

Bird Habitation and Species Diversity on UNCP's Campus

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Introduction:

Birds, more than any other class of vertebrates, are ubiquitous within human environments. The University of North Carolina at Pembroke's campus consists of various types of landscaping, such as gardens and lawns, athletic fields, and wooded areas, where birds are often active. The many species throughout campus and their behaviors were observed to determine habitat usage on UNCP's campus.



Methods:

- Observational data was collected for 9 weeks of the semester: 3 weeks in January, February, and March.
- UNCP campus was sectioned into 5 different sites based on location and type of area:
 - Old Main end of campus
 - Athletic fields
 - UC and GPAC
 - Dial and Sampson
 - Health Sciences end of campus.
- 4 standard walks were designed to survey these five areas (shown below).
- These walks would take anywhere from 30 minutes to 75 minutes, depending on the amount of bird activity and time it would take to observe their behavior.
- Every walk was conducted on a weekly basis
- The time of day each path was taken would interchange between mornings (~8:30) and afternoons (~4:15) on a weekly basis.



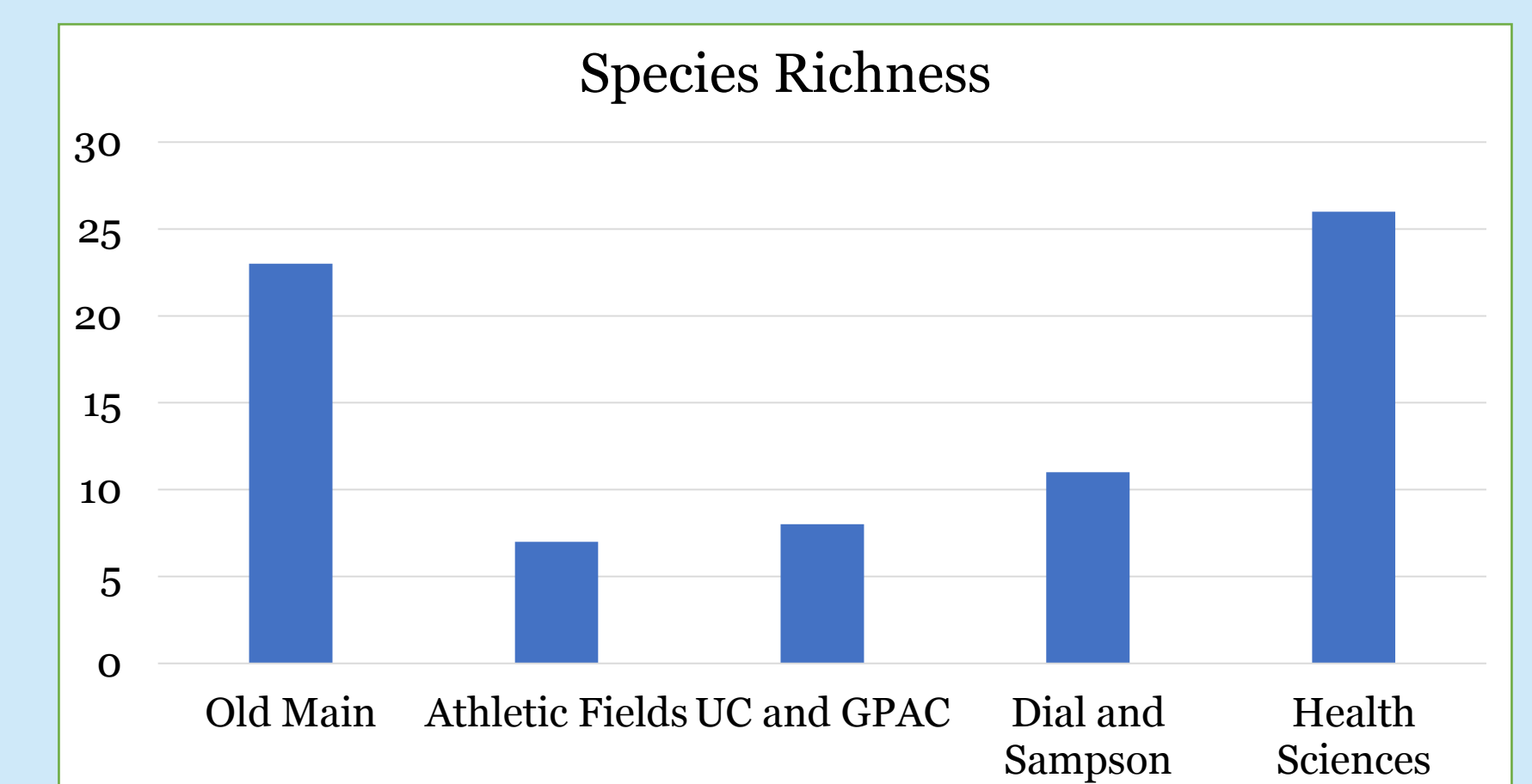
Diversity and Richness:

