

SL. The index considers only the size of the naked interspaces between scales, and not scale size *per se*. Scale size usually, but not necessarily, decreases with the increase in the scale reduction index.

PHARYNGEAL TEETH.—The pharyngeal teeth of most *Lythrurus* forms showed only nominal variation from the usual count of 2,4-4,2. Only *N. b. aleognatus* shows a significant tendency for one tooth to be lost from the minor row on one or both sides.

GILL RAKERS.—The gill rakers on the lower limb of the first branchial arch were counted on the right side for ease of handling. Any raker that straddled the angle of the arch was counted. The number of gill rakers shows no ontogenetic change in *N. amoenus* (Abbott) or *N. atherinoides*, Rafinesque (Snelson, 1968). This appears to be the case in *Lythrurus* species, but regression analyses were not performed. Only rarely were rakers counted in specimens below 40 mm SL.

The length, number, and structure of gill rakers are useful taxonomically in the study of certain shiners (Snelson, 1968, 1971), especially in cases where morphological or ecological clues suggest trophic divergence. Gill raker characters were of relatively little significance in *Lythrurus*, where the species share basically similar trophic adaptations. All species are characterized by a few (usually 6-8) rather short rakers, which showed no significant incidence of unusual structure (cf. Snelson, 1968:791). Gill-raker characters showed little or no geographic variation.

VERTEBRAE.—Vertebral numbers were determined from radiographs. The total count includes the Weberian apparatus (4) and the urostylar vertebra (1). The first vertebra bearing a well-developed hemal spine was considered the first caudal vertebra; all those anterior to it were counted as trunk vertebrae. Number of vertebrae proved useful in confirming the suspected close relationship between *N. ardens* and *N. lirus* and added evidence for distinguishing these two species as a group from the remainder of the subgenus. *N. roseipinnis* exhibits east-west clinal variation in vertebral numbers.

MEASUREMENTS.—Measurements were taken with dial calipers to the nearest 0.05 mm. All measurement conversions were made arithmetically. The opercular membrane was excluded from the head length and postorbital head length measurements. Fleshy orbit length was the greatest transverse distance between the fleshy margins of the orbit, excluding any marginal skin that grew inward over the cornea. Postdorsal length was taken from the insertion of the dorsal fin to the caudal base. Body width was the maximum dimension, measured between the pectoral and pelvic fin bases. Prepelvic and preanal measurements were