in undercut banks hiding from the daylight. Under one three-foot bank, I once caught 25 Sand Rollers, and undoubtedly I missed several more (naturally I only kept a reasonable number). Adult fish are infrequently captured, but whenever I caught some, they were associated with eddies behind large boulders, logs, and bridge supports.

Wintertime in Oregon means relentless rains and poor collecting conditions. A stream barely knee-deep in late

summer could easily rise to 15-20' deep in winter. In late spring, as water levels retreat, many disoriented Sand Rollers of various sizes can be seen, especially via flashlight, swimming along the river's edge. Substrate can vary from mud to boulders, but most frequently there is a rubble-and-sand bottom with numerous native Elodea plants. Sand Rollers seem to be common where found. I have never caught them in streams that are consistently cool through summer. The streams where I have caught Sand Rollers could be best defined as small- to medium-sized rivers.

Sand Rollers make very good aquarium inhabitants, but several factors have to be kept in mind. Small fish will eventually grow much larger (to 5"), and, like Pirate Perch, they have a capacious mouth and are quite carnivorous. Needless to say, choose tankmates with care. Their water should be clean and contain some water flow to duplicate their natural conditions. Numerous plants and large rock caves will accommodate their nocturnal habits. Also, they can be slightly aggressive towards their own species, so limit crowding and provide adequate hiding spots. Frozen brine shrimp and bloodworms are eagerly taken as well as numerous live foods, including earthworms, live shrimp, and tubifex worms. They will mouth dried flake food but generally spit it out. Careful experimentation may yield a dried food that they will accept, as they are highly opportunistic in their feeding behavior. A pH of 7.0 to 8.0 is good, and summer temperatures should not exceed 80°F.

Older individuals respond better to capture and acclimation than do young specimens, especially the very young. (Troutperch are very much the same.) Handle young specimens as carefully as possible, use "Novaqua" or "Stresscoat" in the water you bring them home in, and keep them cool during transport. After acclimation, discern if fungus medication is necessary and treat appropriately.

While Sand Rollers are pretty much colorless, they do have several redeeming qualities. First and perhaps foremost, they are odd, acrobatic swimmers. They swim parallel to rock surfaces--horizontal, vertical, and occasionally even upside down. This tendency may be due to their nocturnal habits; this swimming allows them to "escape the light" at whatever cost. Sand Rollers also sport a cryptic type of dress (see illustration) that is somewhat appealing. The most distinctive feature is the black banding of the fins, most prominent in males during the night. Males have a blackened overall cast to their bodies. They are smaller and more slender than the females. The translucent qualities of the Troutperch are not evident in the Sand Roller. The latter is much chunkier than its eastern counterpart. So far I have not seen Sand Rollers rolling in the sand per their name, but I have seen them "rolling in the hay," so to speak.

In the early spring of 1990, I set up a prospective breeding aquarium of 40 gallons. Generic gravel overlaid undergravel filter plates, and a powerhead was mounted onto the undergravel uplift tube. Water flow was steady but not overwhelming. Numerous rocks and rock caves were formed throughout the aquarium, and in the area of least water flow I placed a large number of plastic Elodea plants. The Sand Rollers were conditioned on the aforementioned foods. Of the six fish I had, I believe that two were males and the other four females. Aggressive tendencies were clearly evidenced around spawning time, even amongst the females. Both sexes had taken up territories under rocks and cover, with the alpha male taking up residence in the premium caves. These "premium" caves were characterized by optimum capacity and strongest water flow. No substrate cleaning was observed, nor was any nest preparation evident. They did defend their territories with diligence, and many lower lobes of caudal fins were missing as a result of brief clashes.

The chief male's blackness intensified during spawning, though his spots and the black bands in his fins were still plainly visible. Females remain unchanged aside from obvious swelling from ripening eggs.

Every two weeks, a fifty-percent water change was performed. During these water changes, I would examine plants and gravel to detect eggs. In mid-April, I discovered several very large eggs, about 2mm in diameter, located on top of the gravel within a male's cave. Spawning would seem to start at 60°F and would continue through the lower 70s. Although I would consistently find eggs laid in the indicated area, and very rarely at the bases of the plastic plants, I never witnessed egg deposition. A male and female would swim alongside each other, though I never observed eggs being laid. Freshly laid eggs were notable for their strong adhesiveness when collected. Unfortunately, any eggs set aside all fungused. The Sand Roller apparently has a protracted spawning period, at least within an aquarium still exposed to local temperatures in Oregon from mid-April to mid-July. Indications are that Sand Rollers spawn on rocky bottoms as do their eastern cousins the Troutperch. My results are hardly conclusive, though, as my 2" males were probably too immature for egg fertilization. Currently I am making further attempts to spawn the species, and will report to NANFA any future successes.

#### References

- Lee et al., 1980. Atlas of North American Freshwater Fishes  
Page & Burr, 1991. Peterson Field Guide to North American  
Freshwater Fish

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