Idaho Department of Fish and Game

2018

STRATEGY FOR

CHRONIC WASTING DISEASE

PREVENTION, DETECTION, AND MANAGEMENT

FOR IDAHO'S WILD CERVIDS (DEER, ELK, AND MOOSE)

Since 1997, IDFG has sampled nearly 16,000 mule deer, white-tailed deer, elk, and moose for CWD. IDFG typically acquired these samples at hunter check stations, with a goal of annually sampling 1,000 animals evenly distributed among the seven IDFG administrative regions. Past strategies did not take into account potential variability in CWD prevalence among species, demographics, populations, or geographic regions.

2018 Strategy for Chronic Wasting Disease

In the fall of 2017 IDFG began a new surveillance program to provide a statistically sound, effective platform for detecting CWD. Mule deer typically exhibit greater CWD prevalence than other species in western states (Miller et al. 2000) therefore they will be the initial focal species for Idaho's CWD surveillance approach. The program is based on Population Management Units (PMUs) from the Idaho Mule Deer Management Plan (Idaho 2008). Due to the robust white-tailed deer harvest and substantial populations in the North Idaho and Lower Salmon PMUs, IDFG will also implement surveillance for both deer species in these two PMUs.

Weighted Surveillance System

It is unlikely that sufficient samples will be available at the PMU scale to reliably detect a minimum threshold of 1% CWD prevalence; therefore IDFG identified six sampling units (Figure 1) by combining PMUs based on geographic proximity and understanding potential movements of individuals between PMUs.

CWD prevalence varies among gender and age classes. IDFG will sample both genders, and adult and yearling deer. The risk for CWD infection in a particular sample also varies based on the animal from which it was collected (*e.g.,* hunter harvest, road-killed, other animals found dead, individual exhibiting symptoms consistent with CWD infection). IDFG will assign sampled individuals a weight ("point value"), based on their relative risk of CWD prevalence and demographic category (Table 1). IDFG selected these values using data from mule deer in CWD positive areas in Colorado (Walsh and Otis 2012) and white-tailed deer in Wisconsin's CWD management zone (Jennelle et al. 2018) (Table 1).

IDFG's goal is to acquire enough samples in each sampling unit to attain 95% confidence in our ability to detect CWD at a 1% prevalence rate in the population. Based on the literature, this requires a point value of at least 300 in each sampling unit. In rare instances where samples are insufficient to meet this goal, IDFG will report a confidence estimate in the statistical ability to detect a given prevalence threshold, based on the actual achieved sample size. Additionally, IDFG will try to collect samples from each PMU within a sampling unit in proportion to the PMU's respective population. The actual number of samples required will vary, depending on the risk and demographic composition of sampled individuals.

Table 1. Relative weights ("points") for demographic groups of mule deer and white-tailed deer counted toward sample size goals in Idaho's weighted surveillance program.

Demographic Group	Mule Deer	White-tailed Deer
Symptomatic female	13.60	9.09
Symptomatic male	11.50	9.09
Road-killed male/female	1.90	0.22
Found dead male/female	1.90	7.32
Harvest adult female	0.56	1.30
Harvest adult male	1.00	3.23
Harvest Yearling female	0.33	0.85
Harvest Yearling male	0.19	1.00