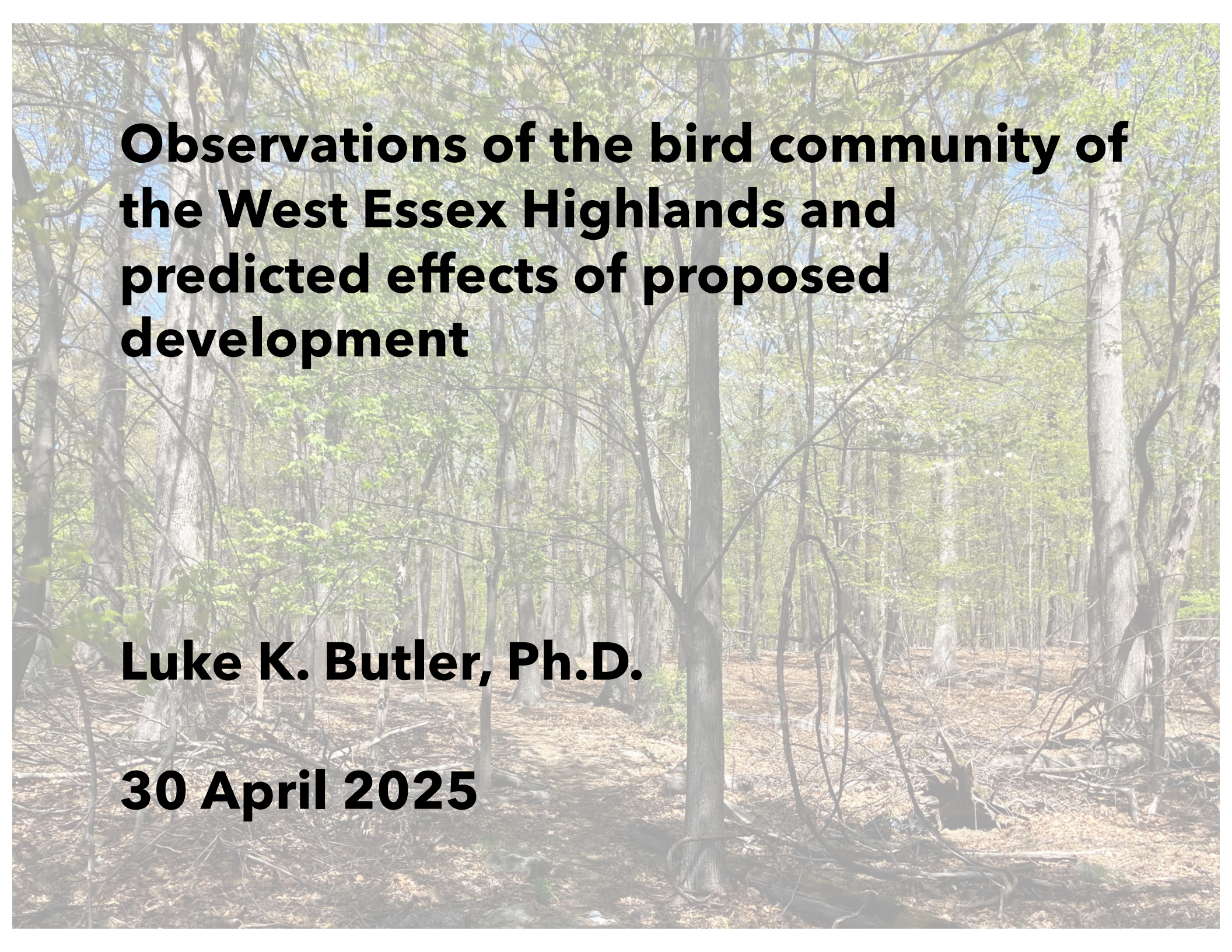




Observations of the bird community of the West Essex Highlands and predicted effects of proposed development

Luke K. Butler, Ph.D.

30 April 2025

Topics of this presentation:

1. Observations of a subset of the bird life at the site.
2. Predictions about overall bird life at the site.
3. Predictions about how the proposed development will change the bird community at the site.

1. Observations of a subset of the bird life at the site.

Sample points (2025)

Weather:

