

# Astyanax fasciatus mexicanus in the Aquaria and the Wild

James C. Cokendolpher

Department of Biology, Midwestern State University  
Wichita Falls, Texas 76308

## INTRODUCTION

The characins or tetras have long been a favorite fish among aquarium hobbyists. Unfortunately, many hobbyists still overlook the less colorful and spectacular tetras. One group in particular, the genus *Astyanax*, has often been coined undesirable. Much to the contrary many species of *Astyanax* are excellent aquarium fish. Unlike most tetras, specimens of some *Astyanax* can be collected by the hobbyist without an expedition to the Amazon or Congo Rivers.

The genus *Astyanax* is very rich in species and subspecies. The distribution of *Astyanax* is strictly New World and can be found in suitable habitats from southern Arizona, New Mexico and Texas south to Patagonia (Argentinian) on the Atlantic coast. On the Pacific slope it can be found from Columbia to central Mexico. One species, *A. fasciatus*, ranges almost the entire range of the genus and is composed of many subspecies or geographical races. The northern race, *A. fasciatus mexicanus*, is to be the subject of this article.

## DESCRIPTION

Body typical for the genus, moderately elongated and strongly compressed laterally; about equally convex in the upper and lower profiles (Fig. 1). Over all the color is a silvery-white to a pale brassy; ventrally, silvery to olive. The base of the caudal fin with a diamond-shaped black mark which extends forward, above the lateral line, to behind the eyes and posteriorly to the notch in the caudal fin as a black bar. Adipose fin present. Caudal fin deeply emarginate. The fins of the male are colorless except for the pectoral, anal and caudal fins. The pectorals are pinkish and the caudal fin is a warm yellow-gold with a black marginal band.

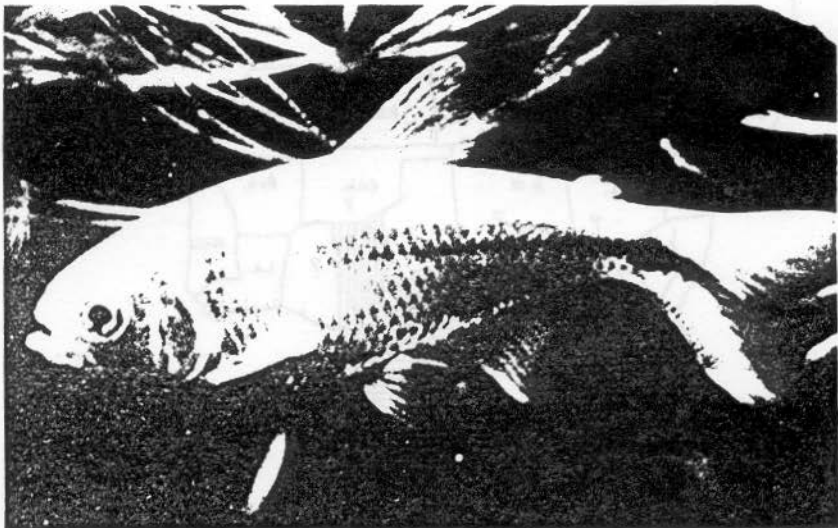


Fig. 1 Female *Astyanax fasciatus mexicanus* in breeding condition.

The anal is pinkish to bright red with a black marginal border. Males from the southern range appear to have less red and more yellow in the anal and pectoral fins. The fins of the female are similar to the males, but less intense in color. The pectorals are colorless. Females are larger and more robust, length up to four inches.

#### DISTRIBUTION

The range of *Astyanax fasciatus mexicanus* is rather large (Fig. 2). As presently understood the native range meets its northern limit in the lower Colorado River drainage of Arizona and New Mexico as well as the Pecos and Nueces Rivers in Texas. The range then extends southward along the Gulf coast to an area near Laguna de Terminos, Campeche, Mexico and westward in the rivers of the Isthmus of Tehuantepec on the Pacific coast to the Rio Armeria basin in Jalisco, Mexico. From the Rio Armeria basin the range extends eastward and northward through eastern San Luis Potosi; and Coahuila, Mexico.

As this subspecies readily adapts to clean running waters, bait release introductions in the southern United States are not uncommon. The introduced subspecies range in Texas extends from the northern native boundary to the Wichita and Red Rivers in north-central Texas (Fig. 2). The precise introduction ranges in surrounding states are uncertain at the moment. Question marks on figure 2 represent areas which are suitable for *Astyanax* if they should ever gain entrance.

