March 2009
Volume 31, Issue 1

Crayfish NEWS

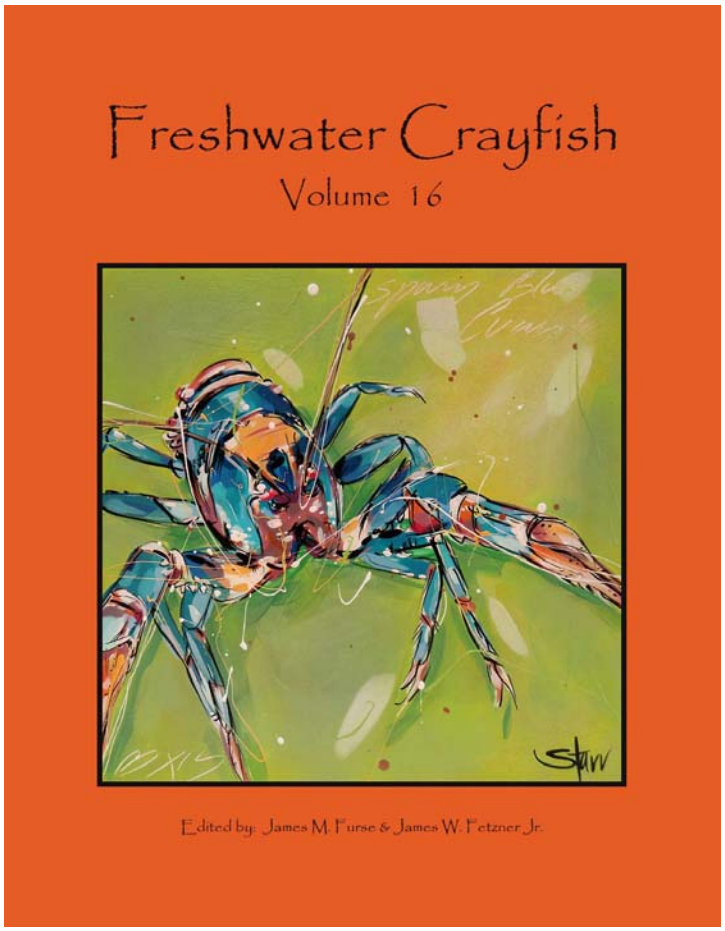
ISSN 1023-8174

The Official Newsletter of the International Association of Astacology

Inside this issue:

Cover Story	1
President's Corner	2
IAA Related News	3
Short Articles	4
Conservation of White-clawed Crayfish *Austropotamobius pallipes*, in Southwest England	4
Notes on the Piedmont Blue Burrower, *Cambarus harti*	5
Traditional Laundry Becomes Crayfish Killer (Cândeni Case Study)	5
Books & Multimedia	8
News Items From Around the World	10
Meeting Announcements	12
Literature of Interest to Astacologists	16

Freshwater Crayfish Volume 16 Now Available



The cover of the newly published *Freshwater Crayfish* 16.

We are please to announce that Freshwater Crayfish 16, the proceedings resulting from the 16th Symposium of the International Association of Astacology that was held in Surfers Paradise, The Gold Coast, Queensland, Australia between the 30th of July and 4th August 2006, has been published by the IAA.

This is the latest in a long line of *Freshwater Crayfish* volumes that extend back over the past 35 years, and this volume incorporates a number of timely updates. These updates include a new format for the papers themselves that brings them into line with mainstream published journals, and a revised set of instructions for authors that will help standardize manuscript submission for this newly implemented journal format. Furthermore, this was the first volume of *Freshwater*

(Continued on page 3)

(Continued from page 4)

Notes on the Piedmont Blue Burrower, *Cambarus harti*

Introduction and Methods

The Piedmont Blue Burrower, *Cambarus harti,* is a primary burrowing crayfish listed as endangered by the state of Georgia, USA. It is distinguished by its blue coloration, small eyes, and narrow areola. This species has a limited range and habitat specificity and is only found in the Piedmont region of the Chattahoochee and Flint River basins in Meriwether County, Georgia.

