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

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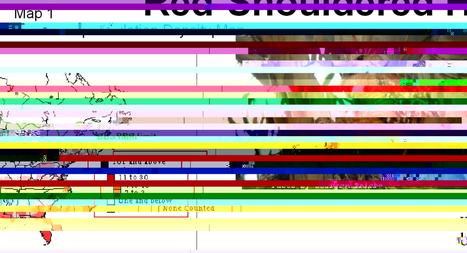
**Abstract:**

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 then used. The factors considered for suitable habitats are forest type, size location and adjacency. The GIS was 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 meet 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 refuge. The population of Red-Shouldered Hawks can increase if a management plan is applied in one of these areas.

Map 1



## Introduction:

The Red-Shouldered Hawk, *Buteo lineatus* is on the New Jersey Division of Fish and Wildlife Endangered and Nongame Species Program list of Endangered and Threatened wildlife (NJENSP). The Red-Shouldered Hawk is considered an endangered species while breeding in New Jersey, but considered Threatened when not breeding. The breeding population of the Red-Shouldered Hawks is listed as Threatened in New Jersey. Human activities, such as development, hunting, pollution, by pesticides, contaminants and habitat degradation of breeding and wintering habitat, all contributed to the decline in the population of Red-Shouldered Hawks (Crocoll, 1994). In ordered to restore and maintain the second population, suitable habitat for this species must be located and properly managed.

## Objectives:

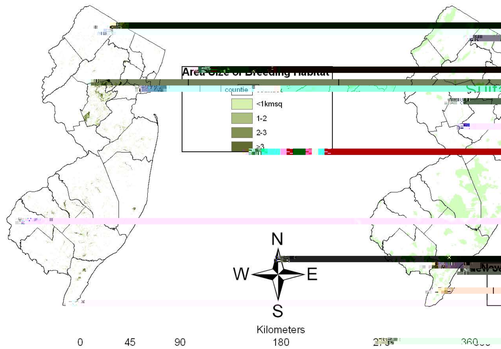
Locate areas of suitable habitat for Red-Shouldered Hawks, where a management plan could be applied. The suitable habitat must be managed to provide habitat for the species, allowing the population in New Jersey to grow.

## Methods:

The Red-Shouldered Hawk's preferred habitat requirements are large contiguous tracts of forested areas such as deciduous swamps to provide [illegible] range from 1.1 to 2.1 $km^2$. The non-breeding habitat requirements are: Woodlands, lowland open areas near streams, rivers. The territory size is large, ranging from 1.0 to 5.0 $km^2$. These areas in New Jersey where located using DEP land use/cover which is broken down by counties. The result of the search for the [illegible] size (square kilometers) [illegible] large enough for the hawk's territory needs.

The possible habitats must be at least 1 km away from other nests (Map 2), within 1 km of water source (Map 5), within a protected area that is manageable (Map 3). This same site also needed to be large enough 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 that could support both and a management plan.

Map 2
Breeding Habitat




Map 3
Open Spaces

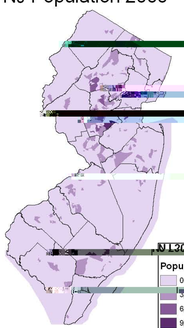



Map 7
Suitable Habitat for Breeding Hawks

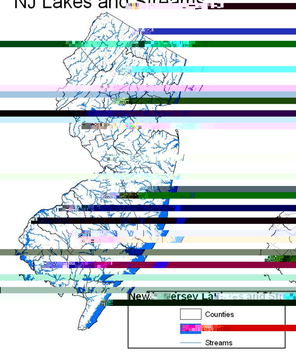
N
W E
S

Kilometers
0 45 90 180 270 360

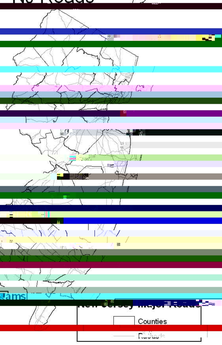
Map 4
NJ Population 2000




Map 5
NJ Lakes and Streams




Map 6
NJ Roads




## Results:

Location of Possible Management sites.

