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EXHIBIT #109a

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December 3, 2004

Dear Commissioners:

Attached is a copy of the presentation I gave at your last meeting concerning. Below I summarize its principal points, and as well provide thoughts on the consulting report on bird surveys for "The Preserve" property in Old Saybrook.

The principal findings of the Forest Bird Survey of Southern New England that relate to "The Preserve" tract are the following:

- The region's forest bird community is a highly heterogeneous one, composed of species that occupy a variety of distinct habitat types.
- Species' habitat choices result in their being non-uniformly distributed. Only certain geographic regions may support the bulk of our regional population.
- Such habitat choices and geographic distributions are not necessarily consistent from summer to winter.
- The region's forest habitats are similarly heterogeneous, and show geographic trends in forest composition and structure.
- This variety in species and habitats results in no one forest tract providing adequate habitat for all the region's bird species. Instead, each tract contains particular features that make it attractive to a particular subset of the region's bird community.
- Preservation of regional forest bird resources is, therefore, best accomplished through protection of extensive tracts, as such tracts are most likely to provide a range of microhabitats required by a variety of bird species. Moreover, preservation of large tracts in geographically separate regions is key to protection of the region's forest bird communities, as there are significant regional differences in prevailing forest habitats and associated bird assemblages.
- Coastal forests are distinct among the region's forests in terms of structure, composition, and local climate.
- Associated with coastal forest distinctions is a significant suite of species with populations that predominate in coastal forests.
- Coastal forests house major population reservoirs for wintering species, and contain the greatest winter diversity of forest species. In many instances resident species undergo substantial increases in populations from winter to summer, and the majority of these individuals winter in coastal forests.
- Preservation of coastal forest and particularly extensive examples of such forest is, therefore, a key component of preserving not only coastal wildlife resources, but regional wildlife resources.

For the above reasons, I recommend strongly that the Commission consider carefully its options in terms of acquiring and protecting the entire parcel. Few tracts of this size remain in the coastal region.

In contrast to these findings, the Consultant's Report on "The Preserve" characterizes the tract as not containing important populations or species ("species of concern"), and low populations of forest species. A principal difficulty with such conclusions is that they do not consider the wildlife of this tract within the larger context of regional systems. Specific points follow:

- Describing populations of particular species as low tells us little, as habitat data are not

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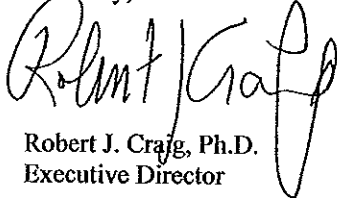
Robert J. Craig, Director

considered concurrently. Low populations are to be expected for those species with habitat requirements not met at this particular tract. As noted above, the landscape is a heterogeneous one, and at any one tract populations of certain species will be favored, whereas others will not be.

- Without comparative data from other sites the meaning of "low" populations is unclear, particularly as densities have not actually been calculated in the report. Such statements also cannot be evaluated without reference to regional population levels, as regional levels fluctuate annually for reasons that may or may not relate to conditions on the breeding grounds. Low populations is a relative term that must be considered in light of such regional patterns.
- As the consultant report considers populations over a brief period in summer, it does not characterize seasonal dynamics of populations and characteristic features of migratory and wintering species assemblages. Concluding from this report that development of this tract is unlikely to have substantial regional impact on populations is, thus, without foundation, particularly in light of our data indicating major population expansions in coastal forests during winter.
- Within our region, the prevailing natural systems are forests. The great bulk of our terrestrial biodiversity resides within these systems, and such systems are also responsible for a multitude of ecological processes (e.g. mineral and nutrient cycling, energy flow). With the present dearth of protection for the majority of forest systems, presuming that populations residing within them are secure and, therefore, less important, is naïve. It ignores the well-documented impact of forest fragmentation on system viability, even though such fragmentation has been demonstrated to be occurring rapidly throughout southern New England. It is only through protection of series of extensive, contiguous forest tracts that we may ensure the long-term viability of these environments. Such extensive tracts, in addition to providing a variety of physical environments, also improve the probability of better representing a range of disturbance states essential for the continued persistence of successional-associated species, and of protecting populations large enough to have long-term viability.
- Minimizing the conservation importance of species inhabiting forest tracts such as this one also exposes a fundamental flaw in local conservation logic. The great majority of locally "listed" bird species are those that are rare by virtue of being peripherally-occurring in our region, and occurring in habitats with little local viability (e.g. prairies) without active human manipulation. For such species, conservation actions within our region are unlikely to yield substantive conservation achievements (see R. Craig, 2002, *Endangered species, provincialism, and a continental approach to bird conservation*, Bird Cons. Res. Contr. 7; available at [www.birdconservation.org](http://www.birdconservation.org) for download). Instead, local conservation efforts are most likely to yield demonstrable benefit by focusing on our prevailing regional ecosystem, forest, and its constituent species.

