

## **Wetlands in the Annapolis Valley as habitat for ducks: What determines duck brood use?**

**Soren Bondrup-Nielsen**  
**Department of Biology**  
**Acadia University**

### **Report for 2013/14, NS Habitat Fund**

Wetlands are important land features that mitigate effects of flooding, enhance water purification, replenish groundwater and they are rich in biodiversity. The Nova Scotia Eastern Habitat Joint Venture (NS-EHJV) is a partnership between government and NGOs whose primary focus is wetland conservation under the mandate of the North American Waterfowl Management Plan (NAWMP). A study to investigate the use by waterfowl of existing wetlands in the Annapolis Valley was initiated in 2009 to further understand the relationships between waterfowl use and wetland conservation in the Maritime mixed agricultural landscape.

Wetlands in the Annapolis Valley are nutrient rich. Eutrophic and even hyper-eutrophic conditions can cause a decrease in diversity of floral and some fauna species, and an increase in abundance of other species. Nutrient-rich run-off from agricultural fields to low-lying wetlands is a product of intensive agriculture.

Waterfowl breeding pair and brood surveys were conducted to investigate waterfowl use and intensity among 60 agricultural wetlands. Duck presence can be related to wetland nutrient makeup, food availability for ducklings (primarily invertebrates) and adults, size and type of wetlands (farm pond versus DU constructed wetlands) and adjacent land-use. Past studies have eliminated food availability, size of wetlands and kinds of wetlands as important factors limiting duck and duck brood presence during late spring and summer.

Adjacent land use was studied in 2013 to determine possible relationships between waterfowl use and various land uses. The results from this study indicate that the number of waterfowl breeding pairs and broods detected were similar in the 2012 and 2013 field seasons. Further it was determined that adjacent land use types, such as rivers and vegetated riparian zones, positively influenced brood production. Minimal vegetation adjacent to wetlands negatively influenced duck brood use. Breeding hens may prefer wetlands with nearby water bodies, which could serve as corridors for duckling travel. Findings from this study will help to better guide habitat management decisions regarding construction of new wetlands in a diverse, maritime agricultural landscape.

The public has perceived land as exploitable and its function concerning biodiversity is often neglected. Influence of land use adjacent to a wetland can extend out as much as 4 km. Land-use then becomes an important factor in conservation. The most significant result from this study may be that ducklings prefer wetlands adjacent to river systems. This is not the first study to obtain this result. It has been proposed that proximity to river influences rearing sites of black ducks. We conclude that ensuring there is a flowing

surface water source and vegetated riparian zone near a wetland restoration site will enhance the number of rearing hens on the wetland.