

United States Department of Agriculture  
Animal and Plant Health Inspection Service  
Wildlife Services

**Summary of the Aerial-Visual Survey for White-tailed Deer  
City of Bratenahl  
13 January 2016**

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## **Introduction**

At the request of the City of Bratenahl, the United States Department of Agriculture (USDA), Animal and Plant Health Inspection Service (APHIS), Wildlife Services (WS) conducted an aerial-visual survey of white-tailed deer (*Odocoileus virginianus*) within the city limits of Bratenahl. This survey was intended to provide city officials with an estimate of the number of white-tailed deer within the City.

## **Study Area**

Bratenahl is located in Cuyahoga County, bordering the southern shore of Lake Erie in Ohio. The city is 1.6 km<sup>2</sup> in size and is composed of largely suburban development and small woodlots.

## **Methods**

An aerial-visual survey was conducted in the city on 13 January 2016, between the hours of 11:30 and 11:50 a.m. A flight team consisting of a pilot and an observer used a Hughes OH-6A helicopter to survey the landscape. The pilot and the observer worked together to count deer. Survey transects were flown in a series on north-south gridlines spaced 200 meters apart. These transects were flown 50-60 meters above ground level, at a speed of 30-50 kilometers per hour. During survey flights, the location and quantity of deer observed were recorded on a map of the study area (Figure 1).

## **Results**

The survey of the City of Bratenahl resulted in the detection of 12 deer within the City boundaries (Figure 1). The majority of deer observed during this survey were located in the small woodlot located on Ninemile Creek.

## **Discussion**

Visual surveys using observers in a helicopter provides a relatively simple and efficient means of surveying large areas. Inherent with these types of surveys is variability in detection rates or the ability to observe an animal. To estimate a more complete count, correction factors based on detection rates are often used. Many factors can influence detection rates (observers, habitat, weather, etc.). Snow cover is often considered essential for conducting visual counts with a helicopter in northern latitudes with forested habitat. Even with snow cover, detection rates using observers and a helicopter vary, ranging from 41%-99% (Rice and Harder 1977, Stoll et al. 1991, Beringer et al. 1998). The Ohio Division of Wildlife (ODW) currently recommends using a detection rate of 78.5% when conducting helicopter surveys with snow cover (ODW per. comm.).

Survey weather conditions were near optimal. Using a range of detection rates for similar habitat as described in the literature (75%-80%) and which is consistent with the ODW detection rate (78.5%), the WS aerial-visual survey is corrected to yield a range of 15-16 white-tailed deer present within the City of Bratenahl during the survey.

## **Recommendations**

Deer abundance can be estimated using a variety of techniques. Commonly used techniques include spot-light counts, visual surveys from a helicopter over snow cover and aerial surveys using forward looking infrared (FLIR). It should be noted that each technique has various advantages and disadvantages (cost, detection rates, etc.) and that variability in precision and accuracy exists for any type of counting method (Anderson 2001). Regardless of the technique used, it is imperative that population estimates are interpreted in conjunction with other units of measure (Morellet et al. 2007), such as deer-vehicle accident records and property damage complaints to aid in defining deer management goals and objectives.

### Literature Cited

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Figure 1. Flight transects used to conduct the aerial-visual survey of white-tailed deer over the City of Bratenahl on 13 January 2016. Yellow numbers indicate location and quantity of deer observed and the boundaries of the City are colored in red.