Crayfish were collected in 2007 & 2008 by burrow excavation or by avian mist net (see Welch and Eversole 2006) from two areas approximately 100 m apart in seepage sandy areas (approximately 900 m^2) rich in organic matter near two spring-fed streams. Roots from surrounding vegetation (e.g., red maples, giant cane) support the burrows. Sex of the individual, carapace length and width, chela length (lateral margin of palm) and palm width of the right chela were recorded. Chimney characteristics (e.g., size, shape, and structure) and burrow openings were noted.

Results and Discussion

Twenty two crayfish were collected and size of individuals ranged from 6 mm to 29 mm in carapace length. First form males (n = 5) were collected from April through November. No females in berry were collected. The smallest crayfishes were captured in November and December of both years. Two juvenile crayfish were collected from the same burrow on two separate occasions. Crayfish capture success using mist nets was less than one crayfish captured per 15 burrowing nets set, however use of this trapping method did reduce the damage to burrows and the impact on the habitat compared to digging.

Color notes - Crayfish carapace color varied from dark cobalt blue to a rusty pink/violet color. Individual crayfish had variation in carapace color similar to that describe in Hobbs (1981). Two juveniles had a magenta tint when collected but became a darker blue hue after a month in captivity.

Photo 1. *Cambarus harti*, The Piedmont Blue Burrower. Photo by Chester R. Figiel, Jr.

There is concern for *C. harti* vulnerability to extirpation due to habitat changes, destruction or degradation. For example, the site where Hart and Hart (1974) captured individuals has been altered due to logging operations and the species may be gone from that location. Additionally, this species is an obligate burrowing crayfish and may be susceptible to climate changes related to drought. Sampling efforts during 2007 and 2008 were made during drought-like conditions and it is unknown if this factor affected crayfish foraging behavior, growth, body size, and reproduction. Reduced rainfall may have resulted in changes in soil moisture, prey availability, burrowing ability, or crayfish movement. Because of its highly specialized life history and because of the small natural range of this species, understanding the threats that disrupt natural processes is critical to conserving this species. Further studies will attempt to identify basic ecology and behavior of these crayfish starting with population estimates and seasonal differences. Additionally, studies on habitat requirements and genetic variability are needed for continued *C. harti* conservation efforts.

Chester Figiel, Jr.
Warm Springs Regional Fishery Center
U. S. Fish and Wildlife Service
Warm Springs, Ga. USA 31830
chester_figiel@fws.gov

References

Hart, D. G. and C. W. Hart, Jr. 1974. The Ostracod Family Entocytheridae. Academy of Natural Sciences of Philadelphia Monograph. 238 p.

Hobbs, H. H., Jr. 1981. The crayfish of Georgia. Smithsonian Contributions to Zoology. No. 318, 549 p.

Welch, S. M. and A. G. Eversole. 2006. Comparison of two burrowing crayfish trapping methods. Southeastern Naturalist 5: 27-30.

Traditional Laundry Becomes Crayfish Killer (Cândeni Case Study)

In Romania, there are three native crayfish species: Stone Crayfish (*Austropotamobius torrentium*), Noble Crayfish (*Astacus astacus*) and Long-clawed Crayfish (*Astacus leptodactylus*).

The Cândeni Stream is the last tributary in the Caraş hydrographic basin, and it is situated near the limit of the Nera hydrographic basin. Noble Crayfish live in most of the Caraş hydrographic basin tributaries, except for Buhui Spring and Cândeni Stream, where Stone Crayfish live [old observations

(Continued on page 6)

(Continued from page 5)

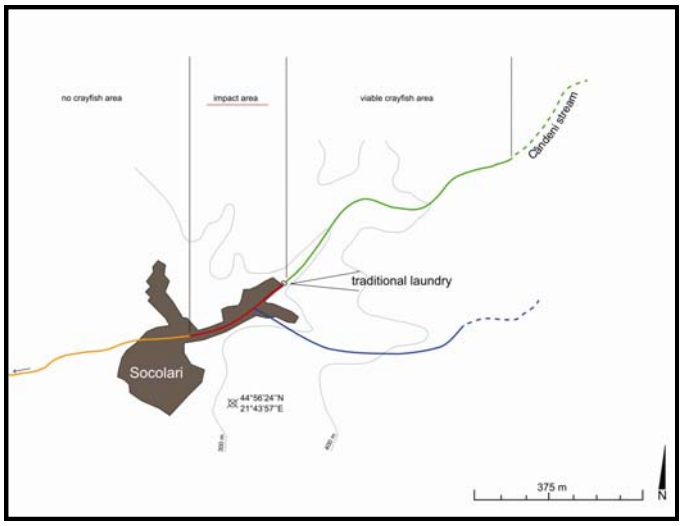


Figure 1. Map showing the location of study area.