- sunny
- calm-to-breezy
- ~60-80°F

Howell Drive

25 April, 0555-0615h

29 April, 1236-1306h

Kuzik Drive

29 April, 1110-1145h

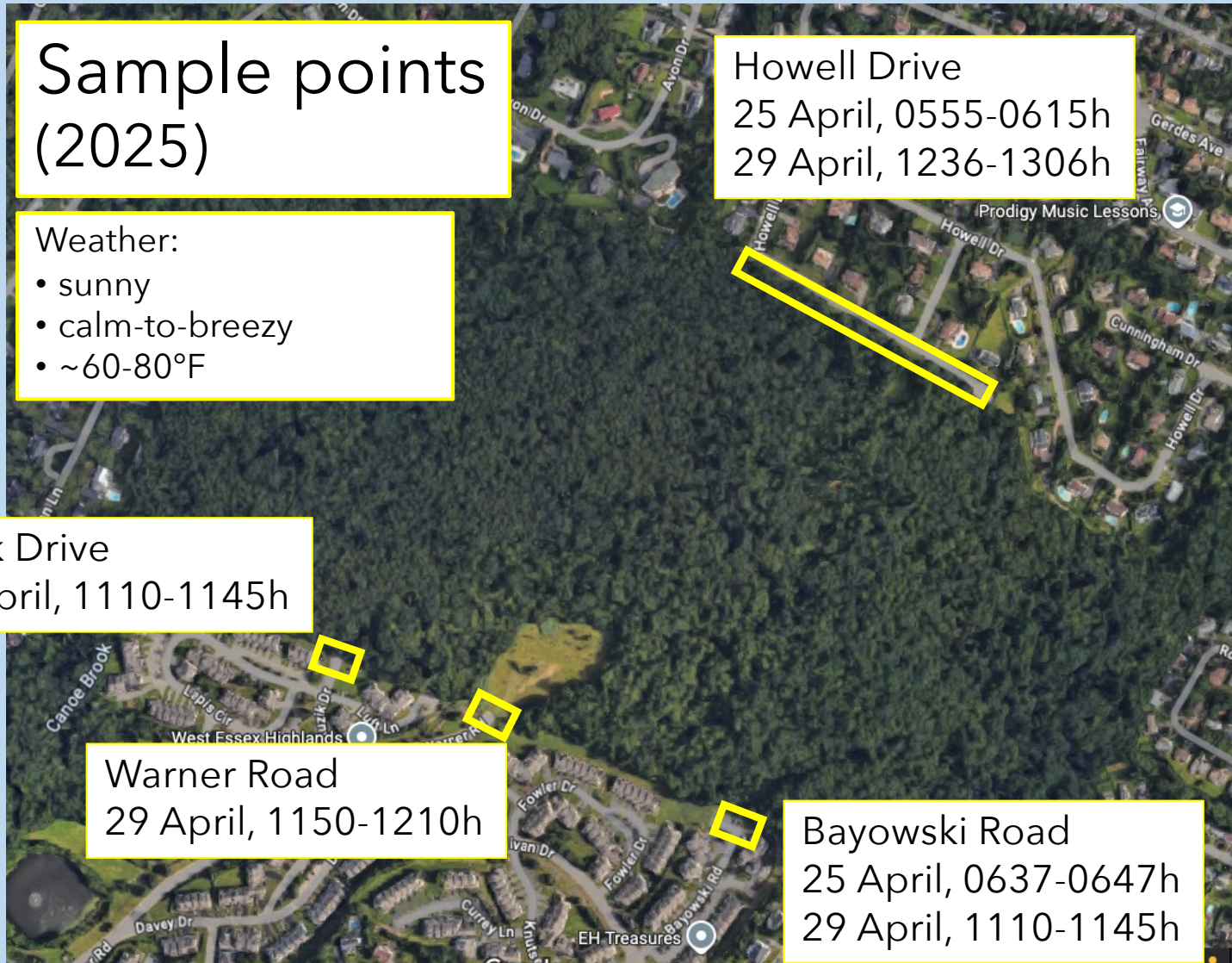
Warner Road

29 April, 1150-1210h

Bayowski Road

25 April, 0637-0647h

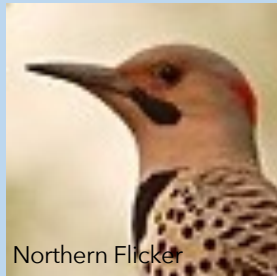
29 April, 1110-1145h



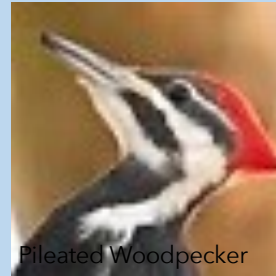
1. Observations of a subset of the bird life at the site.



