

Fairy Shrimps as Live Fish Food

By Joseph Boucher

Fresh water Fairy Shrimps are mostly cool water animals that inhabit temporary pools especially in the spring, such as those formed by snow and early spring rains. However, species from warm climate areas seem to appear whenever sufficient water is present long enough to produce a population, which takes about one month.

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There is 26 known species of fresh water Fairy Shrimps that inhabit temporary pools and ponds in North America. Such as *Eubranchipus floridanus* which is one of the smaller specie, growing to about ¼" and are native of Florida, and are common in eastern States and Provinces. *E. vernalis* grow to about ¾" and are common in central northern States and southern Ontario. *E. oregonus* are medium in size and are common in Oregon, Washington, and British Columbia. And there was a ½" unknown specie that was abundant in the prairy slews of Saskatchewan and Montana where I remember seeing them there in 1919. Other species living in southern areas thrive in higher temperatures, and may adapt themselves better to tank culture. Fairy Shrimps are usually found in isolated temporary ponds which are probably seeded with their resting eggs transported on the feathers of ducks and other water birds.

The Fairy Shrimps are easily recognized by their upside down swimming habit, like their cousin the Brine Shrimp, and their two stalked compound eyes, and especially their 2 pairs of leaf-like gilled legs which incidently are breathing organs. They closely resemble the Brine Shrimps, and have similar breeding and mating habits.

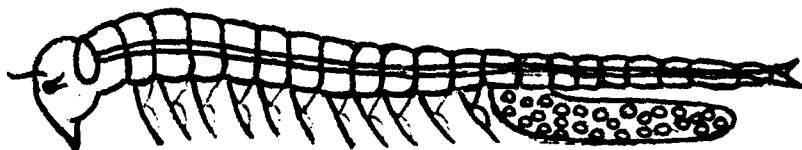
On account of their temporary pool habitats, they are not a natural live fish food, but like their cousin the Brine Shrimps, they are greedily devoured by all species of fishes. And being that they develop very fast, they make an excellent live fish food to culture, and they can be raised from their resting eggs, like those of the Brine Shrimps, and without the salt problems which makes it easier to culture them.

The water pH in their natural habitats may vary from slightly acidic to alkaline, but in cultures they seem to prefer a pH value from 7.0 to 7.6, which may be adjusted with Sodium Bicarbonate when it goes to acidic which usually occures. Their natural food consists of organic detritus, small protozoa, and solitary algae, when it has time to develop. The Fairy Shrimps are filter feeders, and can only ingest small particles of loose food and small swimming organisms.

They seem to appear sporadically in some pools, they may be abundant one year and absent the next year, and reappear again mysteriously, which may be on account of the lacking food supply. Most species may produce several batches of eggs, but only one generation occures in a pool at a time, because the eggs have to dry up into a resting period before they can hatch. A second or

third hatch may occur in early summer when the pool has dried and fills up again after a rainfall. A generation may be completed in about 3 weeks, from resting eggs to reproducing adults. Sexes are separate and direct male fertilization is essential. The fertilized eggs are held in the females egg sac for a short time and then released and usually float. After a short or prolonged dry resting period, and when the water returns, the eggs hatch into nauplii which after a few rapid molts develop into reproducing adults. Drying of the eggs is an essential hatching stimulus. In cultures, the dry eggs of most species seem to hatch better when conditioned with a few freezes and thaws.

It is said and possible that some species that inhabit long lasting ponds produce summer eggs that hatch without the drying process, and resting eggs later when the water recedes in the fall, and hatch the next spring after being processed by drying, freezing, and thawing. But it is more likely that the summer eggs dry up at the edge of the pond, and hatch after a rainfall that raised the water level up to them for another summer hatch.



(Eubranchipus vernalis)

To my knowledge, no information has been published about the culture of our fresh water Fairy Shrimps, and that leaves it up to us amateur culturists to solve all the cultural problems. And there is some research work that will have to be done with the various species in order to discover which would be the best specie to culture for either the live animals or their resting eggs.

Unless a specie of Fairy Shrimp is discovered that produce summer eggs that hatch without a drying period, the culture will only last for the life span of the adults, and it will not be self reproductive, and dried resting eggs will have to be added regularly to keep it going. But they are well worth culturing just for the production of the resting eggs. Several batches of young adults

can be raised in the tank, and the resting eggs collected and dried for hatching or sale when needed. Some experimental work will have to be done to discover the best method to handle and hatch the eggs and feed the newly hatched nauplii.

It seems best to hatch the dry resting eggs in a separate gallon jar filled with soft rain water, and the newly hatched nauplii fed with cultured microscopic protozoa such as *Colpoda*, and minute solitary algae such as *Raphidiopsis curvata*, and their diet supplemented with a pinch of powdered Brewers Yeast or Malted Milk, for a few days before transferring them to the culture tank with the adults for further development.

The adult Fairy Shrimps can be cultured in aerated and illuminated 5 gallon or larger aquariums, and at temperatures up to about 70 degrees F. And they can be fed with powdered Brewers Yeast alternated with powdered Malted Milk sprinkled on the water, and an occasional feed with green water containing microscopic solitary algae for the young nauplii, and the larger cultured flagellate *Euglena gracilis* for the adults. They will also take dietary Spinach, Alfalfa, and Desiccated Liver tablets dropped on the bottom where they separate into fine eatable particles, and calcium is supplied with veterinary Calcium Tablets.(Calcidee).

Fairy Shrimps usually die during distant transit, but the resting egg sac of the females, or on the bottom of the shipping container remain viable and hatch after drying them and given a short resting period. And like the Brine Shrimp eggs, they remain viable for at least a year or more in a dry condition. Live starting cultures of the Fairy Shrimps or their dry resting eggs are not available from Biological Laboratories or Commercial Culturists, and they will have to be collected from your local ponds or obtained from a collector friend. When shipping starting cultures of them, the shipper should make sure that only the egg bearing females are sent, and collected when the pond water is almost evaporated, which assures that the eggs are the resting kind.

Amateur collectors and culturists from all over North America should form some sort of a Culture Exchange among themselves to facilitate the exchange and sale of the hundreds of different fresh water organisms that are common in each of their areas and suitable as live food for aquarium fishes.