I hope you will find these thoughts useful as you develop a plan for your natural resources. I am available to you for additional consultation should you require it. As BCR is a non-profit research foundation with a mission of providing assistance to towns on open space issues, there is no fee for such consultation.

Sincerely,



Robert J. Craig, Ph.D.  
Executive Director

# Forest birds of the last green valley



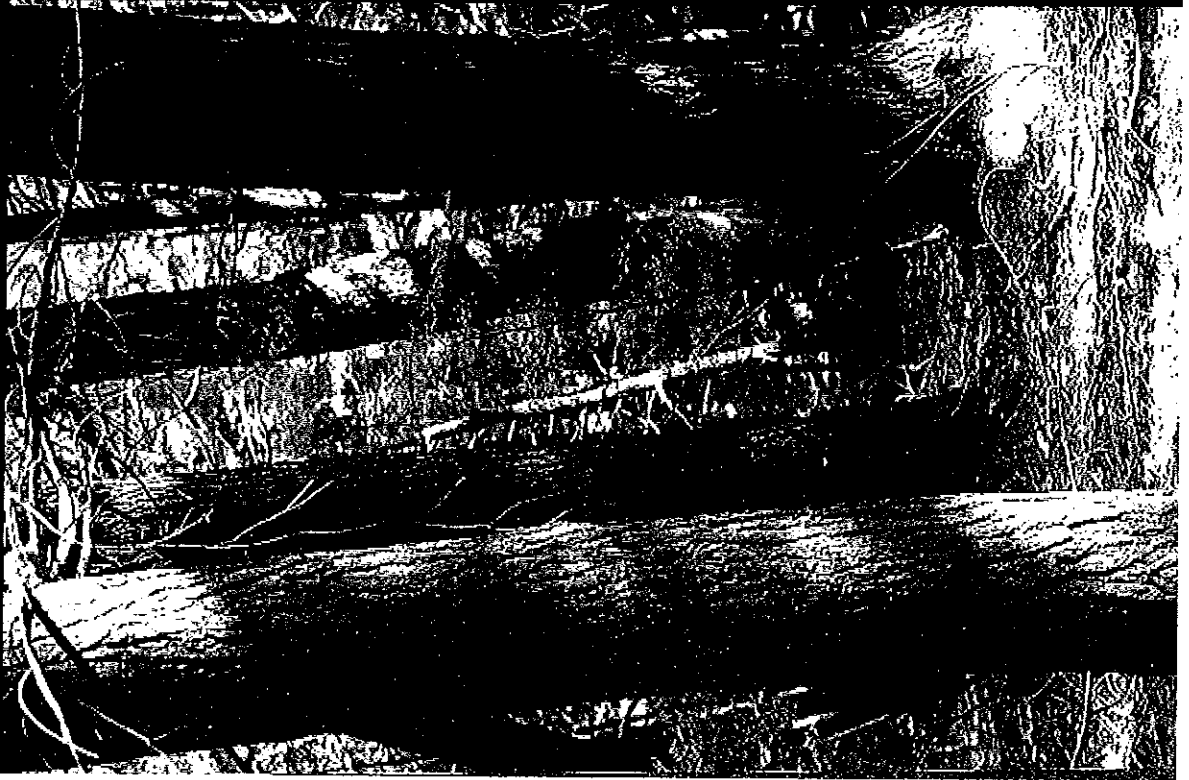
# Introduction

The Last Green Valley, located in eastern Connecticut and western Rhode Island, is the last primarily forested landscape between Boston and Washington.

