

Scientific note

First record of the East Asian Yellow Catfish *Tachysurus fulvidraco* (Richardson, 1846) in Germany

(Teleostei, Bagridae)

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The Yellow Catfish *Tachysurus fulvidraco* (Richardson, 1845), native to East Asia, is recorded for the first time in Germany (Bavaria) from the Danube backwater Gmünder Au, approximately 30 km downstream of the city of Regensburg. The first unambiguously identified record is based on photographs and one voucher specimen (ZSM 47403, Fig. 1) collected in May 2018 at the southwestern corner of the Gmünder Au (approx. 48°58.75'N 12°25.81' E, Fig. 1B), but first catches of the same species were recorded by one of us (MHö) at least since 2014 at that location. In May and June 2018 altogether eight specimens were caught, six with approx. 10 cm total length (TL), one male with about 20 cm TL, and the single preserved specimen (ZSM 47023), a ripe female, with 30.4 cm TL (24.6 cm standard length). In September 2018, hundreds of specimens of the same species were caught in traps and some photographed at the mouth of Gmünder Au (approx. 48°58.30' N, 12° 26.26' E). Two further photographed specimens from September 2018 are from “Danube at Pfatter” (approximately 48°58.90' N, 12°24.33' E), and additional records, albeit without a photo, from “above weir of Straubing” (pers. comm. G. Sauer, 27.9.2018), and “Backwater at Danube km 2343.0” (approx. 48°57.34' N, 12°27.98' E; pers. comm. L. & M. Burger via S. Paintner, 12.10.2018). All these records indicate that *Tachysurus fulvidraco* is firmly established in the Upper Danube along a stretch of approx. 30 km between the weir at Geisling (48° 58.526' N, 12°20.632' E) and the weir in Straubing (48° 53.882' N, 12°33.381' E).

The preserved specimen features a head length (HL) of 10.4 % and a caudal peduncle length of 37.0 % of standard length (SL), brown elongate rectangular blotches on a light brown body, a moderately forked caudal fin and serrations on the anterior and posterior edges of the pectoral spines. This combination of characters would identify it according to Ng & Kottelat (2007) as *T. fulvidraco* and not to *T. sinensis* Lacepède, 1803. The latter taxon is, however, most likely a synonym of *T. fulvidraco* (Ku et al. 2010). The morphological identification is supported by a DNA barcode (partial mitochondrial COI gen, 566 bp, Genbank Accession No.



Fig. 1. *Tachysurus fulvidraco* (Richardson, 1846). A. Live specimen (not preserved) from Gmünder Au, approx. 12 cm TL. B. Location at the southwestern corner of Gmünder Au (approx. 48°58.75' N 12°25.81' E), where the first positively identified specimens were caught. C. Specimen ZSM 47023 shortly after collection, a female of 30.4 cm TL (Photos M. Härtl).

MK239147), which was generated from specimen ZSM 47403 using the standard DNA barcoding protocol for DNA-barcoding at the Bavarian State Collection of Zoology (http://zsm-entomology.de/wiki/The_Beetle_D_N_A_Lab) with PCR-primers as reported in Astrin & Stüben (2008). The barcode sequence matches with 99.82 % sequence identity to *T. fulvidraco* sequences (Genbank Accession No AB696809-10 based on Arayama et al. (2012) and NC_015888 based on Liang et al. (2012)). The species had previously been classified in the genera *Pelteobagrus* and *Pseudobagrus*, both of which are currently considered synonyms of *Tachysurus* (Ng & Freyhof 2007, Ng & Kottelat 2007).

The Danube between Geisling and Straubing is prone to be affected by catastrophic flooding, as it had taken place, e.g., in June 2013 along the German part of

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the Danube below Regensburg. During those periods the river channel as well as its backwaters may become completely inundated and hereby connected with adjacent garden and aquaculture ponds in the region. Therefore we speculate that it is not unlikely that the Danubian *Tachysurus fulvidraco* population originated during such a period from an escaped garden pond or aquaculture facility in the same way as it has been suggested for the occurrence of allochthonous sturgeons and hybrids (*Acipenser* spp.) after the catastrophic floods in June 2013 in the shared German-Austrian part of the Danube (Friedrich et al. 2014). Despite being one of the most important freshwater aquaculture species in China (Liang et al. 2012), the species has not been recorded from the wild outside its native range (no records mentioned in Kottelat & Freyhof 2007, US Fish & Wildlife Service 2018), except for one record from Japan (Arayama et al. 2012). It has been occasionally imported, however, as an ornamental fish species to Germany (Riehl & Baensch 1991), and the most recent import from China to Germany is documented on the internet with a publication date of February 2014 (Schäfer 2014). A direct introduction via commercial stocking for fisheries purposes cannot be excluded, however.

T. fulvidraco occurs in rivers, lakes and channels and feeds mainly on mayfly (Ephemeroptera) and non-biting midge larvae (Chironomidae), shrimps, molluscs and fishes (Nikolskii 1954, Liu 1997). The species nests and spawns in aggregations at the beginning of summer (April in China and Russia) in circular pits, which are constructed in shallow water on predominantly clayey soil, i.e. the same habitat as at the uppermost corner of the Gmünder Au (Fig. 1B). Up to ~12000 eggs (~2.5 mm diameter) and larvae with accessory larval breathing organs are cared for by the male (Cao et al. 2009, Nikolskii 1954). Males grow larger than females, the maximum reported size is 34.5 cm TL (Berg 1964). It is distributed in rivers from Laos, Vietnam and Korea up to the lower reaches of the Amur basin in China and Russia (Kottelat 2001, Ng & Kottelat 2007, Bogutskaya et al 2008).

The translation of the Latin species name *fulvidraco* is “yellow dragon”. Based on it, we suggest as a German vernacular name “Gelber Drachenwels” (Yellow Dragon Catfish).

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