

# Comparison of Avian Productivity and Survivorship in the Northern Forest

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## INTRODUCTION: MAPS

### MAPS: Continental

The Monitoring Avian Productivity and Survivorship (MAPS) Program comprises a continent-wide network of hundreds of constant-effort mist netting stations. Analyses of the resulting banding data provide critical information relating to the ecology, conservation, and management of North American landbird populations, and the factors responsible for changes in their populations.

### MAPS: Black Branch

Since 2004, breeding bird productivity and survivorship has been estimated through long-term, season-long mist-netting in the Nulhegan Basin of the Silvio O. Conte National Fish and Wildlife Refuge in northeastern Vermont. The Black Branch Bird Banding Station is part of national bird monitoring effort, Monitoring Avian Productivity and Survivorship (MAPS) organized by the Institute for Bird Populations. Here we compare the annual productivity of the most commonly captured breeding songbirds at the Black Branch station with other stations in the Northern Forest and the published literature. Such comparisons are important for assessing conservation objectives for priority species of greatest conservation concern.



## LOCATION

### Silvio O. Conte National Fish and Wildlife Refuge, Nulhegan Basin Division, Bloomfield, VT

Congressman Silvio O. Conte in 1991 asked Congress to establish a National Wildlife Refuge to protect the watershed of the Connecticut River and its wildlife resources.

In 1997, Champion International Corporation announced that it would sell approximately 132,000 acres of land in Essex County, Vermont. A non-profit conservation organization, The Conservation Fund, successfully bid on the property and subsequently passed it along to agencies and a timber company. Because the Nulhegan Basin was identified as a Special Focus Area for the Refuge, the Service was offered ownership of 26,000-acres within the Basin. The purchase of this area by the Service on July 21, 1999 marked the establishment of the Nulhegan Basin Division of the Silvio O. Conte National Fish and Wildlife Refuge, with one of its focuses being the diversity of bird life particularly neotropical migrants, for their breeding habitat.