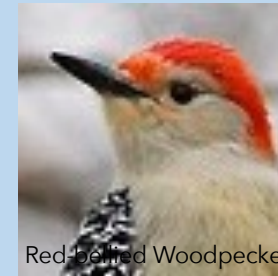
Mourning Dove



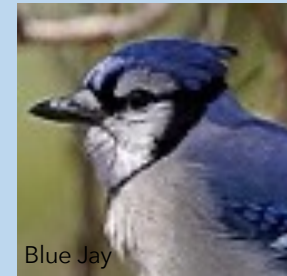
Northern Flicker



Pileated Woodpecker



Red-bellied Woodpecker



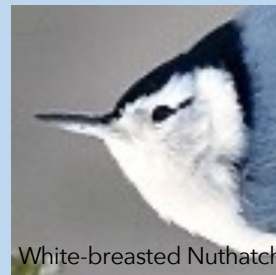
Blue Jay



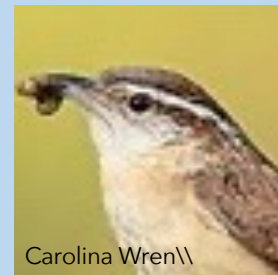
Black-capped Chickadee



Tufted Titmouse



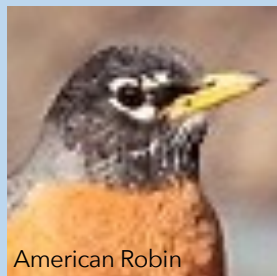
White-breasted Nuthatch



Carolina Wren



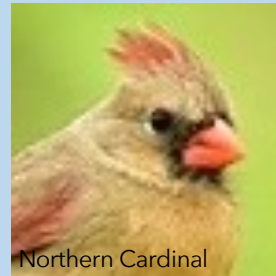
House Wren



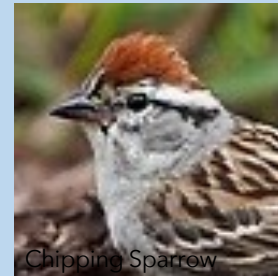
American Robin



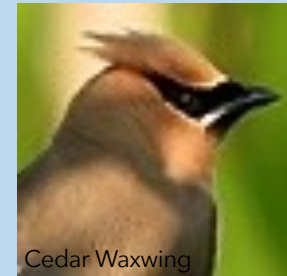
Northern Mockingbird



Northern Cardinal



Chipping Sparrow



Cedar Waxwing



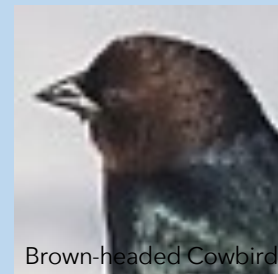
Worm-eating Warbler



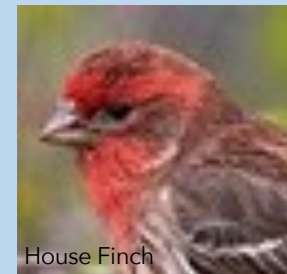
Red-winged Blackbird



Common Grackle

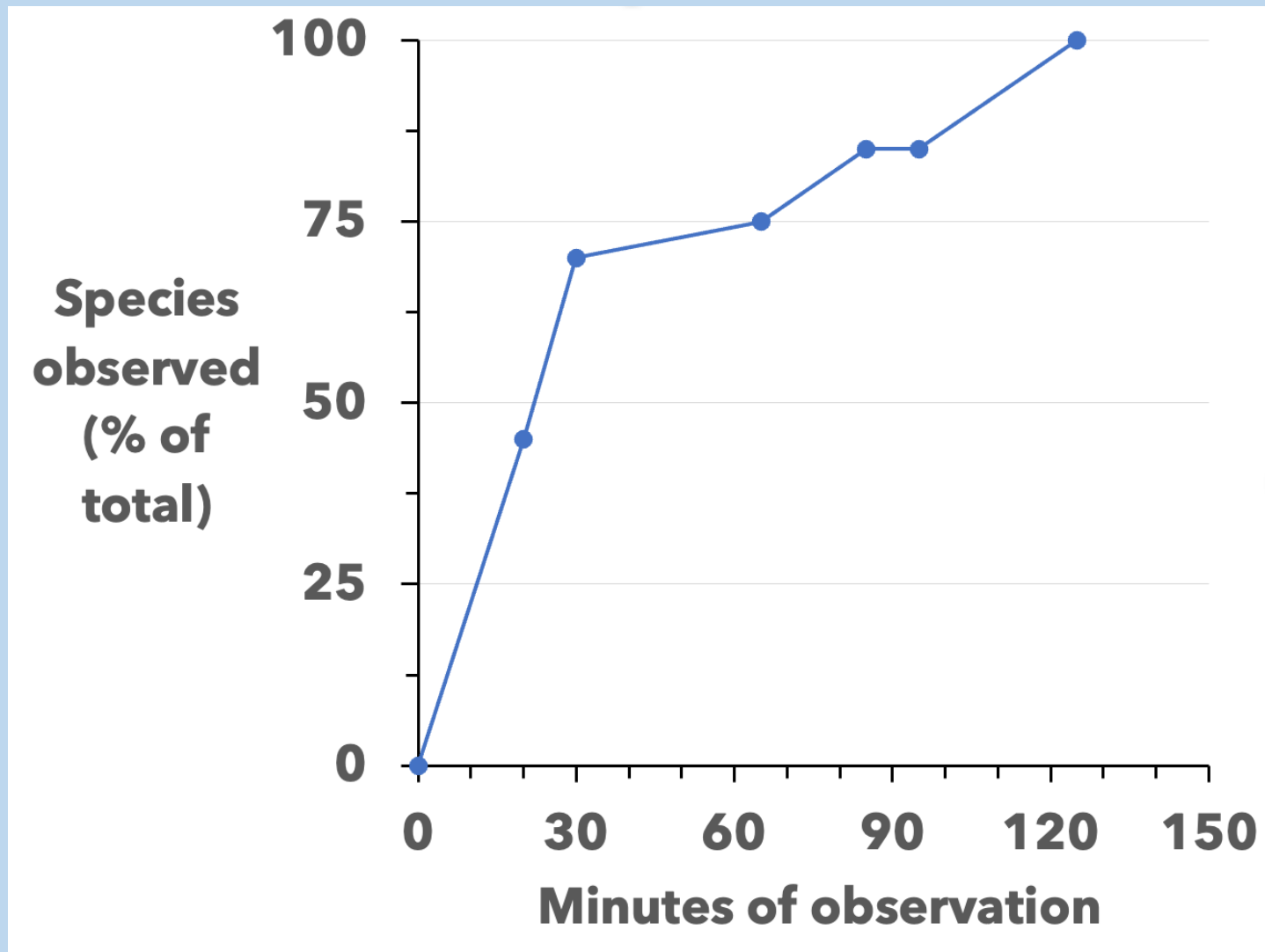


Brown-headed Cowbird



House Finch

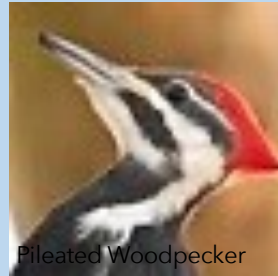
1. Observations of a subset of the bird life at the site.



