



Amphilina bipunctata (Riser 1948) a monozoic cestode from North American Sturgeon in the Dawes Collection, Museum of Life Sciences, King's College London: a comment on zoogeography and validity.

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Introduction to *Amphilina* and *Amphilina bipunctata*

Members of the cestode genus *Amphilina* are monozoic cestodes (see 1 below) parasitic in the body cavity (coelom) of sturgeons (see 2 below). It has been suggested that they are neotenic forms of strobilate tapeworms that once developed as adults in a now extinct reptile definitive host, possibly a fish-eating dinosaur (see 3 below). During examination of the Dawes Collection of helminth microscope slides at the Museum of Life Sciences, King's College London, a single specimen, (D901), of a monozoic cestode was discovered labelled "*Amphilina bipunctata*, Ex. White & Green Surgeon, Oregon. U.S.A." (see 1, 2 & 3 below). Subsequent research revealed that this species had first been described by Riser (1948) from specimens found at the Hopkins Marine Station of Stanford University in a jar mis-labelled "Trematoda", the label with the specimens having the following information, "Dodson, Oregon. From coelom of sturgeon. Aug 1923. Carl D. Duncan". (see 4 below).

Amphilina bipunctata and *Amphilina japonica*: are they the same species ?

Since its description *A. bipunctata* has been relegated to a junior synonym of *Amphilina japonica* Goto & Ishii, 1936. Though this status is currently accepted, we venture to pose the question as to whether the situation might be re-examined, citing the points below.



Source: NOAA

1

WHITE STURGEON
Acipenser transmontanus

Scutes (bony plates)
White Sturgeon have prominent rows of scutes in front of the dorsal fin, along whitish lateral lines, and along the outsides of a clean, white belly.
Green Sturgeon are covered with smaller scutes and have 5 prominent rows of yellowish scutes with sharp tips on all sides of their bodies.

Barbels (whiskers)
White Sturgeon barbels are closer to the tip of the snout.
Green Sturgeon barbels are midway between the mouth and the tip of the snout, or closer to the mouth.

GREEN STURGEON
Acipenser medirostris

Source: NOAA

2

- *Amphilina japonica* of Goto and Ishii (1936) was described from the Sakhalin Sturgeon (*Acipenser mikadoi*) (see 5 above), a species known to inhabit the Amur and Tumen Rivers in Russia, Sakhalin Island and the Sea of Japan, locations geographically distant from Oregon on the West Coast of North America (most probably the Columbia River at Dodson) where the sturgeon species from which *A. bipunctata* was described were obtained; the White Surgeon (*Acipenser transmontanus*) and the Green Sturgeon (*Acipenser medirostris*).
- In his description of *A. bipunctata* Riser (1948) mentioned several morphological features that he felt differentiated the North American species from *A. japonica*, these including the size and shape of the testes and ova, the extent of the testes with respect to the vitellaria, and the configuration of the Mehlis gland.
- In a footnote to their Table 1, Margolis & McDonald (1986) mention that Malmberg (University of Stockholm) concluded that the two species could actually be distinguished on the basis of the shape of the larval (lycophore) hooks.

Future Work

It is envisaged that detailed morphological studies, perhaps using new technologies such as Micro-CT Scanning, and also the use of molecular genetic analyses, might shed light on the true systematic relationship between *A. bipunctata* and *A. japonica*.

References

Goto, S. and Ishii, N. (1936) On a new cestode species, *Amphilina japonica*. *Japanese Journal of Experimental Medicine*. 14, pp. 81-83.

Margolis, L. and McDonald, T.E. (1986) Parasites of the White Surgeon, *Acipenser transmontanus*, from the Fraser River, British Columbia. *Journal of Parasitology* 72 (5) pp.794-796.

Riser, N.W. (1948) *Amphilina bipunctata* n. sp. A North American Cestodarian. *Journal of Parasitology* 34 (6), pp.479-485.

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Source: Roger Harris/Getty Images

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Oregon, USA

Source: Wikimedia Commons