## NET HOURS AND CAPTURES

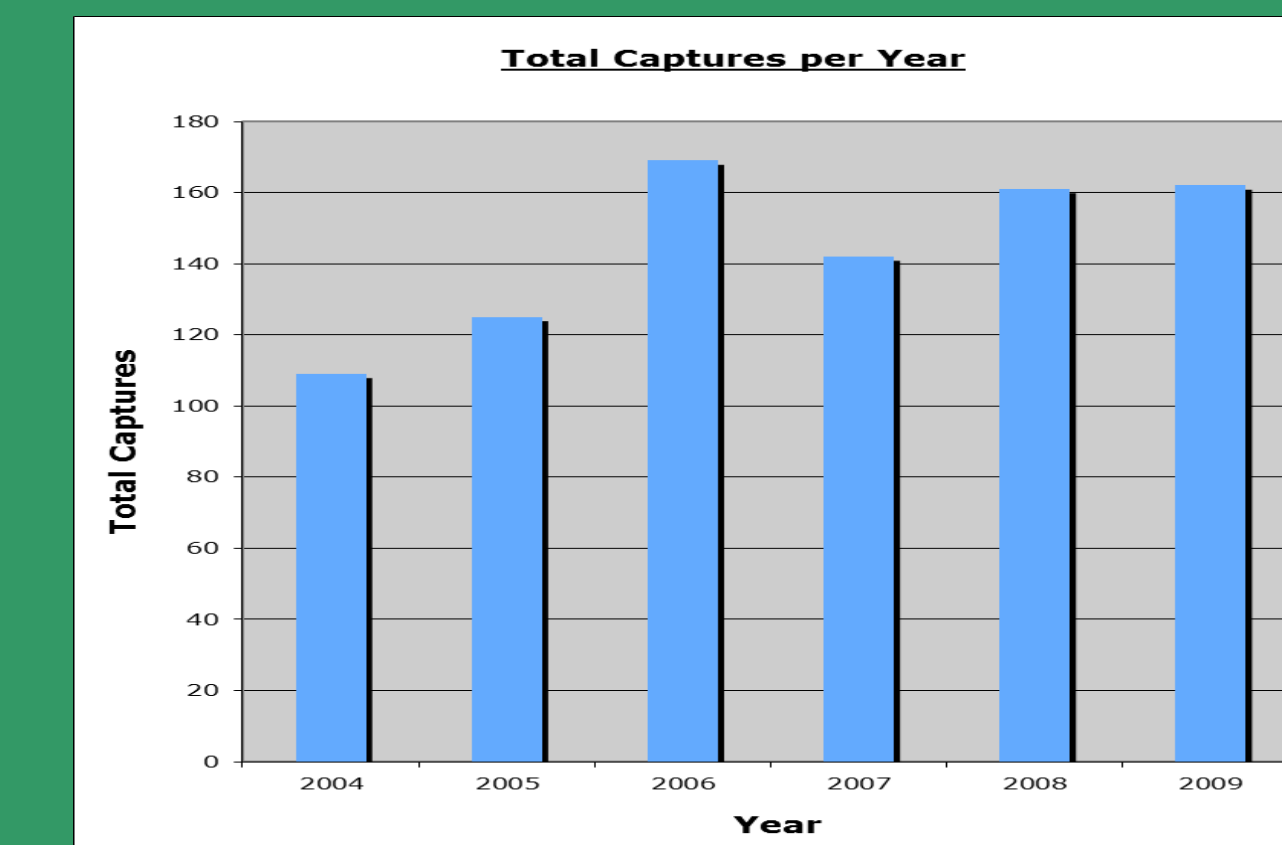


Figure 3. Total Captures per Year, 2004-2009. Total captures did not increase between 2008 and 2009 despite the addition of 100+ net hours.

