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Amphibian and Reptilian Diversity of the Alligator River National Wildlife Refuge Complex, North Carolina

Description:

The US Fish and Wildlife Service, Refuge Division, is required to conduct a conservation plan for the Alligator River National Wildlife Refuge Complex (ARNWRC), North Carolina. The refuge staff lacks basic information on the presence/abundance of amphibians and reptiles for many refuge habitats. A one year amphibian and reptilian survey will be conducted on ARNWRC. Amphibians and reptiles will be collected and released or if needed will be prepared as voucher specimens. A variety of methods will be used to collect data including road surveys after rain storms, pond dipping, aural surveys, and others. Six large (>1 km²) areas will be randomly selected (3 in low elevations and 3 in high elevations) for intensive transect, quadrat, and drift fence surveys and will cover all major habitats at Alligator River NWR. Major amphibian aquatic-breeding sites will be intensively surveyed by transects, quadrats, and drift fences for each area (general elevations: low and high) above permanent bodies of water. Amphibian and reptilian species richness will be ranked by habitat (statistical tests). Aquatic-breeding amphibian habitat will be ranked according to species richness and potential of that habitat to maintain species richness over time. A species list will be provided for amphibians and reptiles by habitat and season.

Progress to Date:

We completed all field work from September 2000 - July 2001. We established two major research areas, stratified by elevations (east and west side of ARNWR Complex) in September 2000. Three sites, each 3 km x 3 km, were randomly selected in each stratified area ($n = 6$). Three 15 m drift fences were randomly located and built along roads and canals at 3 locations in each site ($n = 18$). And additional 2 drift fences were built at random locations in the

largest area of eastern cedar swamp. Drift fences were opened for 2 days during 5 occasions from May to July, 2001. We established randomly located transects (250-300 m) and 10 x 10 m quadrats (near canal at start of transect and far from canal at end of transect) at 3 locations in each site ($n = 18$) during each of 5 surveys from March to July, 2001 (total of 90 transects and 180 quadrats were completed). General herp surveys were conducted in September, October, March, April, and May-July of 2000-2001. We also conducted timed and measured distance visual surveys for herps along canals at stratified random locations in all sites during 4 occasions from May to July. We conducted turtle trapping in canals and creeks for general herping surveys and photographic vouchers. All data was entered into computer files for analysis in October-November, 2001. Currently we are analyzing species richness data for all areas (using ComDyn software). We proved a species list to the refuge in August 2001 for their conservation planning. Relative abundance data will be analyzed shortly.

Management Implications:

Species habitat associations will be used to assist with management of the refuge for biodiversity by maintaining the required habitats for all populations of reptiles and amphibians on the refuge.

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