The valley is presently undergoing explosive development, making it imperative that a regional open space plan be developed that substantively considers wildlife resources.

The Forest Bird Survey of Southern New England was established to provide a wildlife database for this plan, the first ever quantitative inventory for the region.

The Survey is now in its fourth year, and has produced a book detailing its initial findings.



# Questions

Is there a geographic pattern in diversity and density?

Do even common species show regional patterns in density?

Do species approaching their range limit exhibit patterns of density decline?

What are the landscape-level patterns of habitat use by forest species?

Do patterns of habitat use correspond with geographic distributions?

Do permanent resident species undergo changes in distribution from summer to winter?

Do individual tracts contain a subset of forest bird community members?

From distributional, density and diversity data, what can be concluded about conservation of the forest bird community?



# Methods

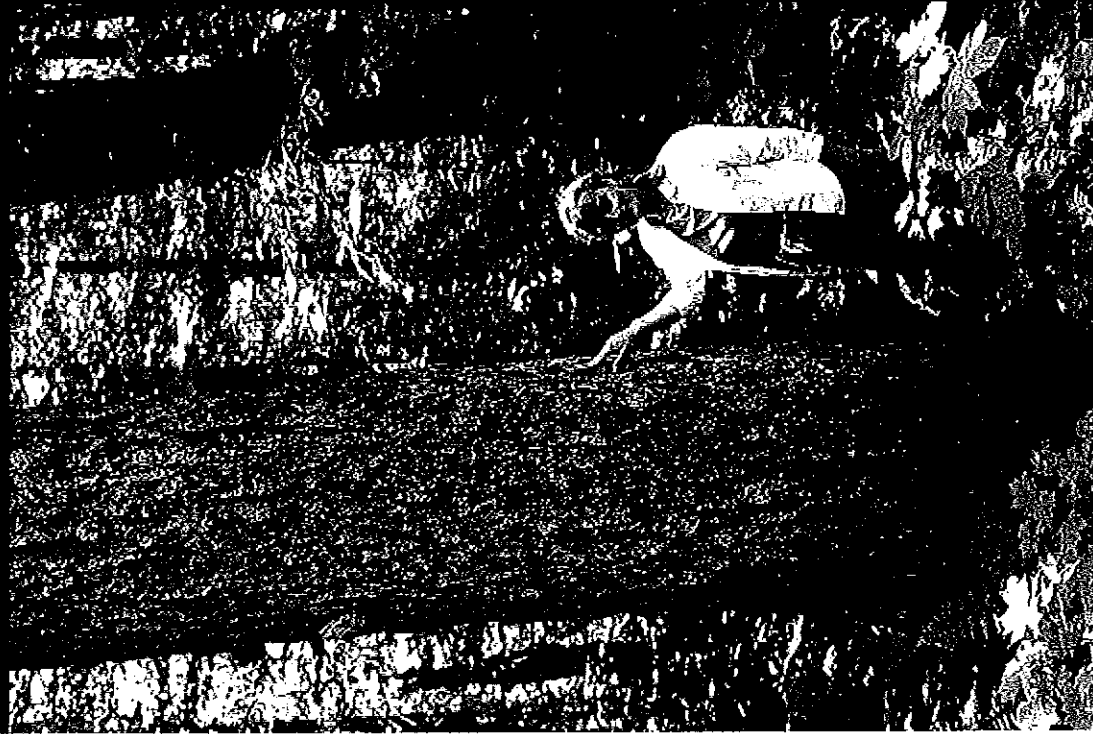
77 transects, each with 15 survey points (1155 total stations), were established in eastern CT and western RI.

2001- NE CT, 2002- SE CT, 2003- RI, 2004- begin repeating survey.

Birds were surveyed using the variable circular plot procedure, in both winter and summer.

Habitats were evaluated to a radius of 70 m from each survey point for six variables: 1) dbh, 2) moisture, 3) canopy closure, 4) conifer cover, 5) vegetation type, 6) understory density.

Computed densities computed with *Distance 3.5*; density and distribution mapped with *Arcview* and *Image Analyst*.



# Habitat

Geographic patterns in habitat presence are related to geographic patterns in population density.

This means that the heterogeneity in landscape is in large part responsible for yielding heterogeneity in community composition.