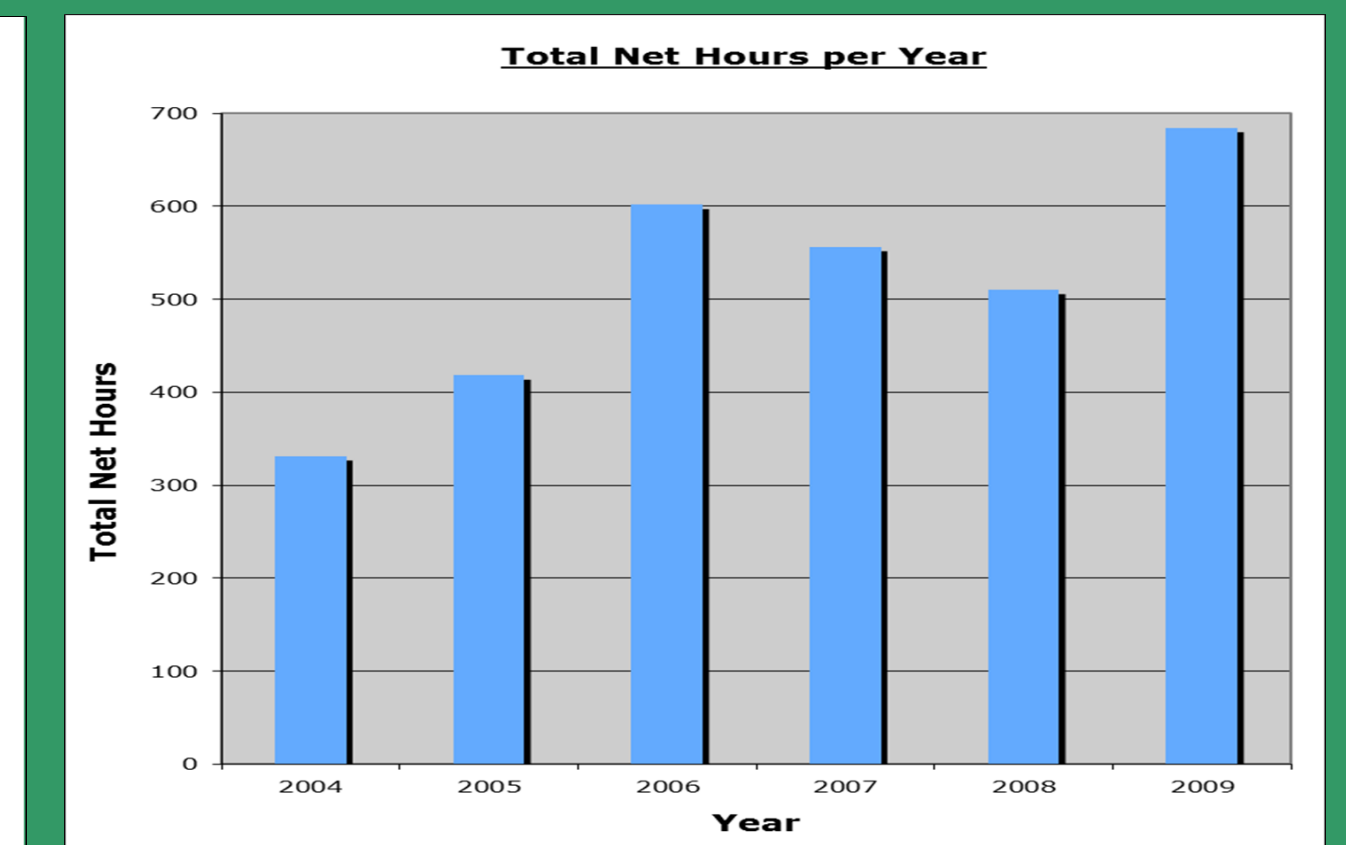


Figure 4. Total Net Hours per Year, 2004-2009. Net hours increase or decrease with the addition or removal of nets at the banding site.

