A STUDY OF THE ABUNDANCE, DIVERSITY, AND RECRUITMENT STATUS OF FRESHWATER MUSSELS IN THE MARAIS DES CYGNES RIVER, KANSAS

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ABSTRACT

This study examines the status of a freshwater mussel assemblage located on the Marais des Cygnes River at the Marais des Cygnes National Wildlife Refuge in Kansas. Four mussel beds were selected and parameters including density, diversity, area, recruitment status, and habitat selection by mussels were examined at each site. Density within the mussel beds at the four sites ranged from 3.0 mussels/ m^2 to 8.9 mussels/ m^2. *Amblema plicata* was the most abundant species at all four sites with densities ranging from 1.3 mussels/ m^2 to 4.5 mussels/ m^2. The mussel bed at Site 1 had the highest value of species evenness and higher numbers of recent recruits in four aged species. In addition, there was evidence of regular annual recruitment in three tachytictic species at Site 1 in recent years (*Amblema plicata*, *Obliquaria reflexa*, and *Quadrula pustulosa*). In contrast, *Ellipsaria lineolata*, a bradytictic species experienced higher recruitment success in years where mean monthly discharge in June through August was low. Discriminant models developed at each site based on depth and several substrate variables were accurate (76%-87%) at predicting mussel absence in 'unfavorable' habitats (deeper areas with lower ratios of medium and coarse gravel to other particle sizes) but limited in their ability to predict mussel presence in 'favorable habitats'(57%-77%). Other factors including stability of the gravel substrate during high flow events, food availability, and temperature may be influencing the micro-scale distribution pattern of mussels at the sites on the Marias des Cygnes River.