More subtle geographic patterns in habitat that relate to regional climate further show strong relationships with density patterns for many species.

Furthermore, tracts near major urban centers were missing many of their forest floor-dwelling species.

# Community diversity

Summer- greatest diversity occurred in a band across the center of the region.

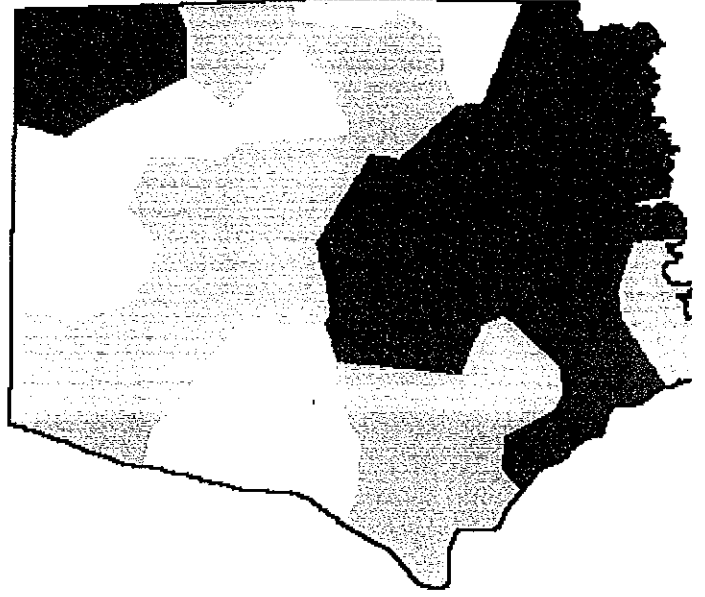
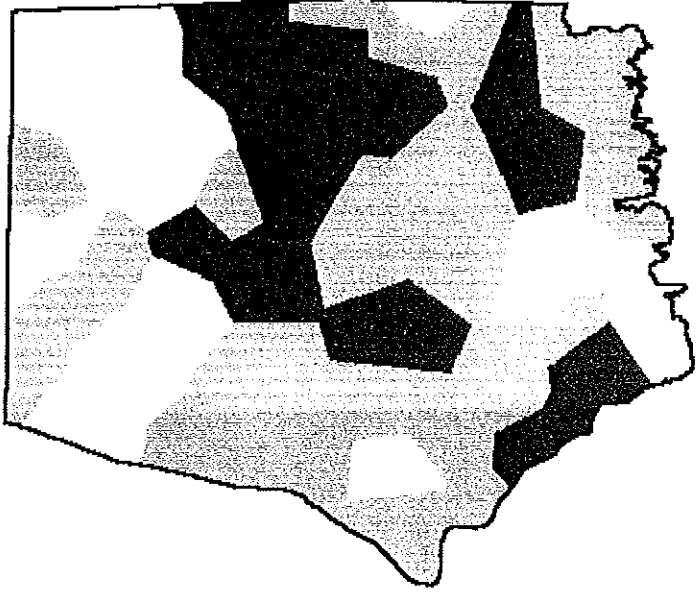
Winter- greatest diversity occurred toward the coast.

Summer- northern regions were characterized by a boreal fauna, southern regions by a coastal plain fauna. Central regions are a mixing ground for these, where a number of species reach their range limit.

Winter- physical conditions become progressively milder toward the coast, and species winter in this region that do so rarely in more northern locations.

Overall, habitat data demonstrate that the forest bird community is a highly heterogeneous assemblage of species that require a variety of habitat types within the forest landscape.





# Community density

As with diversity, greatest populations tend to be in central CT in summer (upper left).

In winter, greatest densities shift toward the coast (lower left).

Many permanent resident species have population buildups from summer to winter, especially toward the coast.