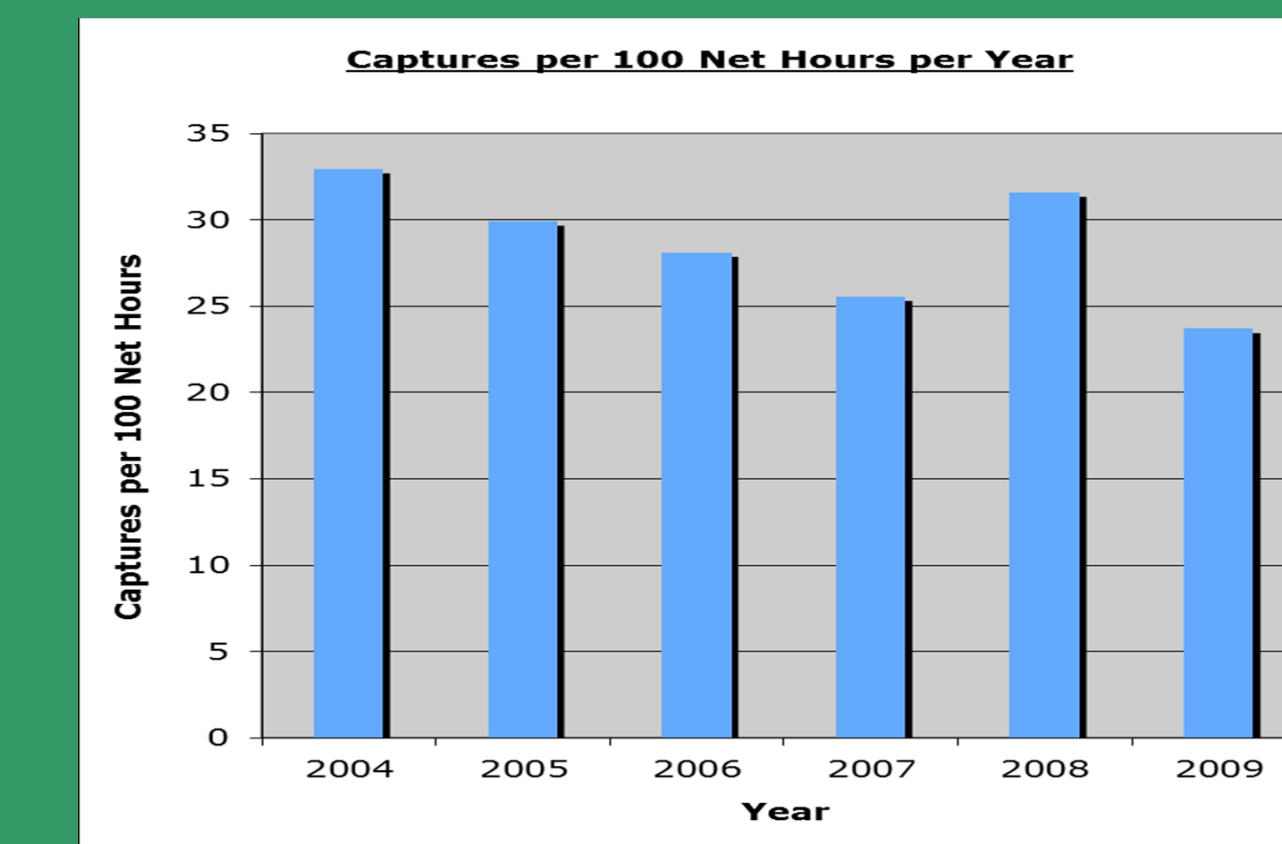


Figure 5. Captures per 100 Net Hours per Year, 2004-2009. Captures per 100 net hours have declined each year with the exception of 2008 throughout the banding study.

