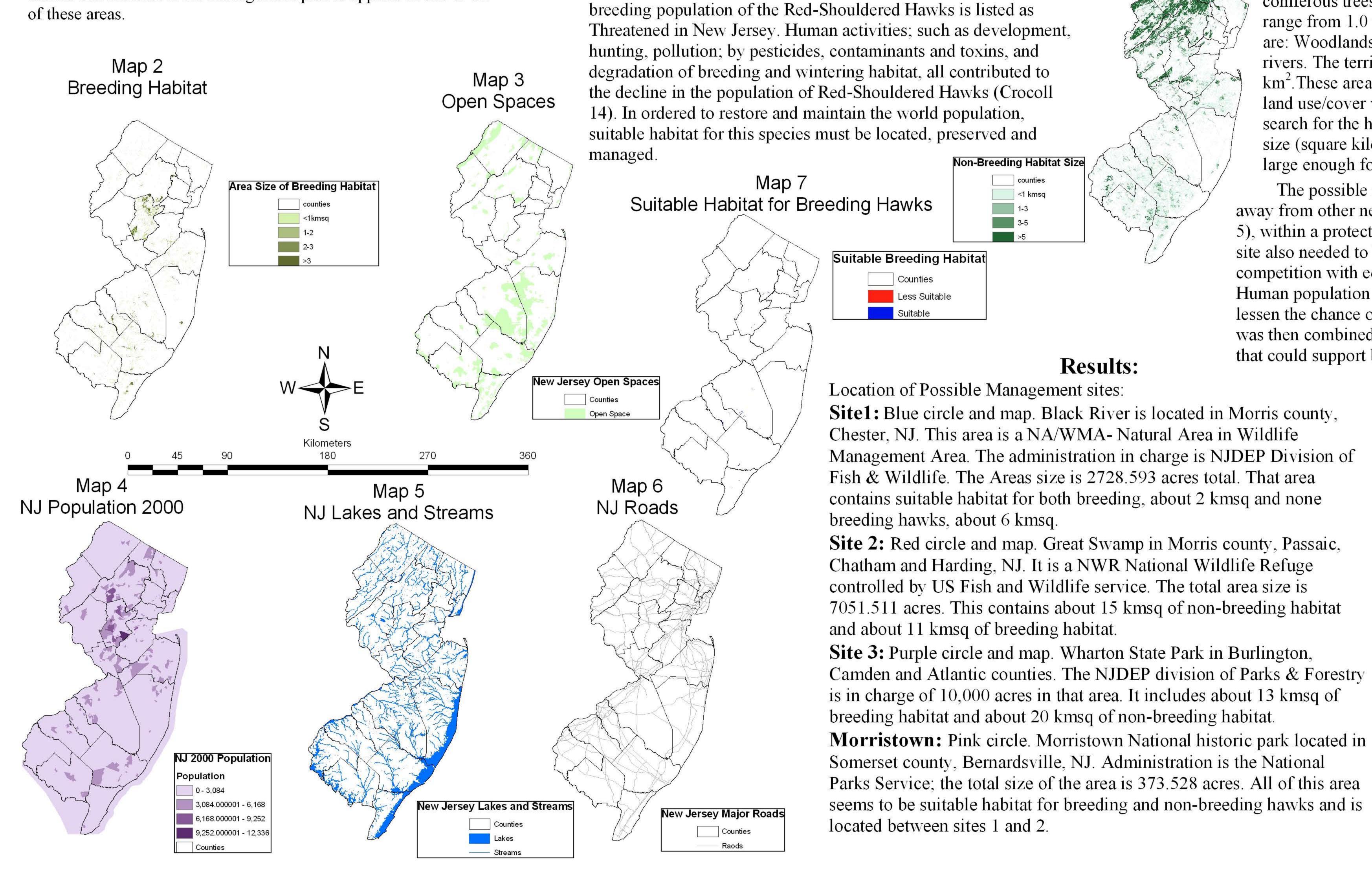
Abstract:

The objective of this project is to find areas of the most suitable habitat that can be managed to help restore the Red-Shouldered Hawk population in New Jersey. The Red-Shouldered

Hawk is considered by the New Jersey Department of Environmental Protection as Endangered species while breeding and a Threatened species when not breeding. The Red-Shouldered Hawk's life history such as population and habitat requirements was reviewed and used to establish what suitable habitat is. The factors considered for suitable habitats are forest type, size, location and administration in change of the area. These criteria are then applied to state DEP data to find areas of habitat where a management plan can be used. Breeding hawks vs. Non-breeding hawks requirements were considered. Red-Shouldered Hawk habitat in New Jersey is limited. This project located three areas in New Jersey that could be used as management areas. The three areas are Black River Wildlife Management Area, Great Swamp National Wildlife Refuge and Wharton State Park all met the standards for the suitable habitat of breeding and non-breeding hawks. A management plan can also be applied in these because they are protected public areas that are already being managed by the state or federal government. The population of Red-Shouldered Hawks can increase if the management plan is applied in one or all



Location of Suitable Habitat Available to Apply a Management Plan for Red-Shouldered Hawks (Buteo lineatus) in New Jersey

Breeding Red-Shouldered Hawk Population Density Map

31 to 100 11 to 30 4 to 10 2 to 3



Less Suitable

Suitable

Introduction:

Jersey Division of Fish and Wildlife's Endangered and Non-game

Species Program list of Endangered and Threatened wildlife

breeding in New Jersey is considered Endangered. The non-

(NJENSP). The Red-Shouldered Hawk's population while

The Red-Shouldered Hawk, Buteo lineatus, is on the New

Lauren Keltos Advanced GIS, ENVL 3303, Dr. Weihong Fan Environmental Studies Program Richard Stockton College of New Jersey

Objectives:

Locate areas of suitable habitat for Red-Shouldered Hawks. where a management plan could be applied. These areas will then be managed to preserve habitat for the species, allowing the population in New Jersey to grow.

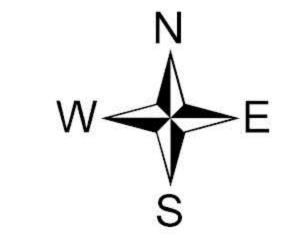
Map 8

on-Breeding Habitat Size

Results:



Map 9 **Location of Possable** Management Areas



Methods:

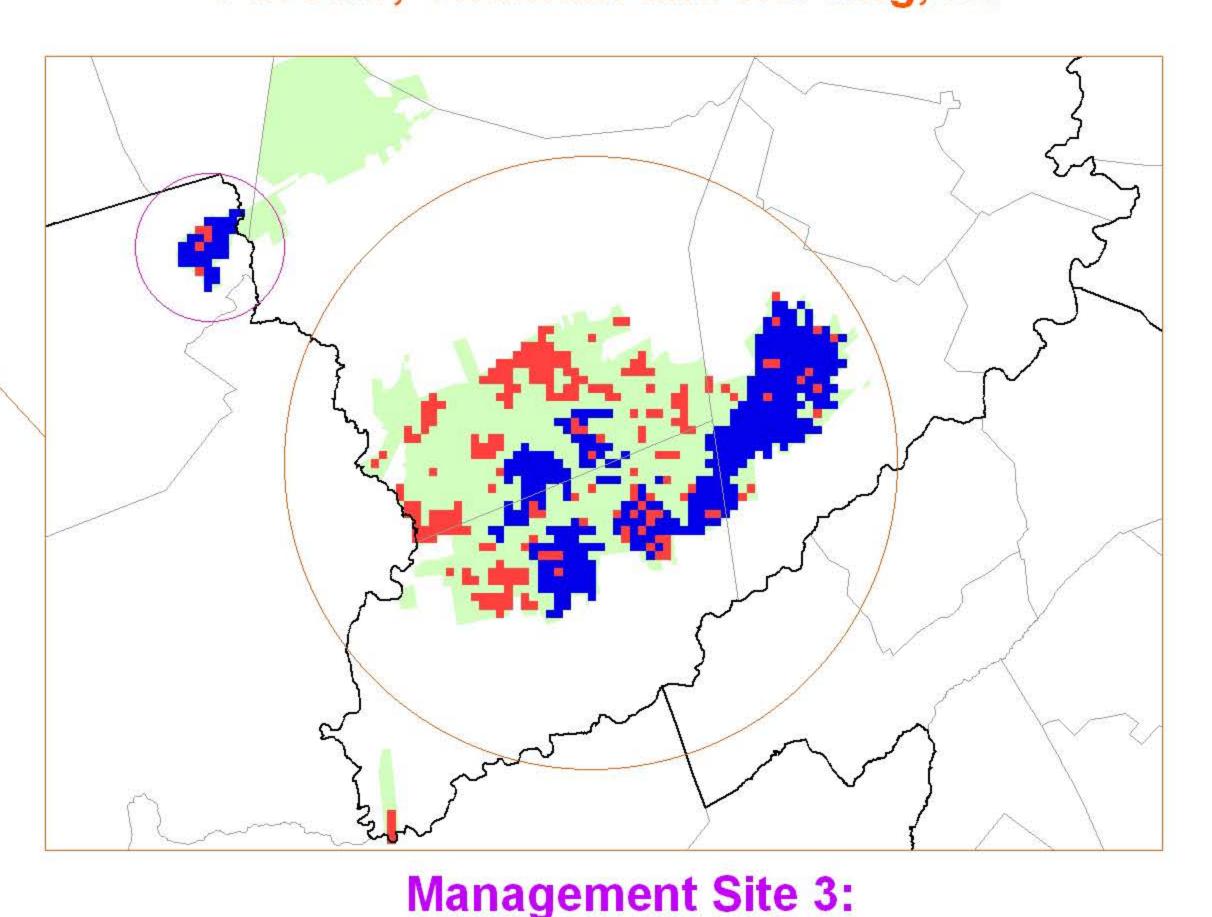
The Red-Shouldered Hawks breeding habitat requirements: Non-Breeding Habitat large contiguous tracts of forested habitat, areas such as flooded deciduous swamps to upland forest containing deciduous and coniferous trees. Average territory size is 1.92 km², but it can range from 1.0 to 3.4 km². The non-breeding habitat requirements are: Woodlands, lowland open areas near swamps, marshes and rivers. The territory size is larger ranging from 1.0 to 5.0 km². These areas in New Jersey where located using DEP Data on land use/cover which is broken down by county. The result of the search for the habitat where then broken into classes based on area size (square kilometers). This was done to find areas that where large enough for the hawk's territory needs.

> The possible management site for hawks should be 4 km away from other nests (Map1), within 1 km of a water source (Map) 5), within a protected area that is manageable (Map 3). This same site also needed to be 1km away from roads (Map 6) to prevent competition with edge species and to prevent human disturbances. Human population in the area was also considered (Map 4) to lessen the chance of disturbances. The best suited breeding habitat was then combined with the non-breeding habitat to locate areas that could support both and a management plan.

Management Site 2: **Great Swamp National Wildlife Refuge in** Passaic, Chatham and Harding, NJ

Management Site 1:

Black River Wildlife Management Area in Chester, NJ



Wharton State Park in Burlington, Camden and Atlantic Co.

