

# Maximal Egg Number in *Pimephales Notatus* Nests

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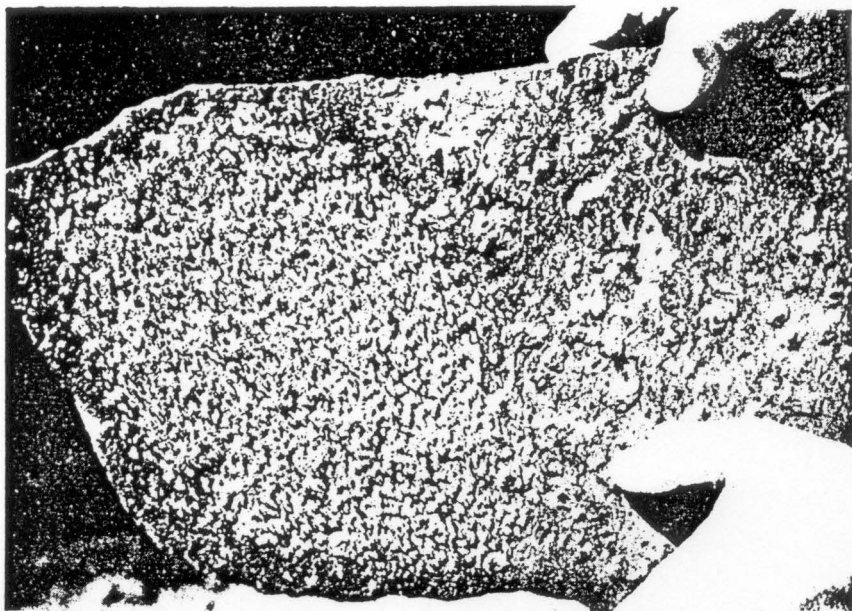
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## INTRODUCTION

Numerous studies involving spawning sites of bluntnose minnows, *Pimephales notatus*, have reported various aspects of reproductive behavior as well as environmental parameters associated with spawning (Carlander, 1969). The only available data concerning the number of eggs per spawning site were reported by Hubbs and Cooper (1936) who calculated an average of 2477 eggs per spawning site based on observations of 39 nests from three localities in Michigan. The actual numbers of eggs for each of the 39 nests observed were not presented in their study, nor was the range of numbers of eggs per spawning site reported. Hubbs and Cooper (1936) did, however, hint at a possible upper limit to the number of eggs per spawning site reporting that in a single nest more than 5000 eggs were laid within 48 hours.

Hankinson (1919) also noted the occurrence of certain large *P. notatus* nests. He reported: "The eggs are usually placed very closely together in a roughly circular or oblong patch with the longest diameter typically 4 or 5 inches; the largest observed was 10 by 4 inches. Possibly this was formed by the joining of two patches, since two or more fish frequently use the same stone."



*Pimephales notatus* eggs deposited on the underside of a piece of shale. Photo by C. R. Peterson.

## RESULTS AND DISCUSSION

On 19 May 1973, three *P. notatus* nests were observed in a tributary of the Embarras River, 7.2 km west of Rose Hill, Illinois (Jasper Co., T8N, R9E, Section 28). The tributary was clear and very slow moving with a sand and shale bottom. Spawning sites were located in a single pool, approximately 13 m long, 1.2 m wide, with a maximum mid-stream depth of 15 cm. Eggs were observed coating the undersides of three flat pieces of shale in the middle of the pool. Nests were photographed (Fig. 1) to facilitate counting the eggs. The three spawning sites yielded counts of 5298, 5821, and 6323 eggs, respectively, for an average of 5814 eggs. Each observed nest contained a single layer of eggs which appeared to be in a variety of developmental stages. Each nest was guarded by an individual tuberculate male *P. notatus*. These three males appeared to be the only fish in the pool and we assumed that each nest was the work of the single male associated with it. Placement of eggs on the undersides of objects precludes the possibility of other cyprinid species contributing eggs to the *P. notatus* nests, as is often the case with many egg-scattering species.

The nests we observed contained exceptionally large numbers of eggs with the count of 6323 eggs being the largest ever reported from a single spawning site. The presence of eggs in various developmental stages is indicative of spawning over a period of time, presumably with several females. Cooper (1935) reported that a single female lays from 200 to 500 eggs at one time. Thus, the number of females contributing to each

of these exceptionally large nests can only be roughly estimated, with possibly as many as several dozen females contributing to a given nest.

### Literature cited:

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Cooper, G.P.            **Minnows of Michigan. Bull. Cranbrook Inst. Sci., 1936. 8: 1-95.**