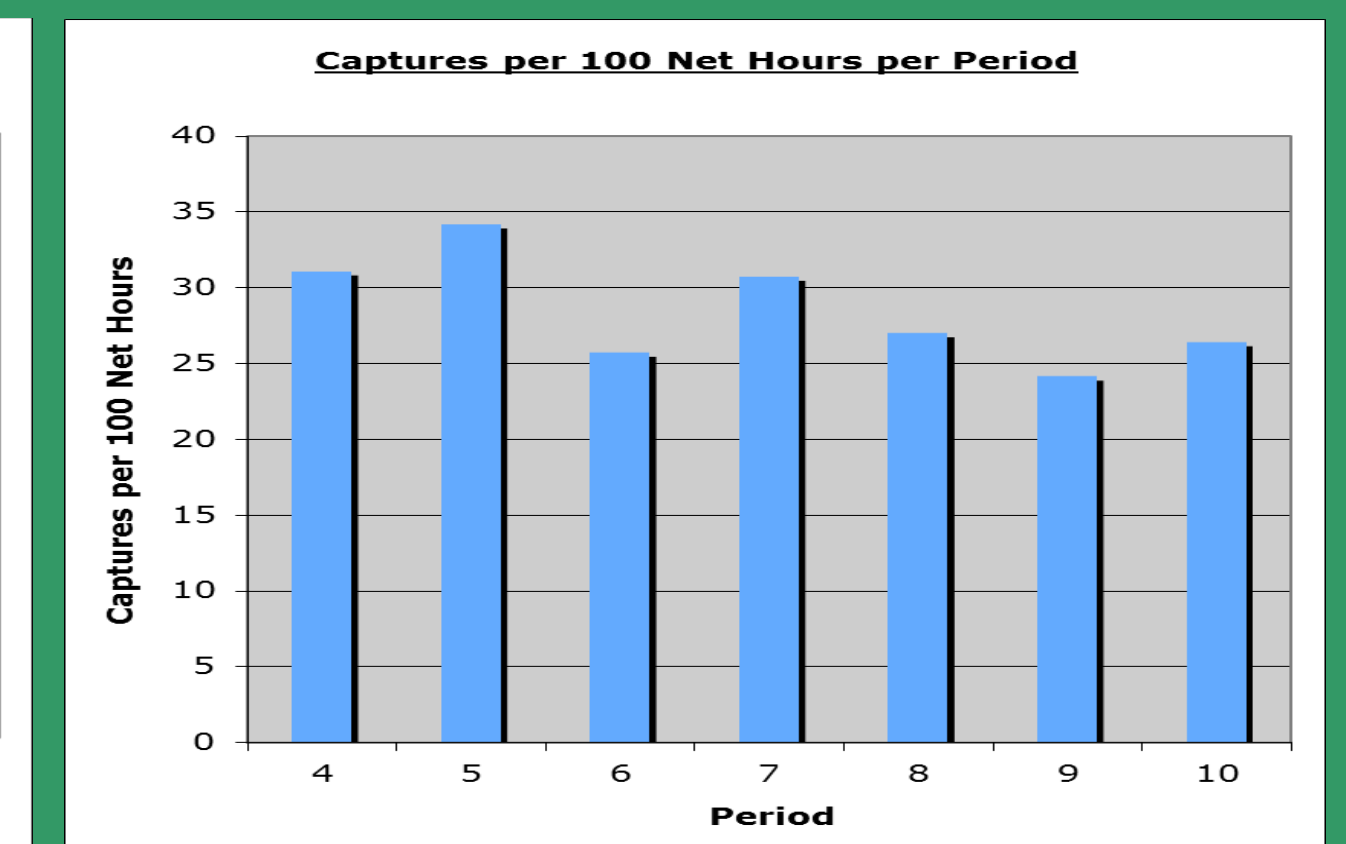


Figure 6. Captures per 100 Net Hours per Period, periods 4-10; 2009. Each of the 10 periods are 10 days in length. One banding day can occur during each period. Captures are more abundant in the earliest periods in 2009.

## COMMON SPECIES



Hermit Thrush: HETH (*Catharus guttatus*)



Veery: VEER (*Catharus fuscescens*)



Ovenbird: OVEN (*Seiurus aurocapillus*)



Black-throated Blue Warbler: BTBW (*Dendroica caerulescens*)

Figure 1. The Silvio O. Conte National Fish and Wildlife Refuge protects the Connecticut River watershed, covering land in Vermont (Nulhegan Basin Division), New Hampshire (Pondicherry Division and Mohawk River Division), Massachusetts (Fort River Division) and Connecticut (Salmon River Division and proposed Pyquag Division).