#### NATIVE HABITAT

In the wild, *Astyanax fasciatus mexicanus* inhabits many varied

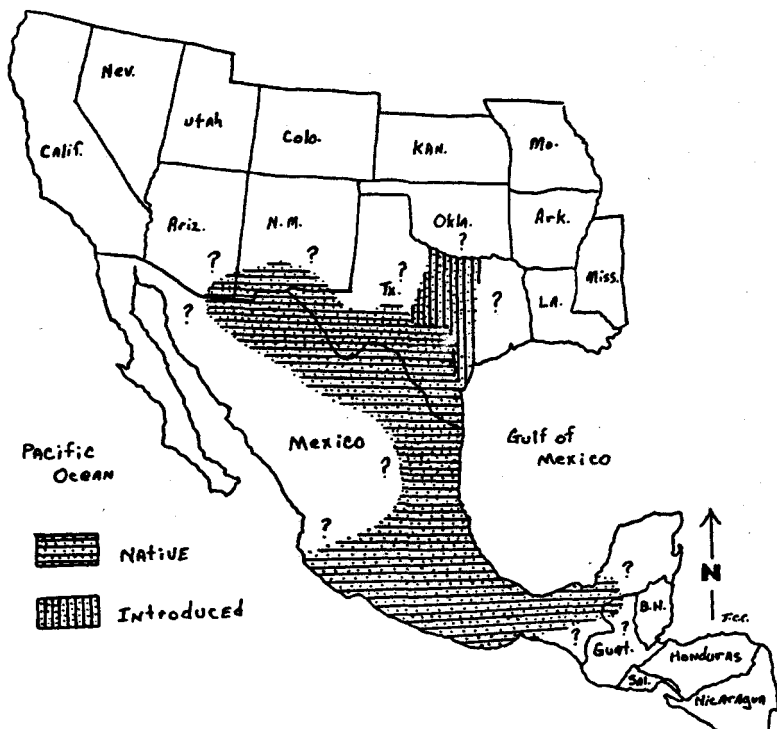


Fig. 2. Range of *Asatyanax fasciatus mexicanus*.

habitats. In much of southern Mexico they can be found in flowing jungle rivulets. Further north they are often captured in rivers created from mountain runoffs. In the extreme northern areas they are most abundant in running waters of lakes and rivers. No matter where this tetra is found it seems always to be associated with moving clear waters and a gravel bottom. It is seldom encountered in deep waters, preferring to stay in the shallows. Even in rivers and lakes where a large diversity of predatory species are abundant, this species will seldom seek refuge in the aquatic vegetation (Fig. 4). Generally wherever this species is found it is the dominant fish. In certain rivers and creeks (Fig. 3) the schools of tetras are so dense that the water appears black.

#### CAPTURING LIVE SPECIMENS

Once the hobbyist has located a likely site the job of collecting specimens begins. Although the fish may seem abundant they are very fast swimmers and are able to jump out of the water when disturbed. Dip nets seldom yield specimens unless the fish are located in a shallow creek not more than a few feet across. Baited minnow traps yield some specimens but it is best to check the local game laws before attempting this method. Some minnow traps are illegal without specific scientific collecting permits. The best all-around method is to use a 20 foot seine. The seine, when

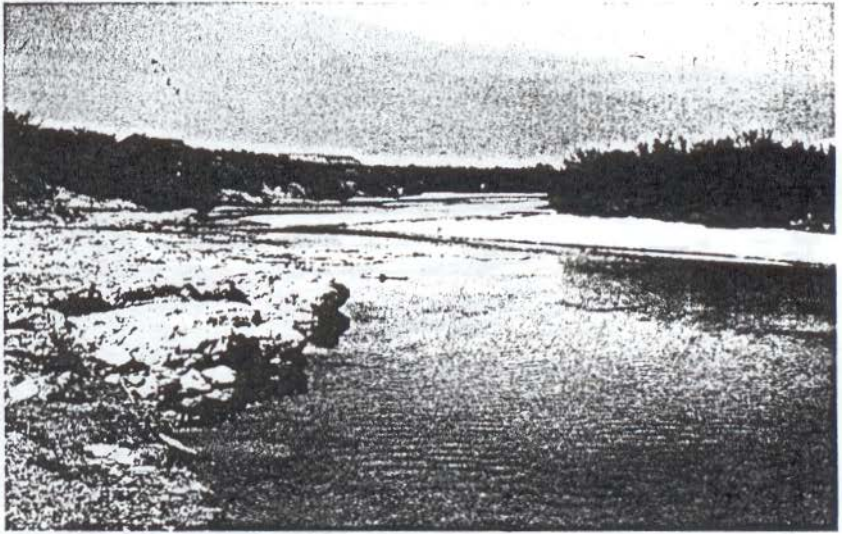


Fig. 3. Live Oak Creek near Fort Lancaster, Texas; home of *Astyanax fasciatus mexicanus*, *Diodon escopata*, *Fundulus zebrinus* and *Gambusia sp.*

