Geographic Differences in the Number of Longitudinal Scales of the Ayu

**Plecoglossus altivelis**

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The ayu *Plecoglossus altivelis* of the Japan and Ryukyu Islands were recently found to differ considerably in both morphological and biochemical-genetic characters, and, within the Japan Islands region, a landlocked population of Lake Biwa to bear traits somewhat different from those of other amphidromous populations.1,2) Azuma3) showed a large difference in the number of longitudinal scales in two samples of Lake Biwa and amphidromous populations, but so far, this particular aspect has not been investigated in much detail. In the present study, investigation was made of geographic variation in this number using the same samples from various localities in the Japan and Ryukyu Islands as those in the previous study.2)

The following 7 population samples were examined (the sample codes were the same as in the previous study2): 3) Yoshida River, Miyagi Pref., 43 inds.; 5A) Ado River, Lake Biwa system, Shiga Pref., 31; 8) Nita River, Tsushima Is., Nagasaki Pref., 30; 10) Chunji River, Cheju Is., Korea, 14; 12B) Amori River, Kagoshima Pref., 32; 15B) Yona River, Okinawa Is., the Ryukyus, Okinawa Pref., 31. The longitudinal row of scales dorsal to those on the lateral line were counted, starting with the most posterior scale touching the shoulder girdle and proceeding to the end of the hypural plate, according to the method of Hubbs and Lagler.4) Specimens were weakly stained with cyanine when counted.

The results of counting are shown in Fig. 1. Populations in the Ryukyus had far fewer longitudinal scales than those in the Japan Islands (P<0.01, Duncan's multiple range test). The Amami-oshima Is. population had fewer scales than those of Okinawa Is. in the Ryukyus (P<0.01).

Within the Japan Islands, the Lake Biwa population conspicuously had more scales than amphidromous populations (P<0.01), though in the latter, some variation in this character could be noted. No clear geographic pattern was evident in these amphidromous populations.

The geographic variation pattern of this character is similar to those of the numbers of scales above and below the lateral line.2) The Ryukyu populations were characterized by fewer rows of scales and fewer scales per row. The reverse of this situation was noted in the Lake Biwa population. These characters should prove quite helpful in distinguishing these populations from each other. However, the extent of ontogenetic change in these characters induced by environmental conditions must be examined prior to formulating any definite conclusions.

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**References**


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