

Rediscovery of the black sandshell, *Ligumia recta* (Lamarck, 1819), in Kansas

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On 25 July 2002, a live black sandshell (Mollusca: Unionidae, *Ligumia recta*) was collected by Maisie Hotvedt, age nine, from the Marais des Cygnes River about 5.8 km upstream of the Kansas-Missouri state line and within the boundaries of the Marais des Cygnes National Wildlife Refuge (MDCNWR), Linn County. The identity of this specimen was confirmed onsite by the authors and other biologists participating in a unionid mussel workshop and qualitative survey of the MDCNWR mussel fauna. The specimen was a large male, measuring 54 by 75 by 170 mm (width, height, length). Several voucher photographs of this mussel were obtained before returning it to the capture location, a gravelly run approximately 40 cm deep on the date of the survey (daily average flow: 2.8 m³s⁻¹; USGS 2002).

Ligumia recta was historically widespread in eastern Kansas (Call 1885a, b, c; 1886, 1887; Popenoe 1885; Scammon 1906; Isely 1924) but declined markedly in distribution and abundance during the first half of the twentieth century (Murray and Leonard 1962). Mussel surveys performed by the Kansas Department of Health and Environment from 1979 through 2001 yielded only weathered valves and shells of this species, all from the following streams: Wakarusa, Big Blue, Black Vermillion, Clear Fork Black Vermillion, South Fork Big Nemaha, Neosho, Cottonwood, South Fork Cottonwood, Verdigris, Fall, Marais des Cygnes, Spring, and Walnut rivers, and Pottawatomie, Vermillion, Mill, and West Branch Mill creeks. Prior to discovery of the MDCNWR specimen, the most recent verifiable record for *L. recta* was obtained by

Harold Murray in 1956 from the Marais des Cygnes River, approximately 50 km upstream of the MDCNWR survey location (T. Nickens, pers. com. 2003; Murray and Leonard 1962). A voucher specimen was retained by Murray and transferred eventually to the National Museum of Natural History, where it remains today (USNM 743143). Branson (1966) reported populations of *L. recta* in the Spring River Basin but seemingly retained no voucher specimens. Later records for this mussel in Kansas (Liechti and Huggins 1977; Schuster and DuBois 1979; DuBois 1981) were based solely on collections of weathered shell material (D. Huggins, pers. com. 2003). Several recent investigators have regarded the black sandshell as extirpated in Kansas or nearly so (Cope 1979; Schuster 1979; Couch 1997; Obermeyer, Edds *et al.* 1997).

Declines in native bivalve populations have been attributed previously to soil erosion and stream siltation, other forms of water pollution, habitat alteration (*e.g.* impoundment and channelization of streams), commercial shellfish harvesting, loss of appropriate fish hosts for the development of larval mussels, severe drought, climate change, and other factors (Metcalf 1983; Distler and Bleam 1995; Hoke 1996; Obermeyer, Edds *et al.* 1997). The discovery of a single mature specimen of *L. recta* in the lower Marais des Cygnes River does not substantiate the occurrence of a self-sustaining mussel population. However, it does suggest that this stream reach could support additional mature individuals transplanted from established out-of-state populations and, perhaps, juvenile mussels derived from hatchery propagation efforts.

The Marais des Cygnes River in the vicinity of the MDCNWR currently supports at least seasonal (spawning) populations of walleye, *Stizostedion vitreum* (Mitchill) (Dent, Fantz *et al.* 1998; USFWS 1998), a probable historical fish host for the black sandshell in eastern Kansas (Barnhart 1999; *cf.* Wheeler 1878).

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