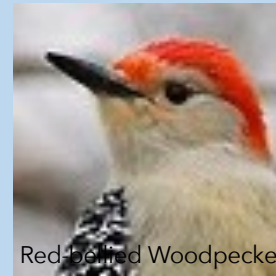
1. Observations of a subset of the bird life at the site.

- 125 minutes of sampling over 4 points and 2 days
- all sampling was conducted from the periphery
- 20 species observed
- 14 Families observed (e.g. members of the woodpecker family or blackbird family)
- 1 migratory warbler species observed

1. Observations of a subset of the bird life at the site.



Pileated Woodpecker



Red-bellied Woodpecker



Blue Jay



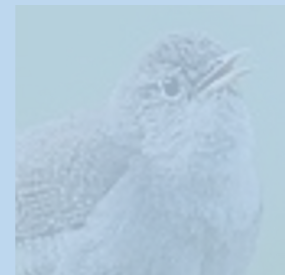
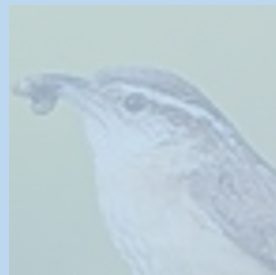
Black-capped Chickadee



Tufted Titmouse



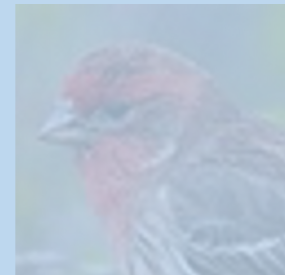
White-breasted Nuthatch



7 forest species



Worm-eating Warbler



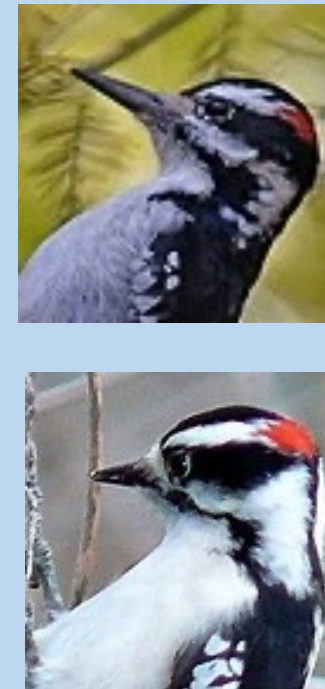
1. My observations of a subset of the bird life at the site.

Species associations can be used to predict other species that occur at the site.

Known to occur:



Very likely to also occur:



2. Predictions about overall bird life at the site.

Based on observable habitat, species associations, and comparable sites nearby...

...it is very likely that more than 100 species of birds inhabit West Essex highlands.

Species present change with time of year.

2. Predictions about overall bird life at the site.

Interior species likely to nest on the site:

Wood Thrush (NJ Special Concern)

Red-eyed Vireo

Ovenbird

Worm-eating Warbler

Scarlet Tanager

Many other species possible-to-likely
(e.g., Black-and-White Warbler)

Interior species are those for which forest area is a significant predictor of abundance.