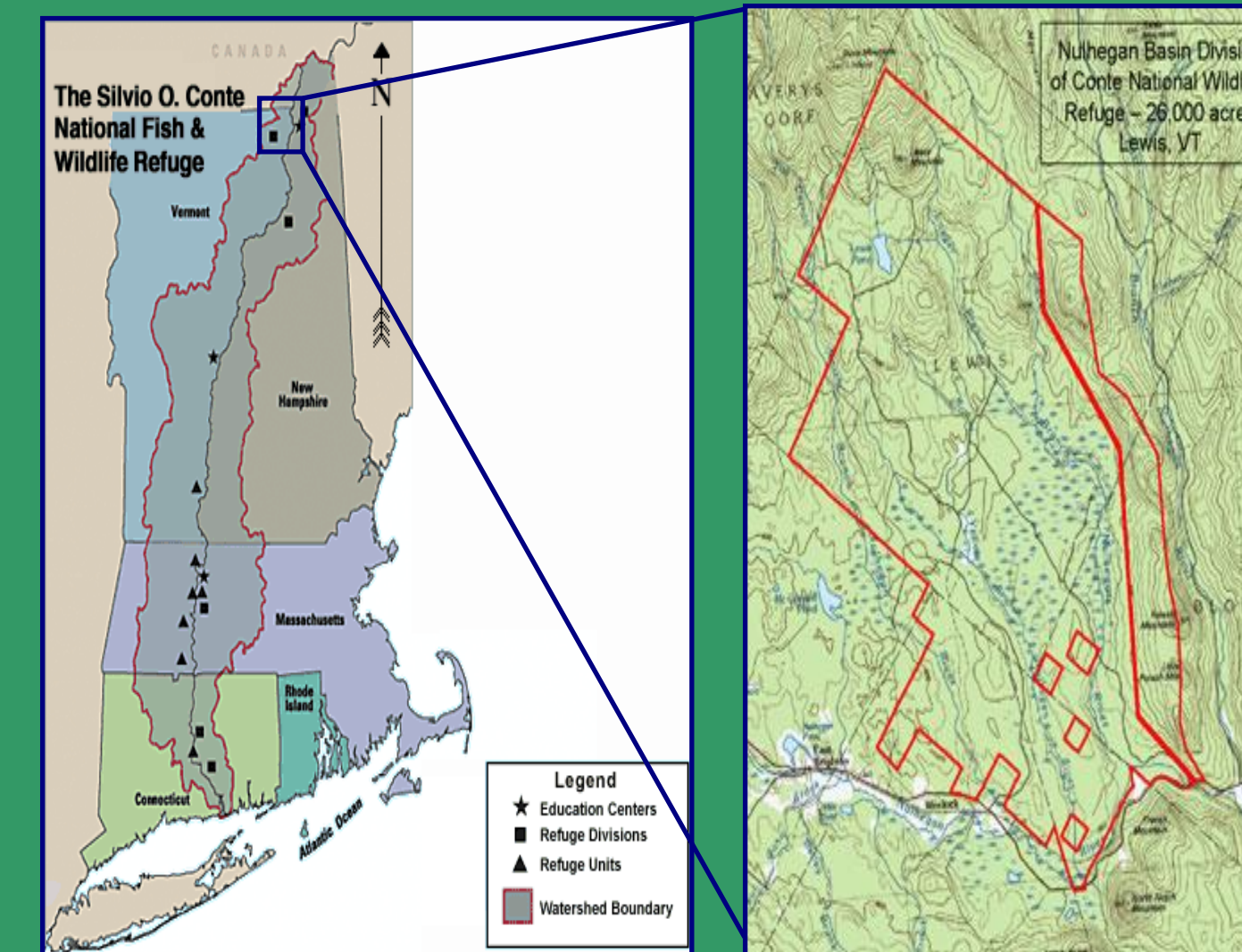


Figure 2. The Black Branch banding station is located in the Nulhegan Basin division of the Silvio O. Conte National Fish and Wildlife Refuge, Bloomfield, VT.



American Redstart: AMRE (*Setophaga ruticilla*)



Chestnut-sided Warbler: CSWA (*Dendroica pensylvanica*)

## COMPARISONS AND CONCLUSIONS

Looking at Figures 7 and 8 the fewest captures in most recent years are found in AMRE and CSWA, while BTBW survivorship is the lowest of all common species. These species thrive in disturbed forests with canopy gaps and early successional species. Since 2000 the Nulhegan Basin has been undisturbed and regenerating leaving unfit habitat for these species. Survivorship is also lower in the Nulhegan Basin (under 40% for all common species) than in the Northeast Region (47-57% for the same species) according to MAPS and total captures (Figure 3) have remained the same although net hours (Figure 4) have increased. Figure 9 shows low ASY to SY ratios for 2008 while high quality habitat has high ASY to SY ratios.