Statistically, there was no significant difference in diversity between the different sites, with a P-value of 0.056. However, species richness varied greatly throughout the sites (shown below). In an overall comparison of the sightings of each species, European Starlings and Dark-eyed Juncos were seen the most; House Finches, Mourning Doves, Northern Cardinals, Northern Mockingbirds, and Rock Pigeons were seen a moderate amount; the rest of the species were seen in low amounts. However, statistically, only European Starlings were seen significantly more than others.



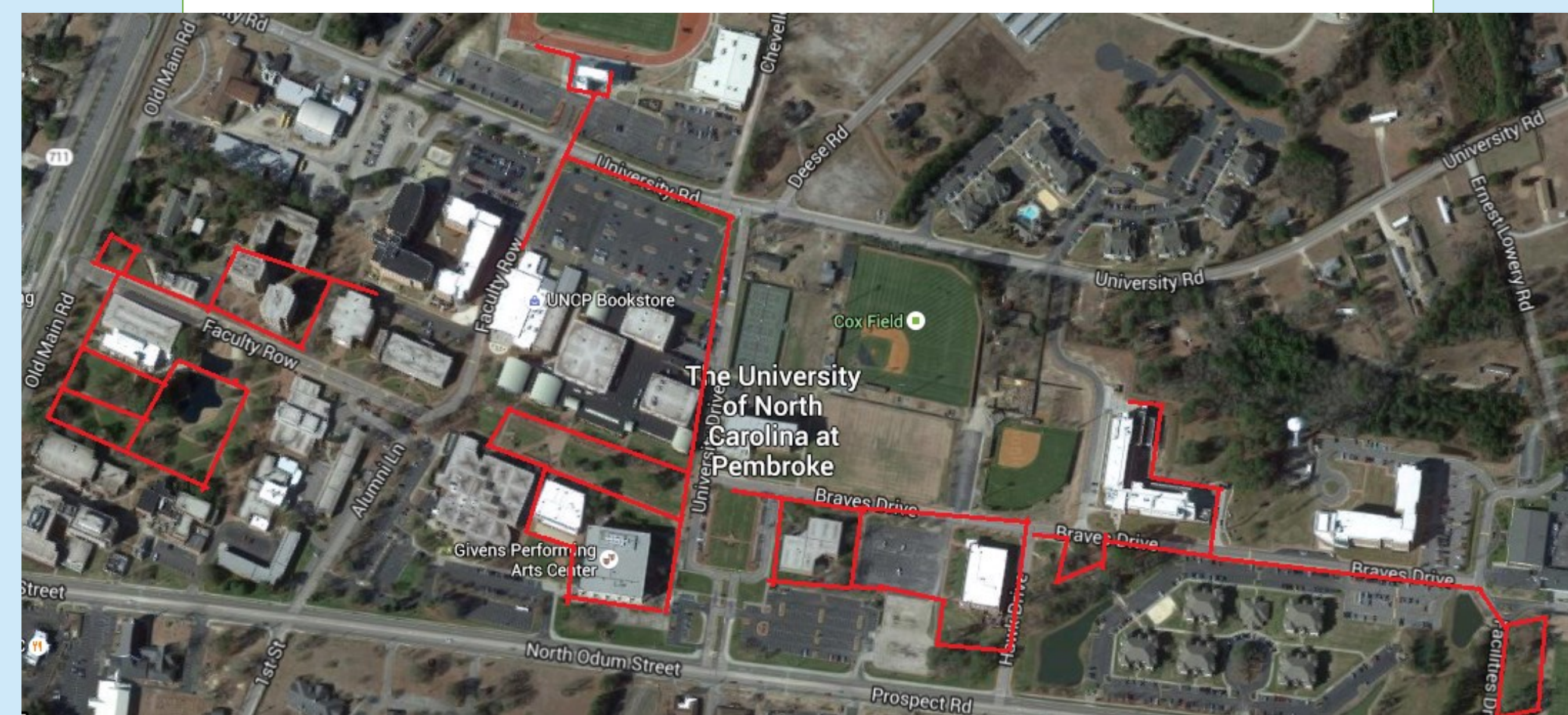
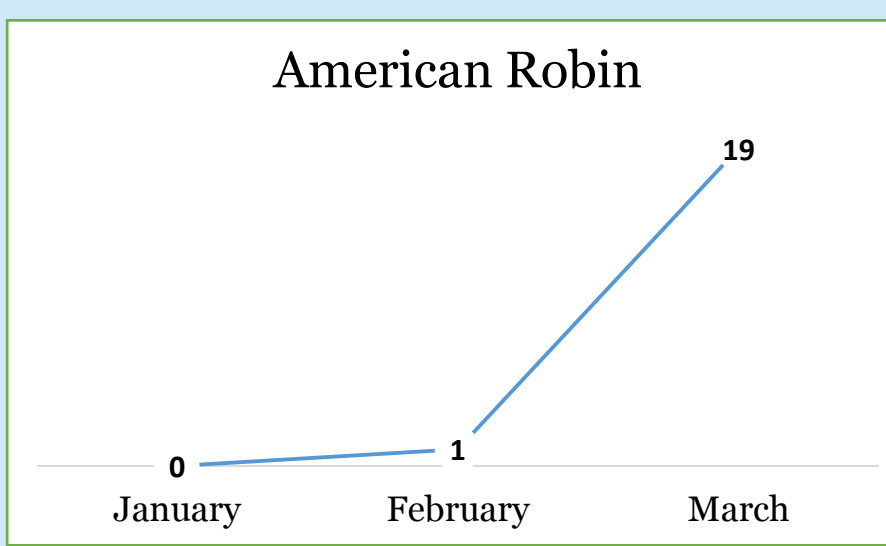
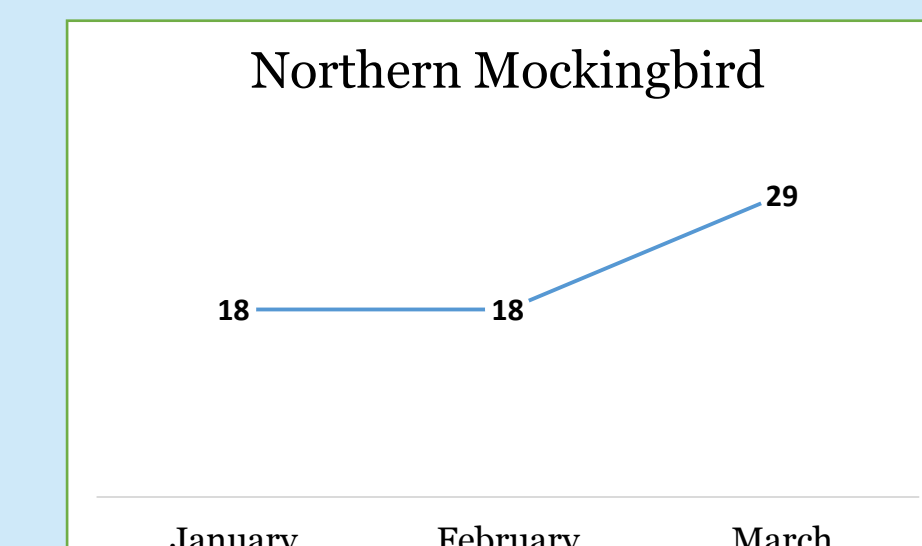
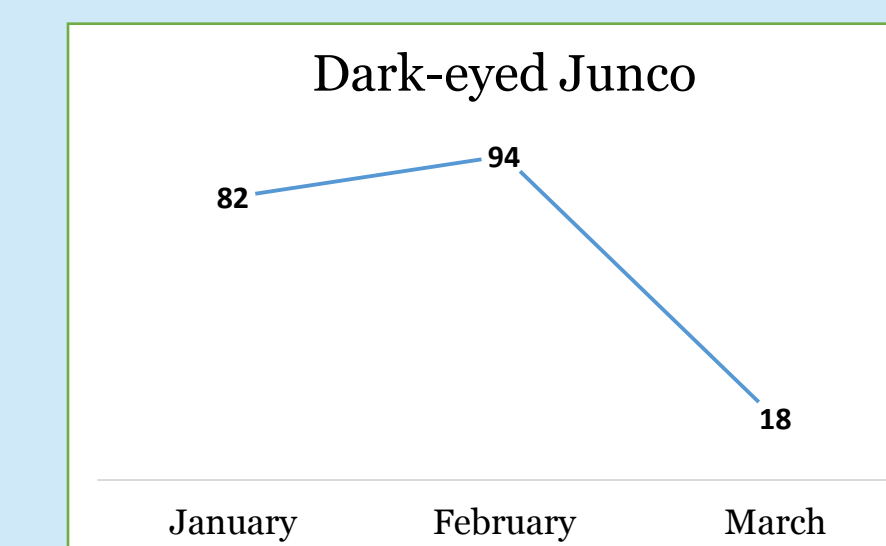
Site Descriptions:

