Research on bowhunting white-tailed deer 2019-2021
Finnish Bowhunting association

Research on bowhunting whitetail deer 2019-2021
Interim report
Finnish Bowhunting association

Table of contents

Research on bowhunting whitetail deer 2019-2021
Interim report
Finnish Bowhunting association

Introduction

Bowhunting has been a method of hunting wildlife in Finland for ages. During the last centuries its role as a hunting weapon has decreased, legislation affecting it since 1993.

In the present Finnish hunting culture the use of the bow and arrow has slowly and steadily increased again. One reason for this is the widening of the range of species allowed for bow hunting. After being governed by legislation in 1993 the use of the bow and arrow was restricted for only small game hunting. Since then more species have been allowed for bow hunting, first roe deer and beaver in 2001, followed by white-tailed deer and other larger ungulates (excl. moose) in 2017.

Objectives

Even though bow hunting has been a firm part of modern hunting cultures around the world even with bigger game animals for a long time, questions regarding the effectiveness and ethicality of the bow and arrow as a hunting method have risen during changes in legislation.

Even though the users of bows and arrows do not question the effectiveness of the hunting method chosen, a demand for scientific, proven evidence is made in public discussions from time to time.

To be able to find out the reality behind empirical, unstructured remarks, the Finnish Bowhunting association decided to start facilitating a research considering the effectiveness and ethicality of bows and arrows on white-tailed deer in 2019.

During the research, information is gathered on 100 white-tailed deer hunted with a bow and arrow and 100 white-tailed deer hunted with a rifle. To limit factors affecting animal behavior, the research data was restricted to include only stationary or slowly walking, mostly grazing or feeding animals.

Information was collected by hunters, and all hunting situations were described uniformly on data colleting forms. The collected data consisted of i.e. the following details: poundage used in the hunting bow, caliper of the used rifle and the KE of the used projectile, type of the broad head or bullet used, shot distance, fleeing distance before downing, time spent before discovery, entering and exit wound placements. To analyze blood cortisol levels blood samples were collected, and pH-measuring was done 24 hours after downing the animals.

Research on bowhunting whitetail deer 2019-2021
Interim report
Finnish Bowhunting association

The objective of the research is to, using the data collected, compare the effectiveness and ethicality of the bow and arrow to a well established, unquestioned standard of a hunting tool, a hunting rifle. The research data collection is facilitated by the Finnish Bowhunting association, and the data analysis and research conduction are made by veterinarian Mikaela Sauvala.

Interim results

The research was initiated at the end of 2019 for planning and building data collection methods and recruiting a pilot group for data collection method testing. First data points were collected in the beginning of 2020, during the final month of the deer hunting season 2019-2020.

Hunting season 2020-2021 was spent on more efficient data collection and data was collected from over 70 white-tailed deer hunted with a bow and arrow. In spite of a fairly good success on bow hunting data collection, data collection success with rifle hunters did not reach the target. However, enough data on rifle hunting was available for a rough interim comparison of the two different hunting tools.

Blood sample collection was started during the season 2020-2021, although with a low number of samples. Also videographing hunting situations was added into the research plan in request of the parties involved in the research analysis. During the season 2020-2021 multiple good quality video samples were filmed for the research.

Extractions from the data collected

Hunters using a bow and arrow downed 70 white-tailed deer, of which 10 individuals were mature, the rest being fawns.

Fleeing distances recorded:

Less than 50m	67.14%
Less than 75m	85.71%
Over 100m	5.71%

Shot placement:

Enter vital area	82.86%
Exit vital area	85.71%
Double-lung hits	68.57%
Only enter or exit in vital area	20.00%

Shooting distances:

less than 10 m	5.71%
11-15 m	18.57%
16-20 m	47.14%
21-25 m	24.29%
25-30 m	2.86%
30-35 m	1.43%

Wounded: 3 deer, 4,29% of all

Comparison and interim analysis

Even though the rifle data collection did not meet the par during the season 2020-2021, an interim comparison was conducted. Differences in fleeing distances were uniform within few percent points. All deer with vital area hits tended to flee in average less than 50 metres before downing - exceptions mostly concerning spine hits or hits outside vital area.

Failures in good, ethical shot placement were mostly connected to low lighting or long shot distances.

The wounding rate and fleeing distances recorded on white-tailed deer during the research have been well in line with the Danish evaluation on bow hunted roe deer during 1999-2007 (https://europeanbowhunting.org/danish-evaluation), initially confirming the results of both studies.

Follow-up plan

A follow-up season for completing data collection, gathering the missing blood samples and pH-measurements and a comprehensive data set on rifle-hunted deer was applied for and granted. Hunting season 2021-2022 will be spent on extensive data collection on all fields to provide enough information for a quality research report leading into a peer-reviewed study publication, during 2022-2023.