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Abstract

Muskrats (*Ondatra zibethicus*) prey on freshwater mussels in the Green River within Mammoth Cave National Park (MACA), many species of which are threatened or endangered. Reportedly, muskrat populations have been reduced in some streams where North American river otters (*Lontra canadensis*) were reintroduced and it has been suggested that river otter reintroduction at MACA might help conserve endangered mussels. To test that idea, we used occupancy estimation methods to evaluate the ecological relationship between muskrats and otters by collecting presence/absence data based on field sign found at bridge crossings in eastern and central Kentucky. Mean detection (p) and occupancy probabilities (ψ) for muskrats were 0.692 (SE = 0.045) and 0.723 (SE = 0.071) and for otters were 0.623 (SE = 0.036) and 0.662 (SE = 0.069), respectively. Otter occupancy was related negatively to distance from release sites, which suggests that the otter population is still expanding its range. A 2-species interaction model indicated that the occupancy by muskrats and river otters was independent, and we conclude that river otter reintroduction would not be an effective strategy for conserving mussels at MACA.