- Old Main end of campus:** Vertical strata and vegetation is varied, from tall native trees like longleaf pines and several oak species to intermediate trees/shrubs, typically ornamental such as crepe myrtles, to herbaceous garden plants and several large patches of lawn. Mostly park-like, with paths and benches and a water feature, though one area by West Hall is an unkempt patch of woods.
- Athletic Fields:** There is no variety in vegetation or vertical strata. Consists of lawns, light posts, signs, and fences. Frequently in use.
- UC and GPAC:** Vegetation and vertical strata is uniform; a line of red maples that follows the path on the gym side, and some ornamental shrubs and herbaceous plants by the buildings. The center of this area has open lawn, with a few, mostly small, trees.
- Dial and Sampson:** Vegetation and vertical strata relatively varied. By Dial, large hardwoods and small trees such as crepe myrtles, live oak, and a magnolia. Front and side of Sampson had uniform strata of young trees and some ornamental shrubs right next to the building. In the back by the gravel parking lot, a patch of well-established trees, consisting of mostly tall hardwoods and pines, and a few smaller trees such as dogwood. The understory was grass.
- Health Sciences end of campus:** The vegetation and vertical strata is varied. Forest-like in front of Village, tall trees, a mix of pines and hardwoods, not much of an understory of vegetation, simply pine needles and leaf litter. Behind Health Sciences, an area of somewhat maintained woods, mostly hardwoods, understory is grass. Next to this area, separated by a fence, is a less maintained wooded area. This area demonstrates much more variation in vertical strata, as there are tall hardwoods and pines, along with small trees such as dogwoods, and a thicket-like understory. A similar area further down, has a variety of tall trees as well as a thicket understory, and a pond next to it. On a hill before the varsity field, there is a group of trees with grass understory.



Behaviors and Habitat Use:

Seasonality was a large factor in the species observed throughout the months, as well as in the behaviors. Shown below are the sightings of 3 species on a monthly basis to show the differences between migratory species and permanent residents.



- Observations recorded species seen, number of individuals of each species, and behaviors of the individuals. Species identification was done on a visual basis, with binoculars and birdwatching guides available as aids.



The birds on campus displayed many types of behavior throughout the different sites and times of year. In the winter, birds were often seen foraging on the ground and in trees in flocks, such as the Dark-eyed Junco, Eastern Bluebird, and House Finch. This was most commonly seen in the Old Main site, where the birds could easily fly between the lawns, shrubs, and trees of the area. As it became closer to Spring, flocks became less frequent and birds started showing signs of territoriality. Throughout most sites, Northern Mockingbirds started perching in open places to sing, and would not hesitate to show aggressive behavior if another individual was in their territory. By the end of March, there was some nesting behavior—a killdeer had a nest on the varsity field, and Eastern Bluebirds were building a nest in the cavity of a tree in the Dial site. Many species seemed comfortable in the human setting, even using man-made features such as buildings, man-made water features, light posts, and fences.

