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Mike Nelson, Invertebrate Biologist [mike.nelson@mass.gov](mailto:mike.nelson@mass.gov);  
MA Wildlife Natural Heritage and Endangered Species Program  
MassWildlife Field Headquarters  
1 Rabbit Hill Road, Westborough, MA 01581

Re: Proposal submitted by the Southeastern Massachusetts Pine Barrens Alliance to list the American Horseshoe Crab as a Species of Special Concern

Dear Drs. Carmignani and Nelson,

Based on our years of experience in Delaware Bay, seeking to restore horseshoe crabs and the shorebirds that rely on their eggs, listing the horseshoe crab as a Species of Concern in Massachusetts is a necessary and critical step to rebuilding these sadly diminished species.

Dr. David Mizrahi has been the Vice-President for Research and Monitoring at New Jersey Audubon for the last 23 years and leads the organization's "Connecting the Dots" – an international program that focuses on the ecology and conservation of migratory shorebirds along the Atlantic Flyway. Dr. Lawrence Niles directed New Jersey's Endangered and Nongame Species program for 15 years and today leads Wildlife Restoration Partnerships, an organization focused on restoring habitats for migratory shorebirds, especially those used by the federally threatened Red Knot. He also heads the International Shorebird and Conservation Project for the Conserve Wildlife Foundation of New Jersey. We have extensive experience researching and documenting the challenges endangered and threatened shorebirds face throughout the Atlantic Flyway and have published dozens of peer-reviewed papers. Since 2019, we led the Horseshoe Crab Recovery Coalition, a partnership of more than 50 organizations along the eastern seaboard seeking to restore depleted horseshoe crab populations.

Over the last 20 years, regulations governing the take of horseshoe crabs in Massachusetts have done little to rebuild the substantially diminished spawning crab population in Massachusetts and may not maintain even the current low numbers. The new regulations passed this year, increasing take of biomedical horseshoe crabs and setting the bait quota at the ten-year

average, will do little to rectify this situation; neither would the proposed but not adopted spawning closures.

There are currently no data to support the contention that Massachusetts horseshoe crabs can sustain the dramatically increased biomedical take, lacking statistically significant insight into trends in the number of adults (male and female), newly mature, and juvenile females, showing highly skewed male/female sex ratios on spawning beaches, and disappearing spawning horseshoe crabs -- warning sign of a collapsing population.

Such a collapse occurred in South Carolina, where there is no horseshoe crab bait fishery and only one biomedical company fishery. Although the Atlantic States Marine Fisheries Commission and the state of South Carolina claimed horseshoe stocks were in good shape (using trawl data similar to that used in Massachusetts), horseshoe crabs disappeared from spawning beaches, along with Red Knots. Following the collapse, a federal, court-ordered consent decree closed 30 beaches in South Carolina to horseshoe crab harvesting – almost every prime horseshoe crab spawning beach – until the end of the spawning season. Massachusetts' weak regulations and paucity of spawning horseshoe crabs are reason enough to list the horseshoe crab as a Species of Special Concern -- the only regulatory option now available to restore horseshoe crabs and the shorebirds that depend on their eggs.

A second, equally important justification for listing the horseshoe crab as a Species of Special Concern is that horseshoe crabs are a “dominant” species: in abundance, they contribute substantially to the diversity and biomass of coastal food webs, especially shorebirds, including Red Knots, Ruddy Turnstones, Semipalmated Sandpipers, Dowitchers, and other shorebirds that rely on the eggs. Horseshoe crab eggs are the federally listed Red Knots' most energy-rich food, and the birds will preferentially select beaches where eggs are plentiful. In addition, horseshoe crab eggs feed sand shrimp and forage fish that in turn support other birds and larger fish. This rich coastal food web requires horseshoe crabs spawning in high enough densities to overturn each other's nests as they come ashore to lay their eggs. The spawning densities are sufficiently low in Massachusetts to render horseshoe crabs functionally extinct.

In the 19<sup>th</sup> and 20<sup>th</sup> centuries, Massachusetts was an important staging area for shorebirds migrating north, with accounts of many thousands of knots regularly coming through MA in the spring, with sighting and geolocator data continuing to document their presence, diminished as populations of horseshoe crabs diminished. (Mackay, George H. “Observations on the Knot (*Tringa Canutus*).” *Auk* 10, no. 1 (1893); Forbush, E. H. 1912. *A History of the Game Birds, Wild-fowl and shore birds of Massachusetts*; Veit, Richard R., and Wayne Petersen, *Birds of Massachusetts*, 1993; *Birds of the World*, Cornell Laboratory of Ornithology, 2020.) With its historically prolonged spawning season, the state is uniquely positioned to once again provision shorebirds with eggs and larvae on both their north and southbound migrations, and reestablish its role in the Western Hemisphere Shorebird Reserve Network as a safe and necessary staging area for shorebirds migrating north. Our research in Delaware Bay shows that when horseshoe crab eggs are not available in abundance, numbers of Red Knots in the Bay decline, and the birds that remain do not gain the necessary weight to sustain the long flight to the Arctic.

Horseshoe crab egg densities were higher in New Jersey this year because in addition to propitious conditions, New Jersey prohibits the horseshoe crab bait fishery, including both the take of horseshoe crabs from its beaches and the take from trawlers working in state waters. Across the Bay in Delaware, the unenforceable ban on the take of female horseshoe crabs resulted, in contrast to New Jersey, few spawning horseshoe crabs and red knots on the beaches this year. prohibiting the take of any horseshoe crabs – male or female – in Connecticut.

Our experience working along the eastern seaboard suggests that Massachusetts regulations – existing and recently proposed -- are too weak to restore horseshoe crabs and shorebirds. Such a restoration and reversal of functional extinction takes meaningful regulation and time. The New Jersey prohibition has been in place since 2008. This past June, Connecticut's General Assembly unanimously passed a bill, signed by the Governor, prohibiting the take of any horseshoe crabs – male or female – in Connecticut. We understand the challenges listing a species that is a regulated fishery. At the same time, the Fish and Wildlife Service continues to find the Red Knot "depleted," and now other shorebirds are also suffering dramatic losses. The reasons for these losses are many, but one key solution is within our grasp: ensuring that the birds have an abundant supply of the horseshoe crab eggs they so badly need. Listing the horseshoe crab as a Species of Concern in Massachusetts is essential to realizing that goal.

Thank you for your consideration.

Respectfully,



David Mizrahi, Ph.D.  
New Jersey Audubon



Larry Niles, Ph.D.  
Wildlife Restoration Partnerships