

## BRIEF NOTE

# First Report of *Lepidodermella squamata* (Gastrotricha: Chaetonotida) from Lake Erie<sup>1</sup>

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**ABSTRACT.** In July 1992 a population of the freshwater chaetonotid gastrotrich *Lepidodermella squamata* was discovered in a protected beach on South Bass Island in Put-in-Bay, Lake Erie, OH. *L. squamata* is most commonly reported from vegetated substrates in freshwater habitats in Europe and North and South America. This is the first report from Lake Erie and from the lentic interstitial habitat in North America.

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## INTRODUCTION

*Lepidodermella squamata* (Dujardin 1841) is a freshwater chaetonotid gastrotrich that is commonly found on the aquatic vegetation, detritus and, less often, in sandy substrates in freshwater lakes, ponds, streams, and bogs. It has been widely reported, occurring in: Europe (Balsamo 1978, 1990; Kisieleska et al. 1986; Preobrazenskaja 1926; Roszczak 1968; Voigt 1958), the United Kingdom (Martin 1981), South America (Cordero 1918, Kisieleski 1991), Asia (Saito 1937, Sharma 1980), and North America, and is believed to be cosmopolitan in its distribution. Schwank (1990) and Kisieleski (1991) give current biogeographic information for the freshwater Gastrotricha, including *Lepidodermella squamata*. In North America, *L. squamata* has been reported from Arkansas (Davis 1937), Illinois (Goldberg 1954, Robbins 1973), Indiana (Sacks 1964), Michigan (Brunson 1949, 1950), New Hampshire (Packard 1936), North Carolina (Hawkes 1965), and Ohio (Faucon and Hummon 1976). Only Brunson has reported it from the Great Lakes where he found several specimens in a beach pool along Lake Michigan near Traverse City, MI. During the summer of 1992, a large population of *L. squamata* was discovered living interstitially in a protected beach on the north side of South Bass Island in Put-in-Bay, Lake Erie. This represents the first report of *L. squamata* from Lake Erie, and from the lentic interstitial habitat in North America. The only other published reports from the interstitial habitat are from Brazil (Kisieleski 1991), Italy (Balsamo 1990), and Russia (Preobrazenskaja 1926).

## MATERIALS AND METHODS

Specimens of *L. squamata* were extracted from sandy sediments by narcotization with 1% MgCl<sub>2</sub> and subsequent rinsing with filtered lake water (Evans 1982). Living specimens were located using a dissecting microscope at 50X, mounted on a glass slide, and observed under Nomarsky differential interference contrast optics. Images of specimens were recorded on Super-VHS videotape for further observation, measurement, and drawing (Evans 1992). Five specimens were measured.

## RESULTS AND DISCUSSION

*L. squamata* is a ten-pin shaped animal with a distinct, weakly five-lobed head that is separated from the trunk by a short neck (Fig. 1a-c). The trunk narrows posteriorly into the furca (fork); each furcal branch bears a single, terminal adhesive tube. A small, sub-terminal mouth leads to a short, muscular pharynx with bulbs at each end, thence to a simple, tubular intestine which terminates in a ventral anus. A small hypostomium was observed ventrally just posterior to the mouth. A large egg is often present in the trunk region. Mean dimensions ( $n = 5$ ) were: overall length = 185  $\mu\text{m}$ , head width = 49  $\mu\text{m}$ , trunk width = 32  $\mu\text{m}$ , and furcal branch length = 25  $\mu\text{m}$ .

The cuticular armature consists of scales without ridges or spines. The entire dorsal surface is covered with scales arranged in oblique rows of seven to eight scales each; the scales of the head, neck, and trunk regions are approximately rectangular but are shaped differently in each region (Fig. 1b). The posterior-most portion of the trunk and the furcal branches are covered dorsally with smaller scales of various shapes and sizes. A large cephalic shield is present on the head. Ventral scalation consists of a field of scales of various shapes and sizes on the posterior trunk and furcal branches (the most prominent of these being two large, oval scales that overlap on the midline at the furca). An extension of this field continues anteriorly along the midline beginning with a pattern of three rectangular scales flanked by small, round scales. This pattern changes in the neck region to a series of wide rectangular scales which diminish in size toward the mouth (Fig. 1c). Three longitudinal columns of scales occur laterally on each side from the mid-head region to the posterior scale field (Fig. 1c).

Ciliation consists of four anterior tufts of sensory cilia on the head (the anterior pair inserted ventrally and the posterior pair inserted dorsolaterally) and two longitudinal bands of locomotor cilia on the ventral head and trunk (Fig. 1c). Single pairs of sensory bristles are located dorsally on the neck and the posterior trunk near the furca (Fig. 1b).

