

BRIEF NOTE

Fallicambarus (Creaserinus) fodiens (Cottle 1863) (Decapoda: Cambaridae) In West Virginia: A New State Record¹

RAYMOND F. JEZERINAC and G. WHITNEY STOCKER², Department of Zoology, The Ohio State University, University Drive, Newark, OH 43055

ABSTRACT. A population of *F. (C.) fodiens* was found in the floodplain of the Ohio River, Mason County, West Virginia. This is a new state record and the second record of the species on the unglaciated Appalachian Plateau. An analysis of burrow diameters indicated that three age classes are probably present.

OHIO J. SCI. 87 (1): 46-47, 1987

On 16 June 1985, four female crayfishes belonging to the genus *Fallicambarus*, subgenus *Creaserinus*, were excavated from burrows located in the floodplain of the Ohio River in Mason County, West Virginia. The locality is on the northwest side of State Route 2, 3.2 km southwest of U.S. Rt. 35 (4.3 km SW of Point Pleasant; 2.4 km E of Gallipolis, Oh.). Dave Chrisman accompanied us on 19 April 1986, and we captured 11 additional specimens (3 I♂, 1 II♀, 6 ♂). This acquisition of first-form males made the identification of the species possible. Two specimens (1 I♂, 1♀) have been deposited in the crayfish collection of the Smithsonian Institution, Washington, D.C.; the others are in the crayfish museum of The Ohio State University at Newark, Newark, Ohio.

The colony occupies an area of approximately 4 ha in a damp depression adjacent to a corn field. A small (<1 m wide), unnamed tributary of the Ohio River traverses the site, and cut grass [*Leersia oryzoides* (Linnaeus)] is the dominant vegetation. Eight additional sites in Mason County were investigated, but only *Cambarus (Lacunicambarus) diogenes* (Girard) was found.

The diameter of 128 burrows in a 90-m² area was measured with a metric ruler at ground level (Figure 1, [insert]). When multiple openings were encountered, only one of the openings was measured. All of the chimneys had freshly added pellets on their rims suggesting that a live crayfish was in the burrow. Burrow diameter appeared to be related to the size, especially the width, of a crayfish living in it (the crayfish is slightly smaller than the diameter of the hole it makes). Studies are being done to quantify these observations. If it is assumed that crayfish width and burrow diameters are highly correlated, burrow diameters could be used to determine the age structure of the population. Carapace width was highly correlated with carapace length in *Cambarus (Cambarus) bartonii cavatus* (Hay) (Jezerinac 1985). In a sample of *F. (C.) fodiens*, the coefficients of determination (R^2) for both sexes ranged from 0.966 to 0.998 (Table 1). Carapace length was also used by St. John (1976) to determine age classes of crayfishes.

When the number of burrows of a given diameter was plotted on normal cumulative probability paper, two lines and one outlier were evident (Figure 1). This indicates that one- (<18 mm), two- (18-38 mm), and possibly three-year-old (>39 mm) individuals are present

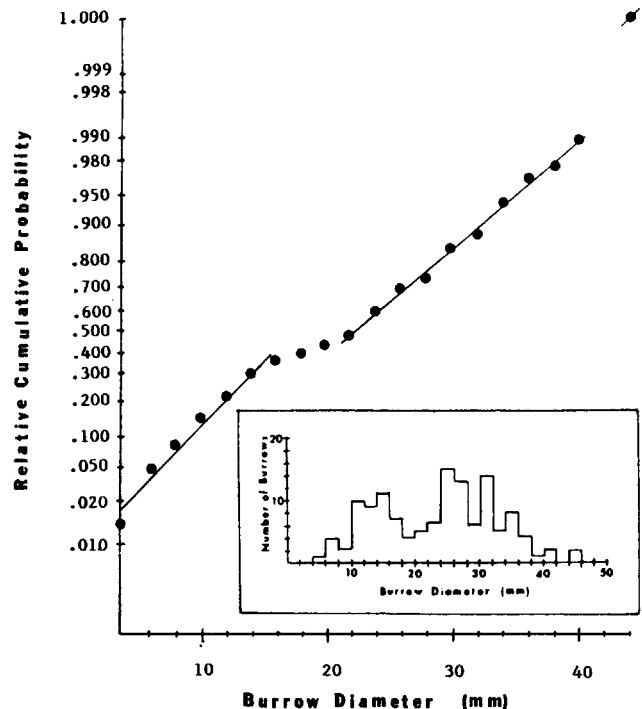


FIGURE 1. Graph of burrow diameter versus relative cumulative probability indicating that two, and possibly three, age classes are present in the West Virginia population of *F. (C.) fodiens*. Insert, histogram of the number of burrows versus burrow diameter.

in the population. The colony, therefore, is reproductively active.

This is the first record of *F. (C.) fodiens* in West Virginia. To our knowledge, the nearest population of this species to the West Virginia site is Jackson County, Ohio (D. Stansbery, pers. comm.). Both the Mason and Jackson County localities are in the valley of the pre-glacial Marietta River, a tributary of the Teays River (Stout et al. 1943). These two localities are also the only

TABLE 1

Regression Analysis of *Fallicambarus (C.) fodiens*. Model: Carapace width (mm) = Slope × Carapace length (mm) + Intercept (mm).

| Sex | N | Slope (±SE) | Intercept (±SE) | R ² |
|------------------|----|--------------|-----------------|----------------|
| Female | 34 | 0.48 (±0.01) | -0.76 (±0.31) | 0.998 |
| First-form male | 13 | 0.55 (±0.03) | -3.15 (±1.12) | 0.966 |
| Second-form male | 14 | 0.48 (±0.01) | -0.70 (±0.46) | 0.988 |

¹Manuscript received 5 August 1986 and in revised form 31 October 1986 (#86-32BN).

²Present address: 13773 Bodle Rd., Newark, OH 43055

records of the species on the unglaciated Appalachian Plateau.

ACKNOWLEDGMENTS. We thank Dr. H. H. Hobbs, Jr., Smithsonian Institution, Washington, D.C., for checking our identification of the specimens; Mrs. M. Loats, Department of Zoology, The Ohio State University at Newark, Newark, Ohio, and two anonymous reviewers who read the manuscript and made helpful comments. Publication funds were provided by the Research and Scholarly Activity Committee of The Ohio State University at Newark.

LITERATURE CITED

- Cottle, T. J. 1863 On the two species of *Astacus* found in upper Canada. Canadian J. Indust., Sci., and Arts, new series, 45: 216-219.
- Jezerinac, R. F. 1985 Morphological variations of *Cambarus* (*Cambarus*) *bartonii cavatus* (Decapoda: Cambaridae) from Ohio, with a diagnosis of the Ohio form. Ohio J. Sc., 85(3): 131-134.
- St. John, F. L. 1976 Growth rate, life span and molting cycle of the crayfish *Orconectes sanborni* (sic). Ohio J. Sci., 76(2): 73-77.
- Stout, W., K. VerSteeg, and G. F. Lamb 1943 Geology of water in Ohio. Geol. Surv. Ohio, Bull. 44, Ser. 4, pps. 1-694.
-