# Species patterns

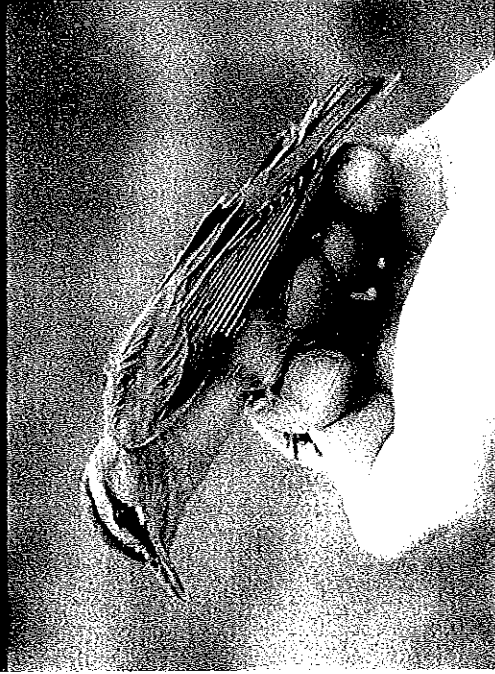
Red-eyed Vireo: case study of an abundant species.

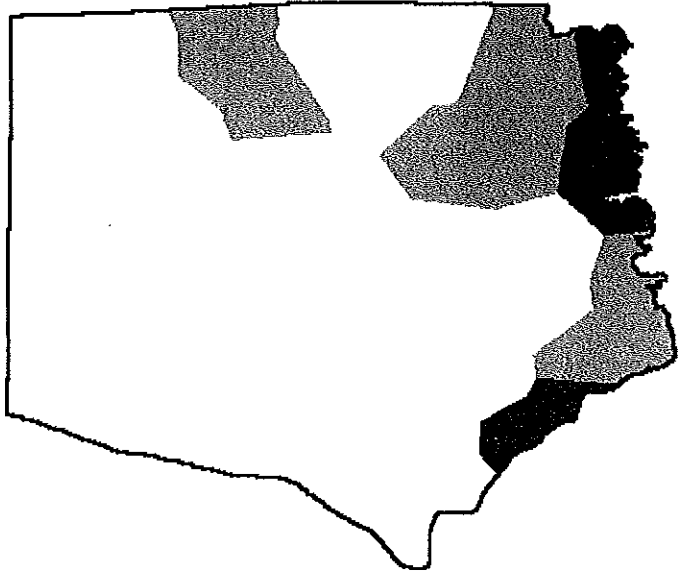
Population: 96,704 territories.

Populations concentrated in southwestern CT.

Habitat: shows strong affiliation with deciduous, oak dominated forest.

Reasons for pattern: 1) oak-dominated forest most prevalent in southern CT; region along CT-RI border increasingly with xeric, sterile conditions with pine-oak forest.



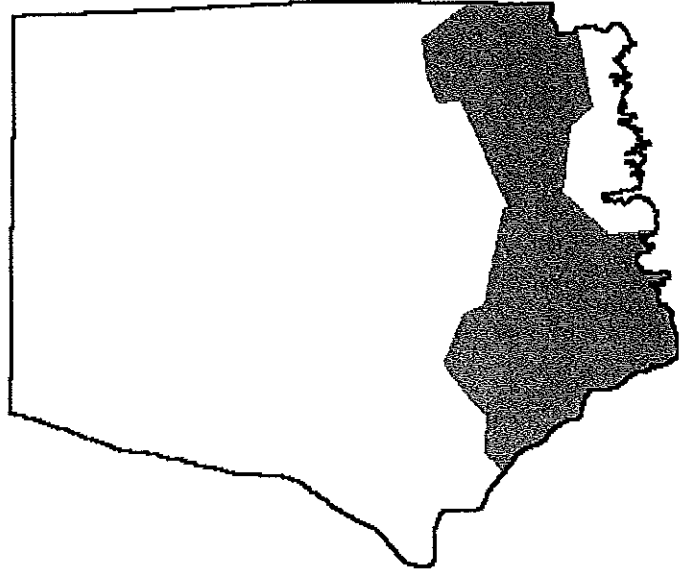


# Additional case studies

A variety of species, including the Acadian Flycatcher (lower left), Cerulean Warbler, Hooded Warbler, and Carolina Wren (upper left), are southerly-distributed species.

In southern New England, such species have populations that concentrate along the coast.

As with the Red-eyed Vireo, these species are associated with the milder microclimates and oak-dominated forests of the region.



# Seasonal patterns



Black-capped Chickadee: case study:

Summer population: 39,934 birds.

