

CHAPTER 3	Thought Lab 3.2: Forest Habitat and Bird Biodiversity	BLM 3.3.4
HANDOUT		

Purpose: Interpret results from Bayne and Hobson’s forest studies.

In their study of forests in Saskatchewan, Bayne and Hobson set up “count stations” in stands of black spruce, jack pine, aspen, and white spruce. They had stations in pure stands and in mixed stands. For example, for black spruce, they had study areas where over 75% of the canopy (the “top” of the forest) was dominated by black spruce (pure stands) and study areas where more than 25% of the canopy was dominated by black spruce and one or two other tree species (mixed stands). They used the following protocols (procedural rules) in their study:

- All count stations were at least 250 m apart.
- All count stations were at least 100 m from the “edge” of the study area.
- All birds that were heard or seen during a 10 min early morning count were recorded.
- Observers were tested beforehand to ensure that they had similar levels of expertise at identifying birds.
- Counts were taken twice, in early and late June.
- Observers counted at each station only once; for the second survey, a different observer was used. Some of Bayne and Hobson’s results are given in the following table.

Comparing Species Richness and Abundance in Pure and Mixed Stands of Trees

Species of tree	black spruce		jack pine		trembling aspen		white spruce	
Type of stand	pure	mixed	pure	mixed	pure	mixed	pure	mixed
Species richness	13	15	11	18	18	24	20	23
Abundance	56	60	39	90	76	91	71	94

(Adapted from: Hobson and Bayne, 2000, Breeding Bird Communities in Boreal Forests of Western Canada)

Procedure

Examine the data in the table. Compare species richness and abundance in the eight sample sites. *Species richness* is the number of species. *Abundance* is the actual number of individual birds.

Analysis

1. In this study, what did the researchers find out about the species richness and abundance of bird communities when they compared stands of trees with just a single tree species (pure stands) with stands with a variety of tree species (mixed stands)?