mention another tributary with Stone Crayfish – Ponicova Stream (Băcesu 1955), but nowadays only Noble Crayfish live there]. Today, only Stone Crayfish are found in the Nera hydrographic basin (personal observations).

Thus, the crayfish population from Cândeni Stream is either a remnant of the old population of the Caraş basin, or it might be a natural or artificial expansion of the populations from the Nera basin.

Regardless of where it came from, this crayfish population is in big danger. On the 25th of November 2008, over 93 Stone Crayfish were found dead, or almost dead, in the middle of Socolari (a small village with traditional peasant houses) which Cândeni Stream flows through (Figure 1). Upstream investigations have revealed the existence of perfectly viable crayfish. Therefore, the only explanation for these die-offs is the use of modern detergents in a traditional laundry (located at the stream's entrance in the village), or in the households situated on the banks of the stream.

We consider this a very dangerous situation for this already vulnerable species (Pökl & Streissl 2005) because such chemical releases may occur again in the future. When analyzing the dead specimens we noticed that male crayfish predominated. The period of time when the observations were made corresponded to the courtship period. The greater number of male crayfish is likely due to their more intense activity while out looking for a females (Maguire et al. 2002). A large number of juveniles were also found, probably because these crayfish found an empty habitat (as a consequence of the possible release of pollutants), and they quickly occupied the new territory. The release of pollutants into the stream is probably ongoing and the new crop of crayfish that were caught downstream of the impacted area (Figure 1) will likely die when pollutants are released again.

Therefore, the population of reproductive age Stone Crayfish in that stream is continuously diminishing as a result of pollution. At a relative population density of 2.35 individuals/m^2 (established during normal conditions), and taking into account the stream's length, the mortality of specimens represents 5.5% of the entire population. As a result, it would take 12 similar events on that stream to cut the entire reproductive population of this vulnerable species in half. Considering that during the summer time the flow of the stream can completely dry up in the limestone areas, it is a miracle that the Stone Crayfish hasn't already completely disappeared from Cândeni Stream.

To conclude, we have brought this important matter to the attention of the local authorities who should take corrective measures in order to stop the release of pollutants into the stream (which is prohibited by law) by educating the locals (Puky et al. 2002), and by following the minimum measures outlined for the species preservation and management (Pârvulescu in Combroux et al. 2007). Maintaining favorable conservation status presumably means making sure that the habitat stays favorable for the crayfish to breed (Holdich et al. 2002).

Lucian Pârvulescu
Chemistry, Biology and Geography Faculty
West University of Timisoara
parvulescubio@yahoo.com

References

Băcescu MC (1967). Fauna Republicii Socialiste România - Crustacea, Decapoda, IV Editura Academiei Republicii Socialiste România, Bucureşti.

Holdich DM, Reynolds J, Edsman L (2002). Monitoring in conservation and management of indigenous crayfish populations. Bulletin Français de la Pêche et de la Pisciculture, 367.

Maguire I, Erben R, Klobučar GIV, Lajtner J (2002). Year cycle of *Austropotamobius torrentium* (Schrank) in streams on Medvednica Mountain (Croatia). Bulletin Français de la Pêche et de la Pisciculture, 367.

Pârvulescu L (2007). *Austropotamobius torrentium* in Combroux I, Thiry E, Țoia T (Eds.) Caiet de habitate şi specii - Fişe pilot, Editura Balcanic, Timişoara.

Pökl M, Streissl F (2005). *Austropotamobius torrentium* as an indicator for habitat quality in running waters. Bulletin Français de la Pêche et de la Pisciculture, 376/377.

Puky M, Reynolds J, Grandjean F (2002). Education as a key to decapod conservation. Bulletin Français de la Pêche et de la Pisciculture, 367.