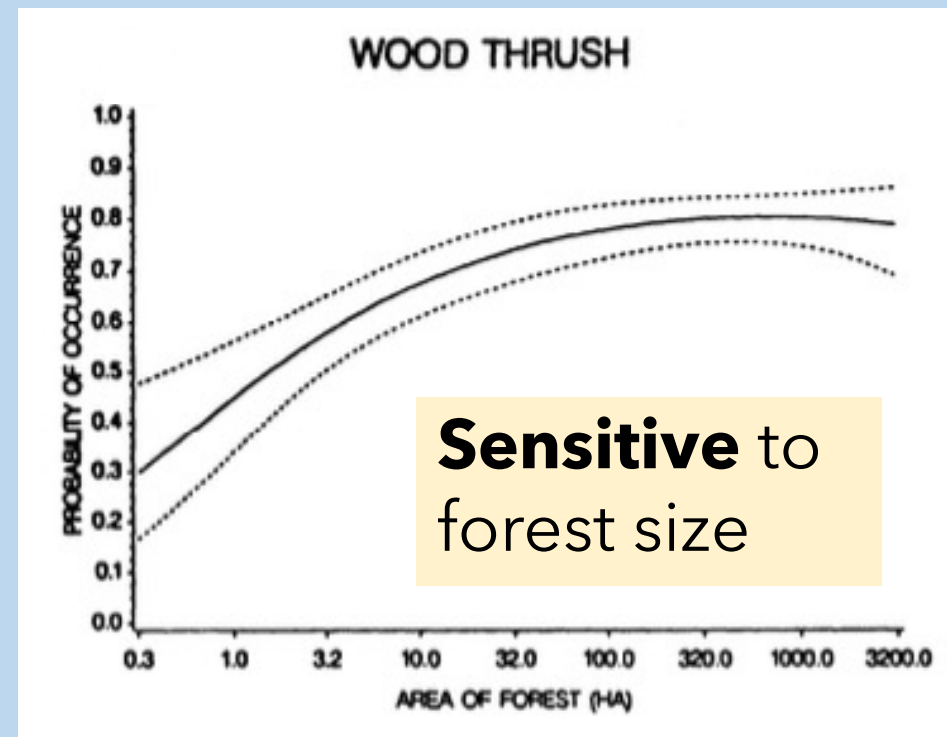
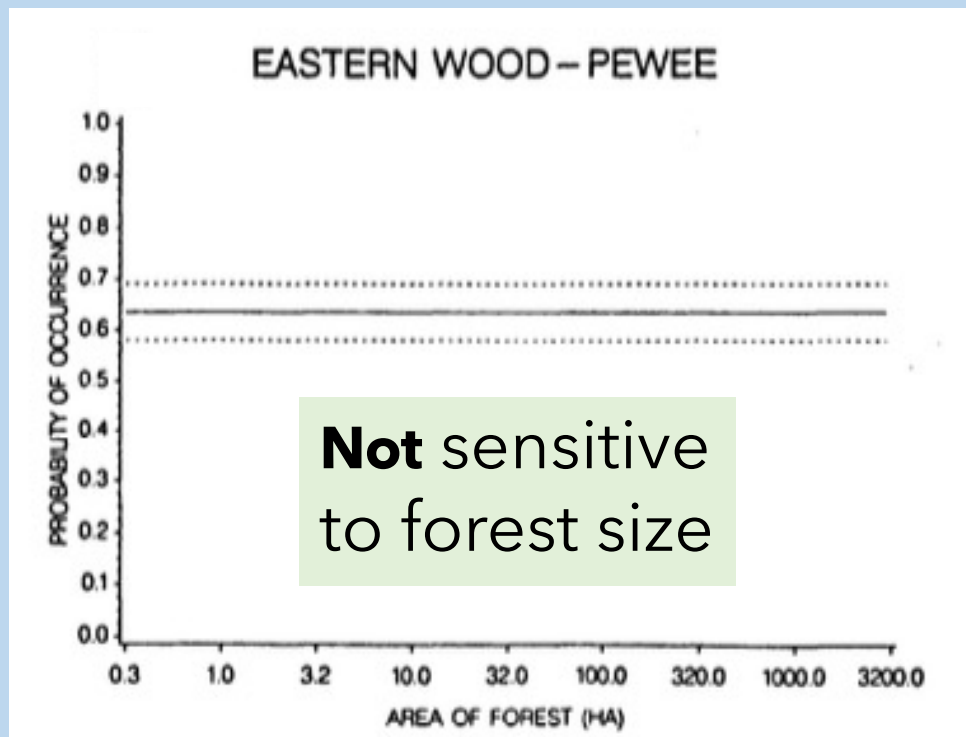
3. Predictions about how the proposed development will change the bird community at the site.

Short version:

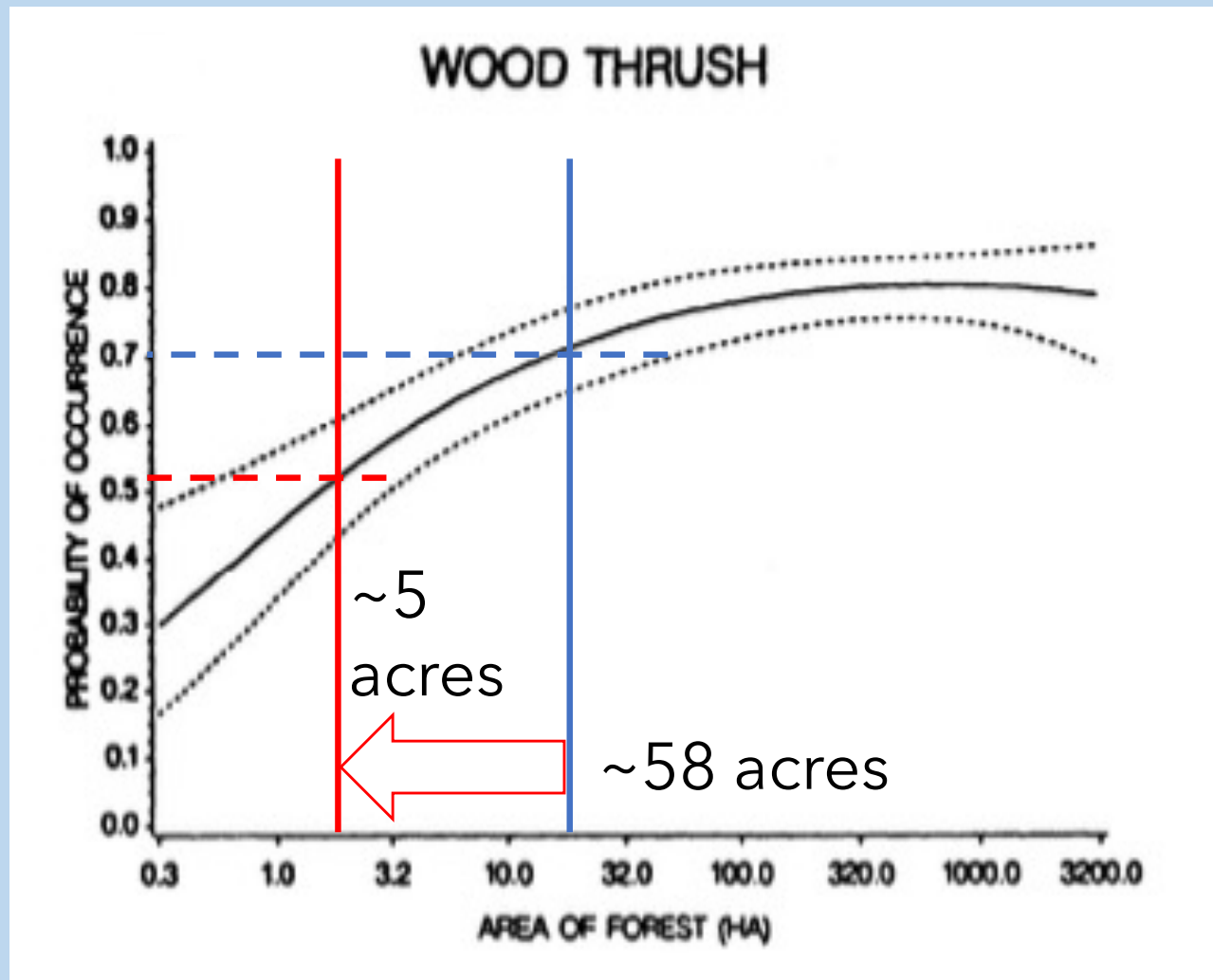
...interior species are likely to decline or disappear, and edge/open-habitat species are likely to increase or appear newly.

3. Predictions about how the proposed development will change the bird community at the site.

Interior and area-sensitive species decline with forest patch size:



3. Predictions about how the proposed development will change the bird community at the site.



Example:

Splitting the core forest as proposed drops the likelihood of Wood Thrush occupancy by 30% or more.

Interior and area-sensitive species decline with forest patch size:

Similar effects of small patch-size across a diversity of area-sensitive species

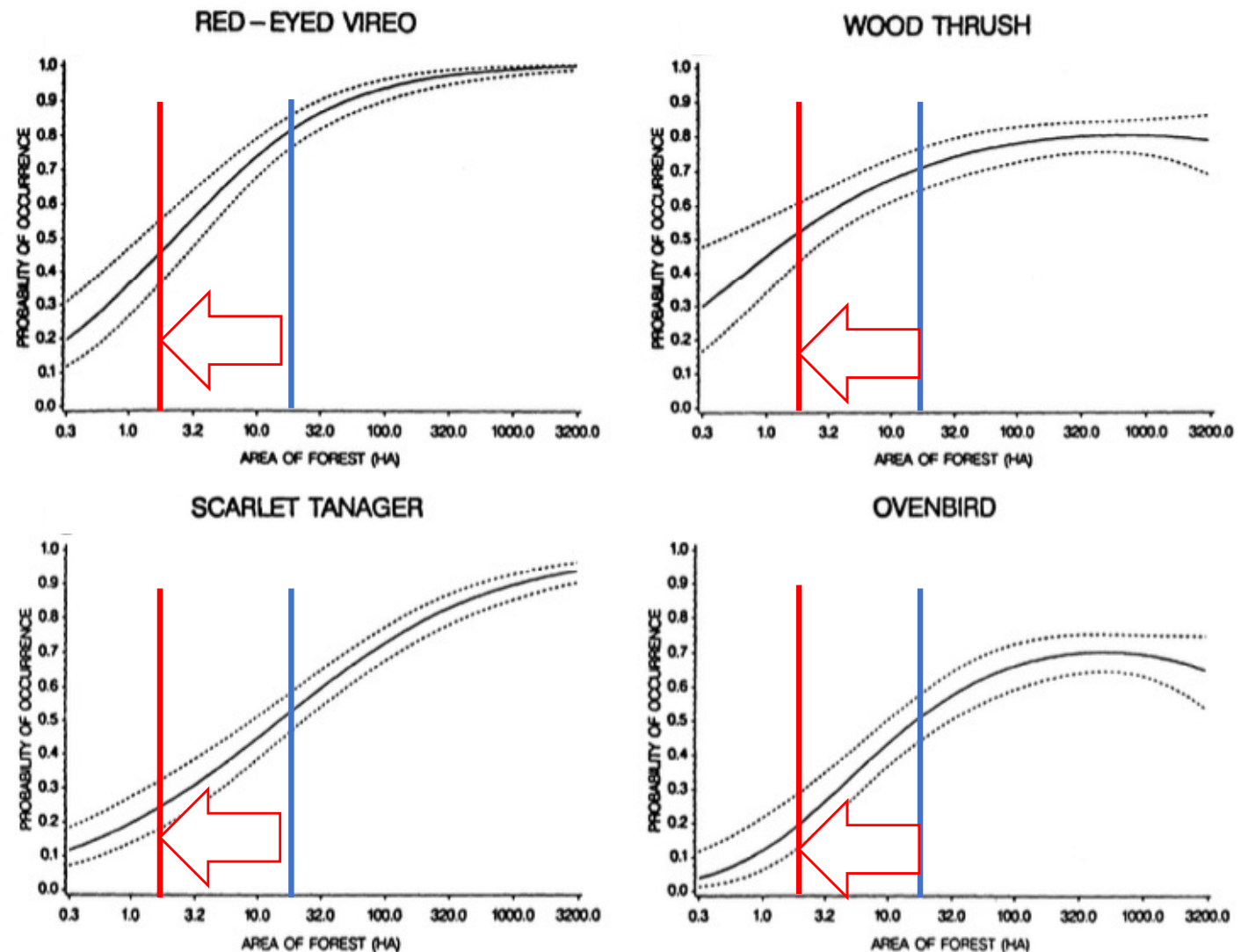
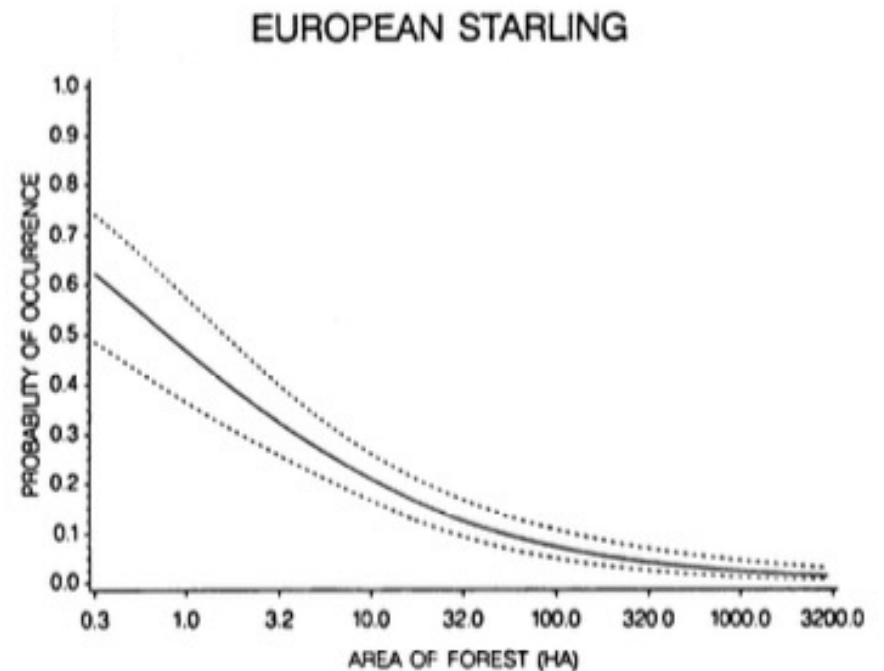
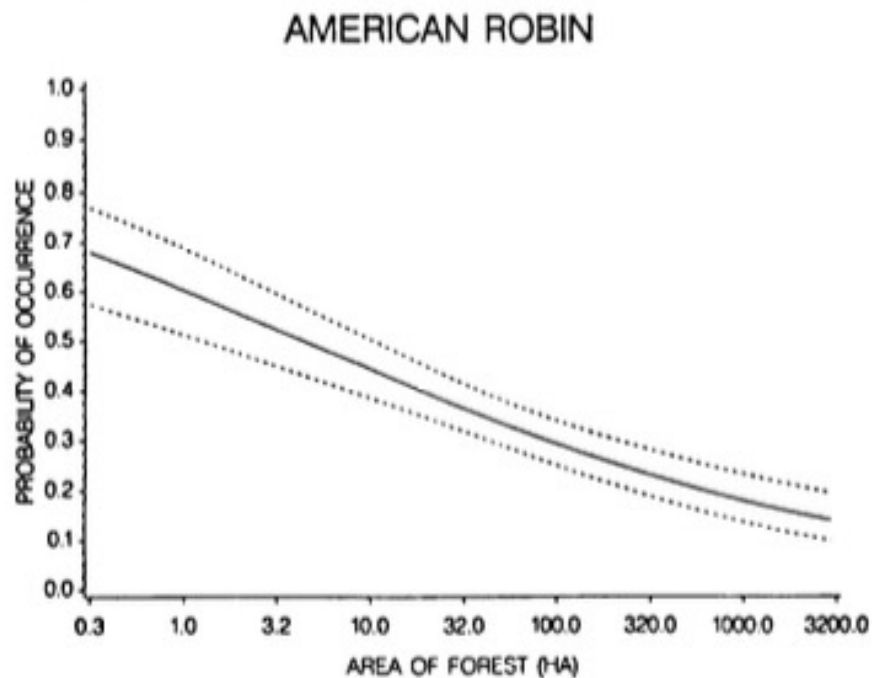


Fig. 2. Probability of detecting 4 species of common, forest-interior, neotropical migrants from a random point in forests of various sizes. Dotted lines indicate 95% confidence intervals for the predicted probabilities.

