

AVIFAUNAL COMMUNITY COMPOSITION IN A PRAIRIE-OAK HABITAT

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Red-breasted Sapsucker. CNLM 2014



Red-naped Sapsucker. CNLM 2014

ABSTRACT

The avifaunal communities in prairie-oak ecosystems in the Pacific Northwest have seen significant changes resulting from the loss and degradation of habitat in recent years (Altman 2011, Rogers et al. 1997). In 2013, the Center for Natural Lands Management partnered with The Evergreen State College to initiate a Monitoring Avian Productivity and Survivorship (MAPS) station within the Glacial Heritage Preserve in Thurston County Washington. This breeding season survey was established to assess the composition, productivity, and survivorship of the avifaunal community at the preserve. Our 2014 objective was to analyze changes in the avian community composition between 2013 and 2014. To accomplish our objective we used a Nonmetric Multidimensional Scaling (NMS) ordination and Multiple Response Permutation Procedure (MRPP) along with an indicator species analysis. NMS and MRPP analyses revealed a significant difference (MRPP A= 0.0397, $p= 0.0028$) in community composition between 2013 and 2014. There were no indicator species for either year.

INTRODUCTION

- Many avian species associated with prairie-oak habitats have experienced extirpations, range contractions, and/or regional population declines (Altman 2011)
- The MAPS program is a network of banding stations in North America that operate during the breeding season
- Mist-netting is an effective technique for capturing birds
- Analysis of capture rates of birds has been used for over two decades in studies of avian ecology (Remsen 1996)
- MAPS station was established at Glacial Heritage Preserve, a mounded prairie with riparian-Oak woodlands in South Puget Sound

METHODS

- Birds were captured, banded, and processed to assess age, sex and other physiological features
- Nonmetric Multidimensional Scaling (NMS) ordination and Multiple Response Permutation Procedure (MRPP) were conducted for comparative community analysis for 2013 and 2014
- Indicator species analysis

RESULTS AND DISCUSSION

- 2014: 425 captures and 27 species
- 2013: 413 captures and 26 species
- Both years' most common species:
 - Bewick's Wren (*Thryomanes bewickii*)
 - Common Yellowthroat (*Geothlypis trichas*)
 - Song Sparrow (*Melospiza melodia*)
 - Swainson's Thrush (*Catharus ustulatus*)
 - Yellow Warbler (*Setophaga petechia*)
- New species captured in 2014: Brown Creeper (*Certhia americana*), Bushtit (*Psaltiriparus minimus*), MacGillivray's Warbler (*Geothlypis tolmiei*), Red-naped Sapsucker (*Sphyrapicus nuchalis*)
- Typically found east of the Cascade Mountains, Red-naped Sapsuckers are a rarity in western Washington
- The NMS ordination came up with a 3-dimensional solution to best represent the data (Fig.1 A/B)
- MRPP analysis showed a significant difference in the community of birds captured by year MRPP A= 0.0397, $p= 0.0028$
- Indicator species analysis revealed that there were no indicator species for either year

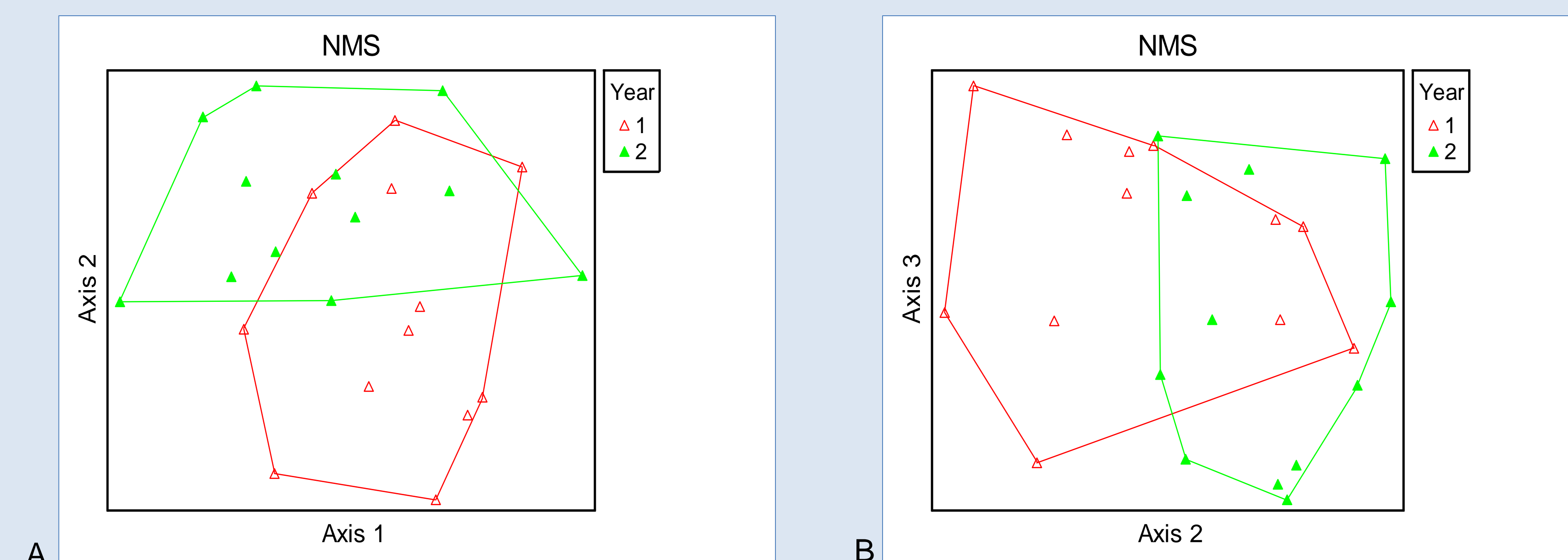


Figure 1 A/B. NMS ordination of nets for two years, 2013 and 2014 at GHPO MAPS station. MRPP A=0.0397, $p=0.0028$

Differences in the avifaunal community structure were not driven by any unique species, according to the indicator species analysis. However, there were several notable observations of rare species captured only once or twice, which is why they had no analytical significance

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- Photographs courtesy of Evergreen alumnus Bill Livingston and CNLM staff



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