

*Xiphophorus hellerii*, Belize



Female



Male

Strain code: Bel

Phenotypes scored: Sword color, orange (or) and green (gr).

Introduction:

The Belize stock was originally collected from the Belize River in Mexico in 1989. The stock has been in the Stock Center since 1993. Males in this stock possess either a bi-colored orange / green sword, or an all green sword. The gene for sword color is Y-linked, with two co-dominant alleles, orange and green, segregating at the locus. The sex determination mechanism for this stock is WY / YY; therefore, both sexes possess a Y chromosome(s) with the gene for sword color, but expression is sex-limited to males.

Sex determination / sexing:

Females are heterogametic (WY), and males are homogametic (YY) in this species. Belize swordtails are sexed at 3 to 4 months of age, and can reach maturity at about 6 months of age.

Scoring:

Sword color of fully mature males should be scored with a dissecting microscope on a black background. The two sword colors are co-dominant in this strain, so you will see orange and green if the male carries one of each allele.

Maintenance:

This stock is maintained by reciprocal crosses. Two lines are maintained, and at least two matings should be set up for each line. To maintain a green line, females from this line (with the  $Y^{gr}$  allele) are mated to males homozygous for a green sword ( $Y^{gr} Y^{gr}$ ). Two matings are also set up for an orange / green line (females from the green-line with a male with an orange / green sword). The following mating schemes are used for stock production:

Phenotype of  
male offspring

$WY^{gr} (x) Y^{gr}Y^{gr} \rightarrow$  All Green swords

**Green line**

$WY^{gr} (x) Y^{or}Y^{gr} \rightarrow$  ½ Orange & Green swords, ½ Green swords **Orange-green line**

Females produced from the orange/green matings are generally discarded.

Stock source:

Prof. Klaus Kallman, the New York Aquarium, 5/12/93.