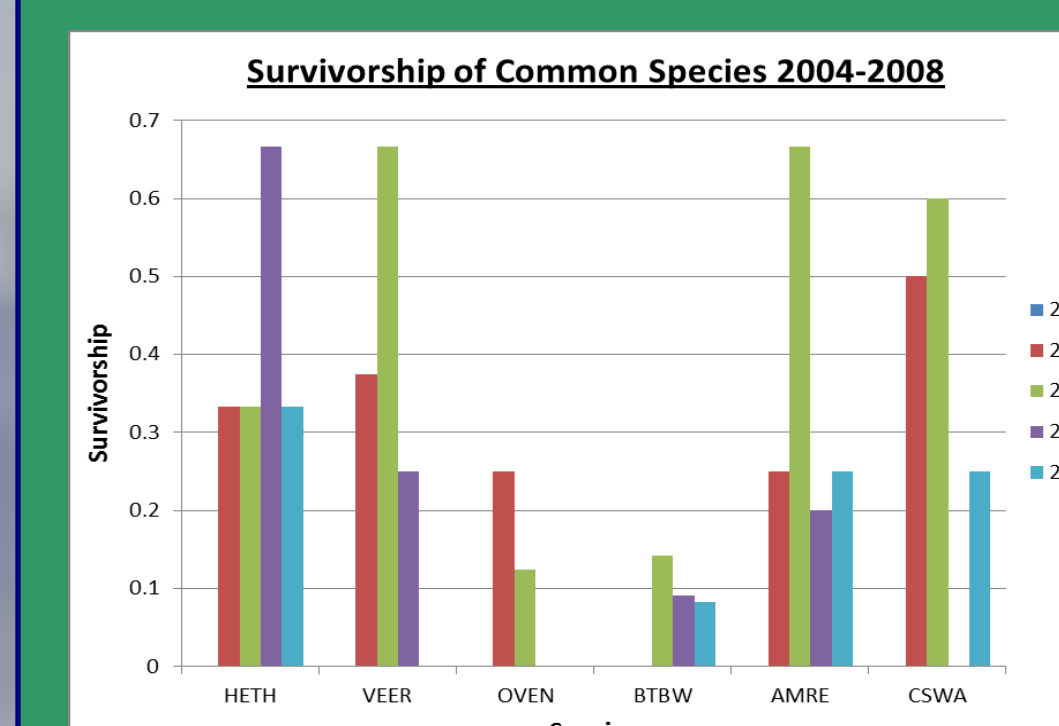


Figure 7: Survivorship of common species caught in the northern forest. Survivorship is number of birds of a certain species caught in the previous year that are caught again in the current year. Only adult birds are counted for survivorship.