dragged through shallow waters with little vegetation, will usually yield many specimens as well as many other suitable aquarium fish. Again the collector should check game laws as seines may be illegal in some waters. Once the quarry is captured great care must be exercised in getting the fish home. Never pack more than 2 or 3 fish per carrying bag. These fish are extremely active and quickly consume all available oxygen. Lowering the water temperature greatly increases the chances of getting fish home. A dark container also seems to quiet the fish. It is much better to arrive home with a few good specimens than a lot of dead ones.

#### CAPTIVE CARE

For proper maintenance of *Astyanax* a roomy aquarium is a must. For more than a pair, nothing less than 20 gallons will really work. This species schools actively, so a community of its own kind is desirable. Although not aggressive, this species has been known to nip a few fins when crowded; so they are best kept with similar sized fish. The bottom substrate should be of rocks and small to medium-sized gravel. Plants are not essential but will help make the inhabitants feel at home. Well circulated, clean water brings out the brightest colors. Although direct sunlight is suggested the aquarium should not be too near the window as the water temperature should remain near 75 degrees F. Occasional fluctuations in water temperature probably won't harm the fish, as the temperatures in some of its native habitat ranges from slightly above freezing to the upper 90's. Most commercial flake



Fig. 4. Devel's River near Del Rio, Texas; habitat for *Astyanax fasciatus mexicanus* and many predatory fish species.

foods are readily accepted.

#### SPAWNING

For spawning a pair, or even better a trio of 2 males and a single female, is placed together. Prior to putting the sexes together a period of conditioning should be followed to allow the female to fill with eggs. The period required for conditioning is not long (2-4 weeks), but will pay off in the long run. For conditioning plenty of live foods and clean water are suggested. Once conditioned the fish should be placed together in a roomy tank. The tank need not be gigantic but should be at least 10 gallons for a single pair. A photoperiod of 24 hours is very beneficial in promoting spawning. A heavily planted tank is not essential, but sufficient hiding places must be available for the female to hide from the aggressive males. The actual spawning is much like other tetras and danios. The eggs are randomly laid among the plants as well as in open water. Well conditioned parents seldom eat their eggs. After 2 days together spawning will be completed and the parents may be separated and re-conditioned.

#### EGGS

Fertilized ova are 0.77 mm in diameter and have an opaque white center. Throughout the eggs are many small oil droplets. Since the eggs are slightly adhesive they tend to stick to plants and gravel. The eggs shell is very soft and will break if handled roughly. The eggs can not be picked from the substrate as many hobbyists do with killifish eggs. If it is desired to remove the eggs from the

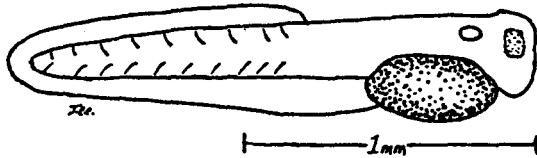


Fig. 5. Twelve hour old larvae of *Astyanax fasciatus mexicanus*.

spawning tank, a glass rod can be used to stir up the substrate, then a fine meshed net can be swirled in the water to collect the eggs. Although the eggs do not seem sensitive to light it would be wise to treat them like other tetra eggs and not expose to strong sunlight.

#### LARVAE

Approximately 24 hours after spawning the eggs will hatch into a small "tadpole-like" larvae stage (Fig. 1). The time for development depends greatly on temperature and can be delayed up to 3 days with cooler temperatures. The 24 hour development period is at 75°F. The development of the newly hatched fry depends solely on nutrients from the yolk sac. No foods need be fed to the fry until the yolk sac is absorbed. The period of absorption varies but usually by the 3rd day after hatching foods may be added. At first only the smallest of foods will be taken. Infusoria or green water is ideal as a first food. In a couple of more days the fry may be shifted over to microworms and brine shrimp nauplii. Growth is slow, with sexual maturity being reached in or about the 6th month.

#### SUMMARY

The northern-most race of *Astyanax fasciatus*, contrary to common belief, is an ideal aquarium fish. The combination of silvery color and active schooling enhance desirability of this species. The ease with which breeding occurs and the hardiness of the adults makes this species a likely candidate for the beginning hobbyist.