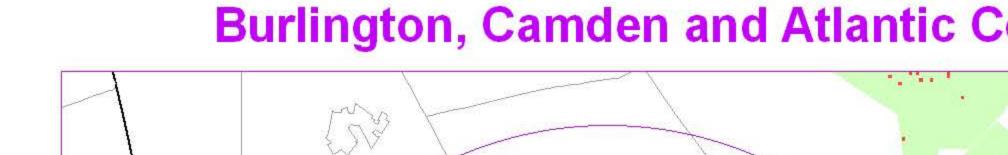
Habitat Location

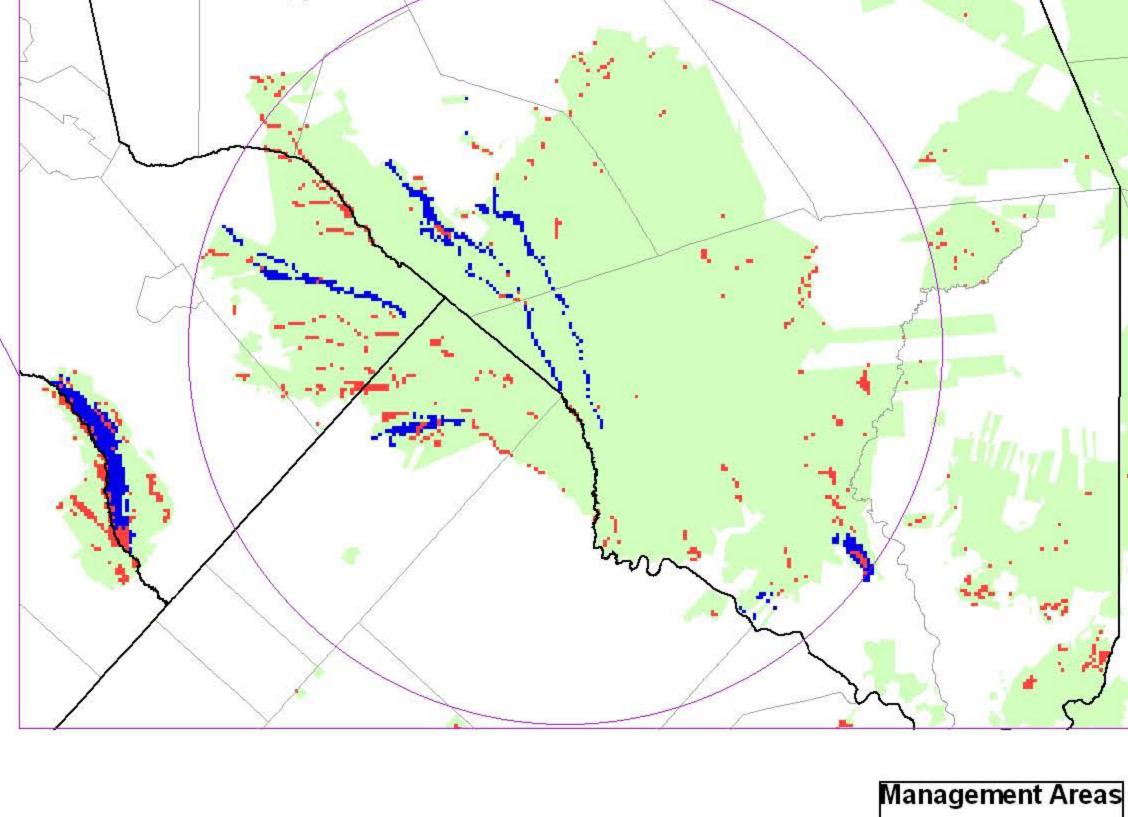
Less Suitable

open space

Suitable

W





Less Suitable

Suitable

Conclusions:

The available habitat for breeding hawks is limited in New Jersey. Nonbreeding hawks are easier to find habitat for because they do not require such a specific habitat. A management plan could be applied to one or all of the areas above. It could be successful in restoring the population. increase if the right habitat is protected and managed correctly

Literature Cited:

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Gough, G.A., Sauer, J.R., Iliff, M. Patuxent Bird Identification

Miller, S. and K. Kirschbaum. 2000. "Buteo lineatus" (On-line), Animal Diversity Web. Accessed March 22, 2005 at http://animaldiversity.ummz.umich.edu/site/accounts/information/Buteo

Site1: Blue circle and map. Black River is located in Morris county,

Right now in New Jersey there are two breeding/resident pairs. The population has room to increase in the state. The population will

Birds of North America, No. 107 (A. Poole and F. Gill, Eds.) Philadelphia: The Academy of Natural Sciences; Washington, D.C.: The American Ornithologists' Union.

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lineatus.html.