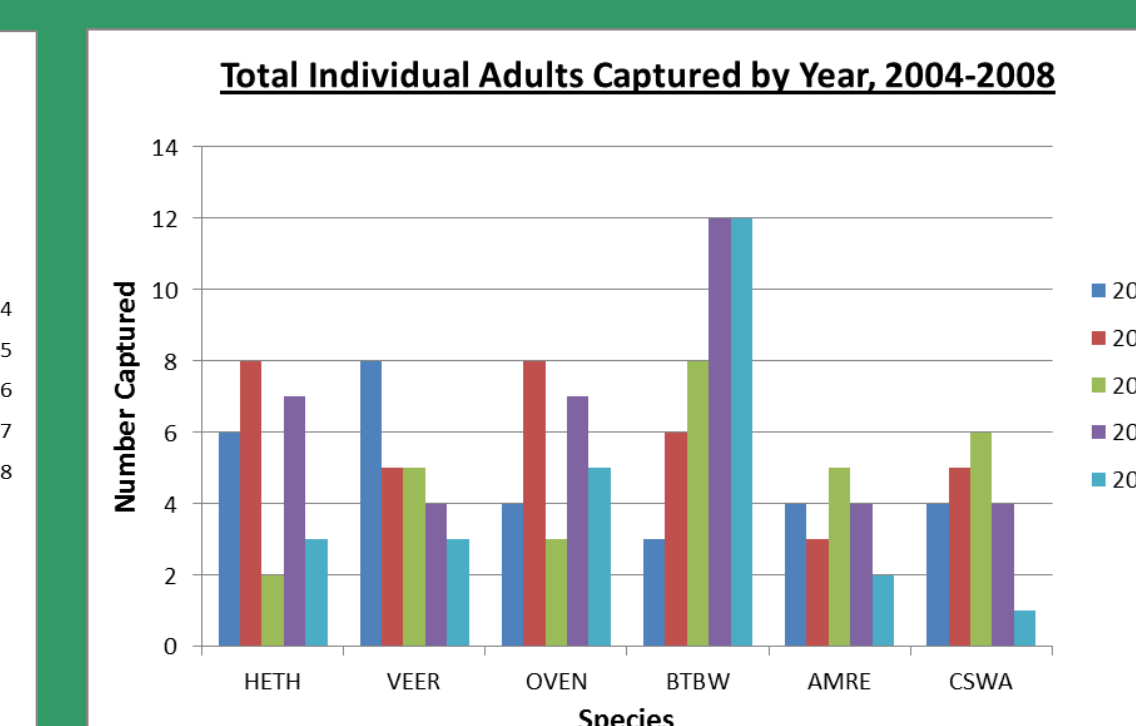


Figure 8: Total number of individual adults captured during the first five years of study for Hermit Thrush, Veery, Ovenbird, Black-throated Blue Warbler, American Redstart and Chestnut-sided Warbler.

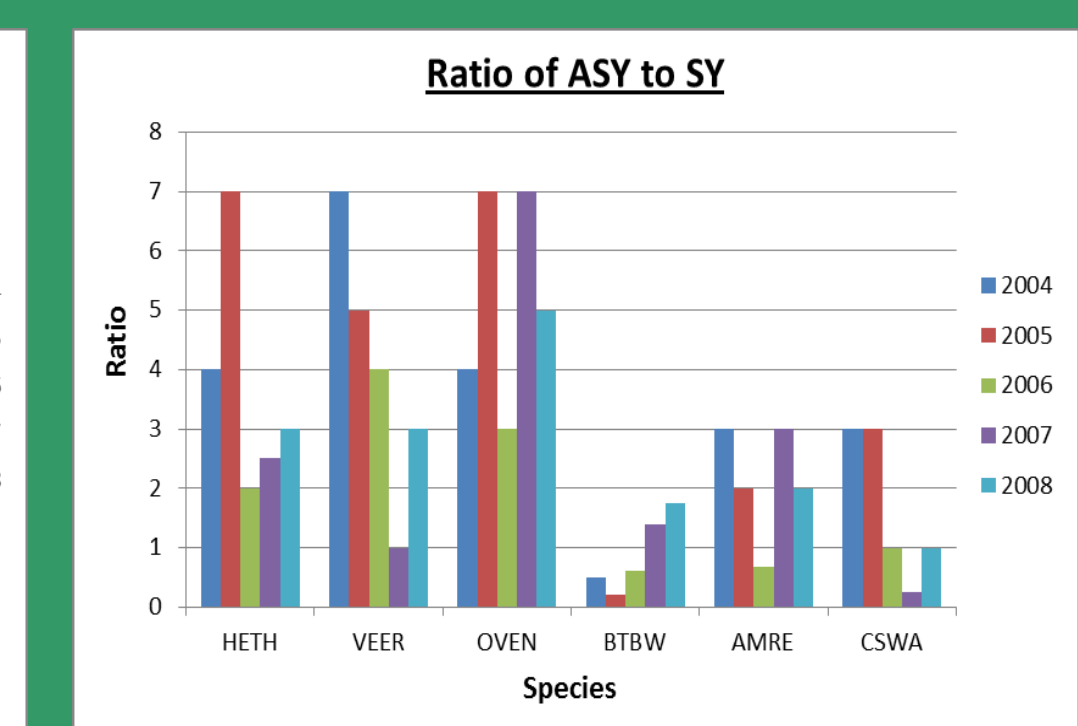


Figure 9. Ratio of ASY to SY. Higher quality habitat has more ASY (after second year) territorial birds than SY (second year) territorial birds.