Interior and area-sensitive species decline with forest patch size:

Common and exotic invasive bird species will increase in occurrence and abundance.



Threats to interior species increase as forest size decreases.

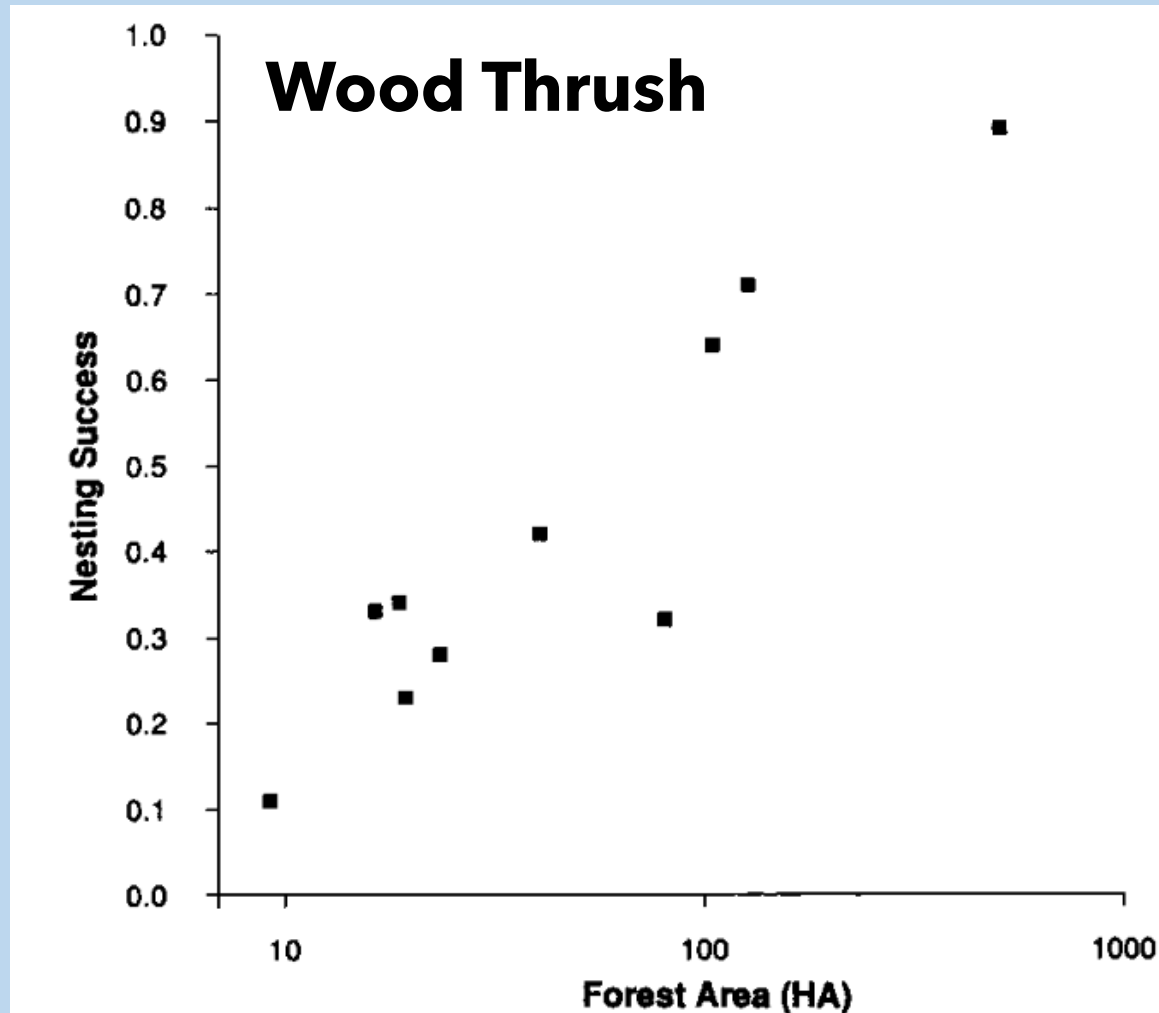


Fig 1. Relationship between Wood Thrush nesting success (1990-1991 combined) and forest patch size on 10 study sites, Berks County, Pennsylvania ($R^2 = 0.86$, $P < 0.001$).

Hoover, Jeffrey P.;
Brittingham, Margaret C.;
and Goodrich, Laurie J.
(1995) "Effects of Forest
Patch Size
on Nesting Success of
Wood Thrushes,"
The Auk: Vol. 112: Iss. 1,
Article 13.

Threats to interior species increase as forest size decreases.

Brown-headed Cowbirds have better access to host nests in smaller forest patches.



Summary of this presentation:

1. West Essex Highlands appears to support a mix of resident and migratory bird species typical of the habitat and region
2. Area-sensitive species will likely be negatively affected by the proposed development due to well-known edge effects on many species of birds.