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BIOLOGICAL DATA ON THE DANUBE RUFFE, *GYMNOCEPHALUS BALONI* HOLČÍK ET HENSEL, 1974, IN THE DESNA RIVER, UKRAINE

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Abstract. The Danube ruffe, *Gymnocephalus baloni* Holčík et Hensel, 1974, is a little-known species from the middle and lower Danube River. The relevant information on its habitat, maturity, fecundity, spawning season, maximum size and age, as well as its growth and length–weight relation are provided herewith from the Desna River, Ukraine. The estimation of fecundity ranged from 5072 to 15 730 eggs within the length range of 8.6 to 10.4 cm SL and the gonado-somatic index was 0.12–0.14 respectively. The length–weight relation was determined as $W = 0.0345SL^{2.83}$.

Keywords: Danube ruffe, Desna River, Ukraine, length–weight relation, fecundity, gonado-somatic index

The Danube ruffe, *Gymnocephalus baloni* is a little-known species described from the middle and lower Danube River by Holčík et Hensel (1974). In Ukraine it inhabits the Dnepr River and the middle and lower courses of its tributaries such as the Desna, the Trubizh, the Sula, the Supoy (Movchan et al. 2003). Loparyov (1998) noted this species in the Prypyat River and in its tributaries (the Turya and the Stokhid). In the present paper I am providing data on habitat, maturity, fecundity, spawning season, maximum size, and age, as well as growth and length-weight relationship from the Desna River, Ukraine.

One hundred forty-five specimens of *Gymnocephalus baloni*, collected between 2002 and 2006, from the middle Desna River in the Mena district in the Chernigiv region, from the village Makoshine (lat 51°27'36" and long 32°20'22") to the village Ushnya (Fig. 1). Sampling was random during all seasons. For specimen collection we used only the hook-and-line method. Fly larvae were used as bait in winter and Oligochaeta as bait in other seasons. The specimens collected were immediately fixed in 4% formalin and were subsequently transferred to a 40% solution of alcohol for long-term storage. For identification we used the characters, which were proposed by Specziár and Vida (1995). The age was determined from scales that were observed under a dissecting microscope. Growth parameters were estimated by fitting the von Bertalanffy growth function $L = L_\infty(1–e^{–k(t – t_0)})$ to the length at age data. A linear regression was fitted to the log-transformed weight and length data to estimate the length–weight relation of the form $W = aL^b$. The terminology and the abbreviations used follow Specziár and Vida (1995).

In the Desna River, *G. baloni* inhabits relatively deep-water areas (2–5 m) of the littoral zone. Usually it occurs near rocky shores with hollows, near submerged tree boles and trunks. It prefers clay- or muddy bottom with some grass stem or tree rods on its surface. In winter, this fish moves to deeper waters with lower water velocity. Individuals form aggregations during the breading season or during periods of intense feeding. The populations of the congeneric *G. cernuus* (Linnaeus, 1758) from the Desna River are predominantly limnophilous but populations of the *G. baloni* are rheophilous; however, these species may often occur together.

Gymnocephalus baloni matures at 2–3 years of age. All males exceeding 8.1 cm SL and all females exceeding 8.5 cm SL were found to be sexually mature. Spawning takes place from mid-April to end of May. Fecundity ranged from 5072 eggs in females of 8.6 cm SL and 15 g body weight to 15 730 eggs in females of 10.4 cm SL and 28 g body weight, and the gonado-somatic index was 0.12 and 0.14, respectively. Different size groups of eggs could be distinguished, suggesting batch-spawning.

A length–weight relation was obtained as $W = 0.0345SL^{2.83}$ ($n = 87$, length range: 7.0–14.2 cm SL, 95% CI (Confidence Interval) of $a = 0.0277$–0.0429 and of $b = 2.73$–2.93, $r^2 = 0.973$). The von Bertalanffy growth function was estimated as $SL_t = 13.6\ (1 – e^{–0.398(t + 0.294)})$, 95% CI of $SL_\infty = 11.9$–15.3 and of $k = 0.172$–0.623, $n = 82$, $r^2 = 0.763$. The largest specimen was 14.2 cm long with 64 g body weight and 7 years of age.

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Fig. 1. Map of Ukraine showing the sampling area

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