

length: 204-248, 223.9; 214-242, 222.8; ns. Caudal peduncle depth: 97-118, 105.8; 93-107, 100.0; <0.001 . Dorsal fin length: 219-268, 234.5; 201-234, 220.7; <0.001 . Anal fin length: 201-244, 226.6; 195-229, 212.9; <0.001 . Pectoral fin length: 166-205, 178.0; 167-194, 179.8; ns. Pelvic fin length: 144-168, 155.3; 141-162, 150.1; <0.001 . Males usually have deeper and more compressed bodies than females. The lack of a significant difference in body depth in this analysis is because the abdomens of the females measured were distended with eggs.

The urogenital papilla of breeding females is enlarged and protrudes posteriorly to about the anal fin origin. In males the papilla is not enlarged. This difference is maintained to some degree throughout the warmer months of the year and facilitates external sexing. Breeding males usually are duszier than females. Darkened scales and chevron-shaped markings were present on the sides of the body in about 60 and 20 percent respectively of the breeding males examined. Both features are rarely developed in females.

Males attain larger adult size than females. Of 73 collections examined, a male was the largest specimen in 57, a female in 16. The Chi-square analysis gives a highly significant value of 23.0 (probability much less than 0.005), indicating that males are larger in significantly more than half the cases. The largest male examined was 59.5 mm SL; the largest female was 57.5 mm SL.

GEOGRAPHIC VARIATION.—*N. b. bellus* shows no trenchant geographic variation in the various subsystems of the Mobile Bay drainage (see Tables). Although modes may shift slightly from one system to another, the differences are regarded as insignificant in view of the extensive intrapopulation variation. The Tennessee drainage population has the highest index of anterior dorsolateral scale reduction (Table II); but otherwise, the differences between it and the Tombigbee population, its presumed ancestral stock, are slight. Additional comments on geographic variation within the Black Warrior system are presented under the account of Intergrades.

HABITAT AND DISTRIBUTION.—*N. b. bellus* maintains sizeable populations in a wide variety of environmental situations. It is primarily an inhabitant of small to moderately large streams of low to moderate gradients. Water conditions range from clear to heavily, sometimes continuously, turbid. It usually is taken over sand, silt, or clay bottoms but occasionally is present over harder bottoms of gravel or bedrock. Vegetation may or may not be present. This form usually avoids the dark-stained, acid water of the lower Coastal Plain, but its absence from such streams in the lower Mobile Bay basin may be influenced more by competition with *N. roseipinnis* than by ecological tolerances (see below).