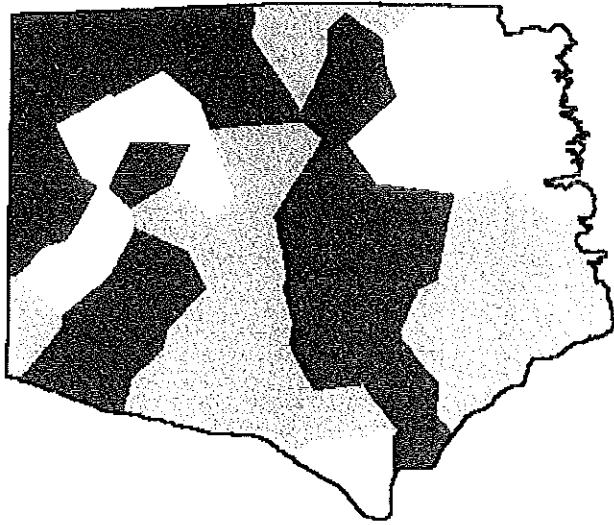
Winter population: 53,050 birds- an increase over summer.

Distribution: populations widespread in summer, perhaps predominating to the north; concentrated in southern CT in winter.

Habitat use: a generalist in most regards, but exhibiting an association with wetter habitats in winter.

Distributional shift: can be explained by milder conditions toward coast.

Population increase: can be explained by recruitment, southward migration of northern populations.



# Additional case studies

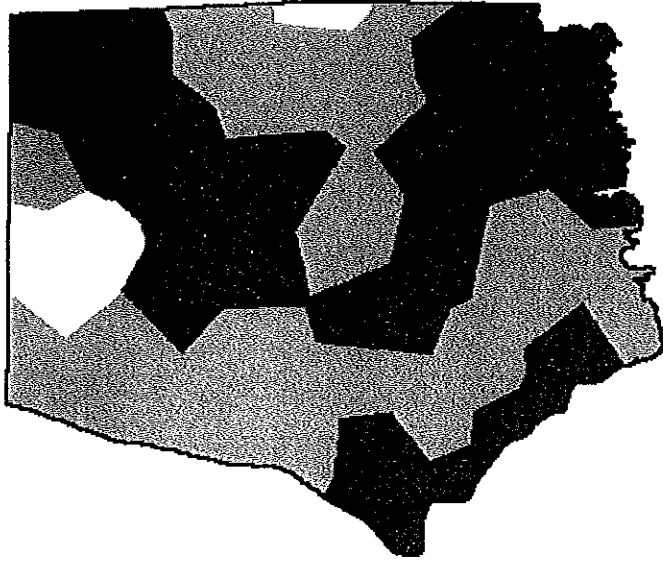
Tufted Titmouse- case study.

Summer distribution is throughout CT (upper left).

Winter distribution shifts to southern CT (lower left).

Summer population: 54,962.

Winter population: 70,532, an increase over summer.



# Conservation application



Because of the heterogeneity inherent in this system, the forest bird community may be preserved only through establishing a large series of extensive preserves.

# Summary



The forest bird community is a highly heterogeneous assemblage of species requiring a variety of habitat types within the forest landscape.

Moreover, single species may change habitat affinities and distributions from summer to winter.

Because of this heterogeneity, no one forest tract contains the entire complement of forest bird species.

In order to maintain all bird species within this system, at a minimum all habitats used by these species must be preserved.

Doing so entails preserving extensive areas that include the range of moisture regimes, topography, soil types, microclimates, and other physical features that in large part produce the habitats in which forest bird communities live.

Particularly for less common community members, only a series of extensive tracts is likely to provide adequate refuge for them, such as species requiring habitats like ephemeral successional stages.

Coastal regions are among the most important for preserving regional biodiversity.



# Application to coastal regions

Coastal forests are fundamentally different from inland forests in their tree species composition, structure and winter and summer microclimate.

These differences include more humid microenvironments and greater openness and vine cover.

The distinctive forest environment creates habitat for key members of the forest community, such as the American Redstart (lower left) and Northern Parula.

Coastal forests also support the bulk of wintering bird populations.

Certain bird species winter almost exclusively in coastal forests.

Hence, extensive tracts of coastal forests are among the most crucial to protect in terms of the sustainability of biodiversity and viable populations.