**Site #1:** Blue circle and map, Black River is located in Chester, NJ. This area is a NJ DWMA National Area Management and Focal. The administration is the NJ Division of Fish & Wildlife. The Area size is 278 [illegible] contains suitable habitat for breeding hawks, about 6 km[illegible]

**Site 2:** Red circle and map 3 Great Swamp National Wildlife Refuge located in Chatham and Harding, NJ. It is a NWR National Wildlife Refuge controlled by U.S. Fish and Wildlife Service. The total area size is 7051.51 acres. This contains about 15 km$^2$ of non-[illegible] and about 11 km$^2$ of breeding habitat.

**Site 3:** Purple circle and map. Wharton State Park in Burlington County and Atlantic County. The NJDEP division of Parks & Forestry is in charge of 10,000 acres in that area. It includes about 13 km$^2$ of [illegible]

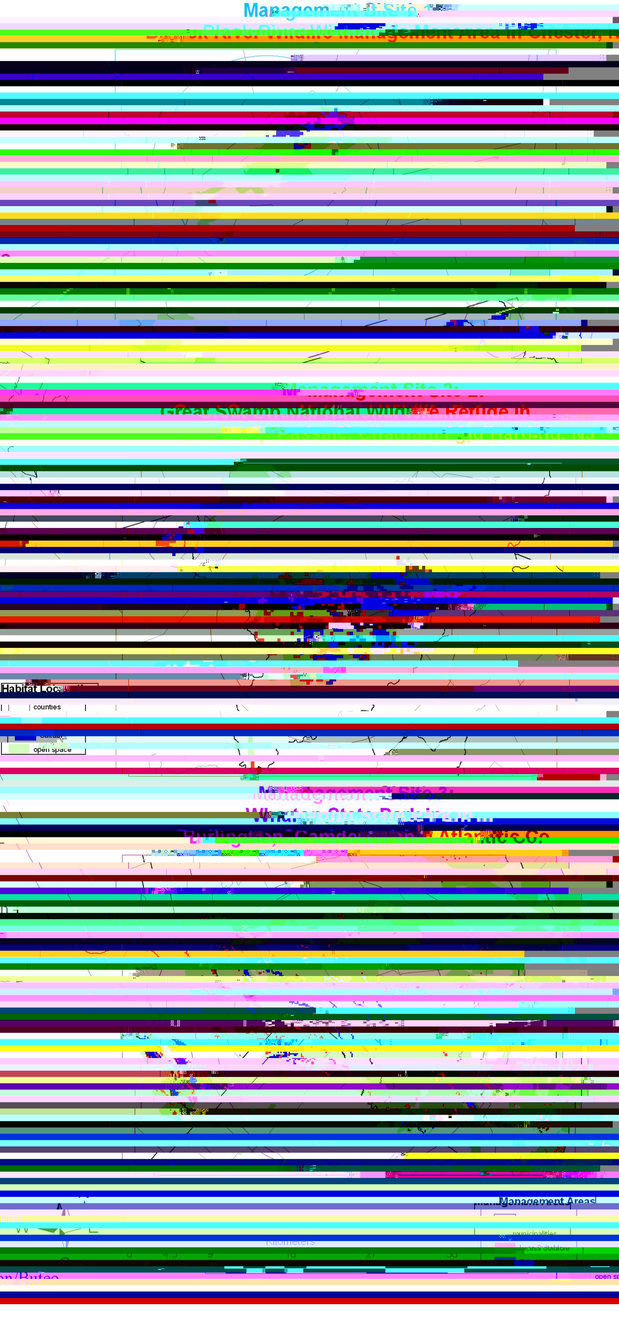
**Morristown:** The site at Morristown National historic park located in somerset county, Bedminster, NJ. Administration is the National Parks [illegible] a total size of the area is 373.528 acres. All of this area seems to be suitable habitat for breeding and non-breeding hawks and is located between sites 1 and 2.

## Conclusions:

The available habitat for breeding hawks is limited in New Jersey. Non-breeding habitat is more abundant. [illegible] breeding/resident [illegible] all of the areas above, it could be successful in restoring the population [illegible] breeding habitat is protected and management correctly.

## Literature Cited:

Crocoll, S.T. 1994. Red-Shouldered Hawk (*Buteo lineatus*). In The Birds of North America, No. 107 (A. Poole, P. Stettenheim, and F. Gill, Eds.). Philadelphia: The Academy of Natural Sciences; Washington, D.C.: The American Ornithologists' Union.

*Endangered* 1996. Yerkston 97 L. Patuxent Wildlife Research Center. Laurel, MD. http://[illegible] Annual Diversity Web [illegible] March 22, 2003 at http://[illegible]

Management Areas