The Lake Erie population of *L. squamata* falls within the range of previously described populations for all important morphological characters and shows little within-population variability. However, the dorsal posterior and ventral scalation patterns in this species have been reported to be highly variable in both natural (Kisieleski 1991)

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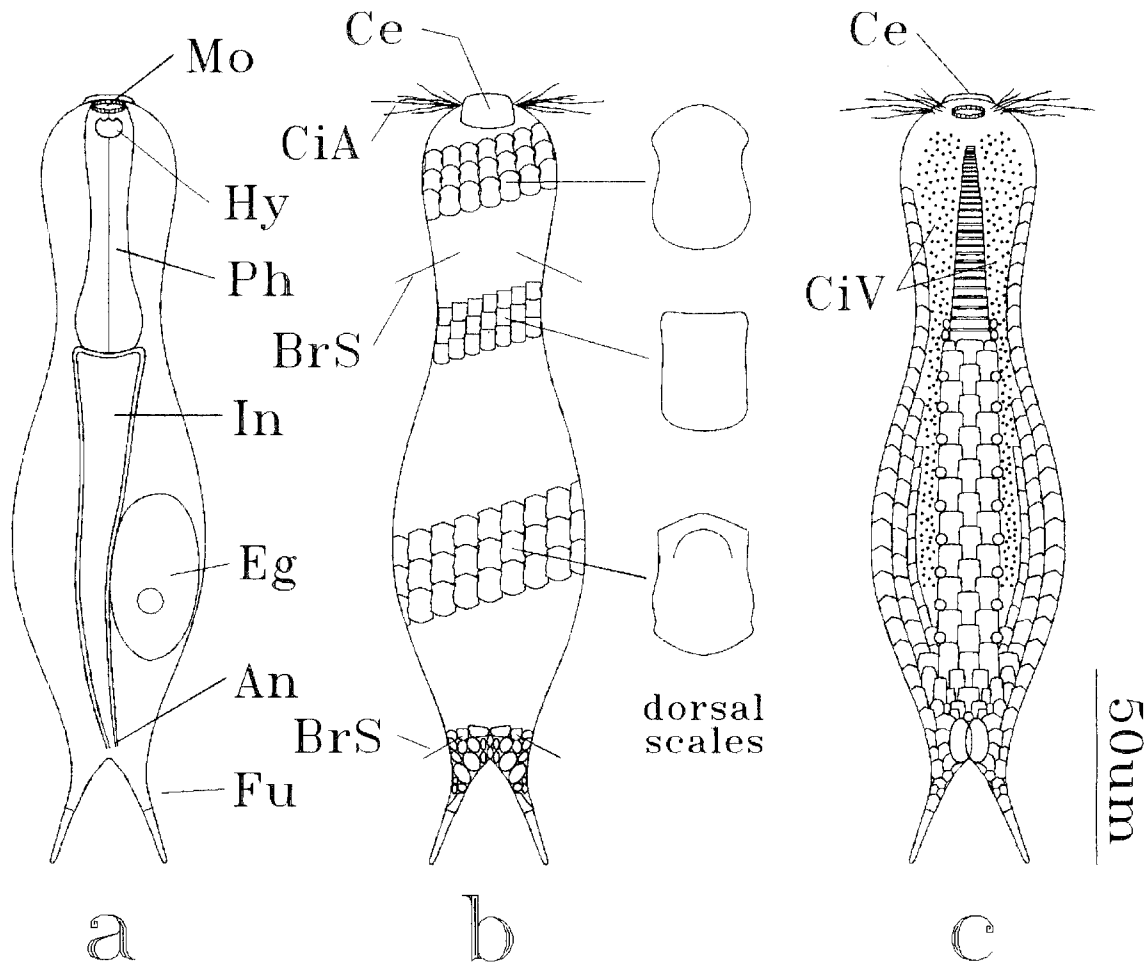


FIGURE 1. *Lepidodermella squamata*. a) Internal view showing the dumbbell-shaped, muscular pharynx, tubular intestine, and large egg; b) cuticular armature covers the entire dorsal surface (typical scale shapes and sizes are shown for the head, neck, trunk, and furcal regions); c) ventral scales consist of two lateral columns and a medial column; locomotor cilia occupy the interscalar region. Abbreviations: An=anus, BrS=sensory bristle, Ce=cephalion, CiA=anterior sensory cilia, CiV=ventral locomotor cilia, Eg=egg, Fu=furca, Hy=hypostomium, In=intestine, Mo=mouth, Ph=pharynx.

and laboratory (Amato and Weiss 1982) populations. There are small differences in the size, shape, and arrangement of scales between the Lake Erie population and other populations, but scalation closely conforms to the patterns described by Balsamo (1978).

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