FIN PIGMENTATION.—The following description is based on breeding adults. Fin pigment is intensified during the reproductive season, and patterns of deposition are then readily discernible. Fin melanin is reduced in nonbreeding specimens, especially juveniles, but basic patterns of deposition remain essentially unchanged through the year.

Dorsal fin of breeding males margined with dark band formed by concentration of melanin on interradial membranes in and about secondary branches of rays (Figs. 3B, 4I). Band uniform in width and intensity throughout. In some specimens basal half of fin lightly dusted with melanophores (Fig. 4I). In others basal pigment dark and separated from dusky terminal band by light zone extending through middle of fin, resulting in double-banded appearance (Fig. 3B).

Dorsal fin of breeding females weakly pigmented and often not appearing dusky to unaided eye. Melanophores usually sparsely scattered over basal half of fin. Terminal band faintly represented by pigment in and about crotches of rays.

Anal fin of breeding males bordered by dark band formed by heavy melanin deposits on interradial membranes in and about secondary branches of rays (Figs. 3B, 4J). Band extending length of fin, uniform in width and intensity. Central part of fin clear (small males) or dusted with melanophores (large males).

In breeding females terminal band of anal fin reduced, often invisible to unaided eye. Pigment representing band scattered lightly along margin of fin. Remainder of fin immaculate.

All principal caudal rays bordered by melanophores in both sexes. In breeding males some or all interradial membranes may be dusky, especially around fork area and near tips of fin lobes. Females rarely have caudal interradial pigment.

Pectoral fin pigmentation attaining maximal development only in large males in advanced breeding condition. First (unbranched) pectoral ray bordered by pigment along most of length. Succeeding several rays variably and weakly bordered, mostly along basal portion. Narrow dusky band, about one-half the intensity of bands in other fins, extends around edge of fin (Fig. 4K). Development of band diminishes sharply with size and sexual development. In subadult males or males of reduced sexual readiness, only dusky spot remains in fork of first branched ray at apex of fin. This stage similar to maximal development of pectoral fin pigment in breeding males of *N. atrapiculus* (Fig. 4G). Females may or may not possess weak apical spot, and pectoral fin never fringed with pigment.

Pelvic fins of breeding males margined by dark band formed by interradial pigment in and about branches of rays (Figs. 3B, 4L). Band extends entirely through fin, uniform in width and intensity. Basal three-fourths of fin immaculate. In females this band weak or invisible to unaided eye, but reduced pigment visible with magnification.

The high index of fin pigmentation in breeding males of *N. b. bellus* (Table 12) correlates with the bands of pigment entirely through their anal and pelvic fins. Small breeding males show a weak tendency for the pelvic fin band to be reduced, but typically once a male begins to exhibit secondary sexual characters, pigment representing the bands is developed (though sometimes faintly) in both fins. The lack

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FIGURE 4.—Fin pigmentation in adult breeding males of three members of the *roseipinnis* species complex. From top to bottom, fins are the dorsal, anal, left pectoral (dorsal view), and left pelvic. All drawings are composites from several specimens. Details of ray structure and number are not entirely accurate. A-D.—*N. roseipinnis*. CU 15622 (30 March 1948) and TU 51439 (19 April 1968); Pascagoula dr., Mississippi. E-H.—*N. atrapiculus*. CU 16214 (13 June 1949) and TU 2593 (2 June 1951); Escambia dr., Alabama. I-L.—*N. bellus bellus*. CU 16027 (12 June 1949), CU 53133 (25 May 1968), and TU 25963 (21 June 1962); Tallapoosa dr., Alabama.