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To begin getting the information they needed about big game, the Boone and Crockett Club devised a novel program to excite hunters to record information about the animals they harvested. The data collected documented not only the existence, but also the condition of harvested big game animals in North America.

Throughout his life, Roosevelt maintained detailed notes about his observations of wild animals because of his deep interest in their habitats and natural history. Moreover, he saw hunting as both a sport and an opportunity to further his knowledge about the land and species that inhabit it. Roosevelt believed that science should provide the basis for conservation, and from his observations, he became interested in questions such as, what kinds of habitats are necessary to restore and maintain species, and what kinds of habitats support the very best examples of each species? Thus, the Boone and Crockett records program began with the hope that someday the data would be used by

scientists to provide valuable insights about wildlife populations and their habitats.

Today, the Records of North American Big Game represent victories in management as well as provide the conduit through which to honor successful hunters. While celebrating hunters and management success is important, the most significant role of the Boone and Crockett records is, arguably, contributing to our knowledge of wildlife. As one of the most comprehensive archives in wildlife, big game records have become a significant repository for quality harvest data that can be used in research related to wildlife species and their habitat.

The wealth of information contained in the big game records is uncommon in wildlife databases. There are more than 50,000 records in the Boone and Crockett database, and 1,200 to 1,800 new records are being added every year. Since the database contains well over 100 years of harvest information for 38 categories of big game across North America, consistency in the data is important. Fortunately, the Boone and Crockett Club records data remain dependable over time and across the continent due to the tremendous efforts the Club has taken to maintain the data quality.

Compared to similar databases, the quality of the Boone and Crockett data is extraordinary. This is partly because the Boone and Crockett Club

**Rebecca with a musk ox skull and a copy of the thirteen edition of *Records of North American Big Game*. The Boone and Crockett Club has been publishing its records data since 1932.**



**David M. Williams and Rebecca L. Cain pose in front of the Boone and Crockett Headquarters, where all the entry data gets processed and recorded. They traveled to Missoula, Montana, in 2015 to participate in an Official Measurer's workshop.**

records program continues to invest considerable resources to train Official Measurers in the detailed methods of measuring and scoring of North American big game. By requiring all candidates to complete a workshop before they are recognized as Official Measurers, discrepancies among individual measurers during the data acquisition process are minimized. In addition to having well-trained Official Measurers, there are quality-control procedures in place that every entry must undergo. Part of the standard procedure for each entry includes having the information verified by records-program personnel, which ensures the accuracy of all new information added to the database.

Of course we periodically need to justify the investment the Club makes in these records, so it's important to ask, what practical use do the data serve for society? The simple answer is the knowledge. The original intention of the founding members of the Boone and Crockett Club is still relevant—the knowledge we gain is better equipping us to manage and conserve these species. The longevity and continental scope of the big game records make them uniquely positioned to help managers appreciate the short- and long-term consequences of modern society's



impacts on wildlife. Ultimately, the benefit to society is in using this information to ensure that these big game resources will continue to be enjoyed by future generations.

The Boone and Crockett database will only become more prominent in the future because historical continental-wide data are necessary to answer pressing scientific questions, including research aimed at understanding how wildlife populations respond to changes in climate conditions, management strategies, and land-use patterns. For climate-change research, it is necessary to have many decades of data to evaluate how wildlife populations have responded throughout time in the face of these global environmental changes. Broad-scale historical data are also necessary to investigate the response of wildlife populations to alternative management strategies (e.g., changes in hunting regulations, harvest restrictions, season structures). To answer questions related to land-use changes, we require many years of data along with information from areas with different landscape characteristics to understand how wildlife populations have been influenced by the way in which the land has been used. The Boone and Crockett records are one of the only databases available to address the spatial and temporal scales appropriate to answer questions about these subjects, so the big game records data will remain very valuable.

The Boone and Crockett database has the potential to

become even more important to science and conservation as steps are taken to improve big game records, making them more valuable for informing management decisions. In particular, the Club's efforts to make all its records available online will help encourage greater research and general interest in the records data.

Improvements are also being made in the data itself. We know that age is an important factor influencing the size of an animal. In sheep, for example, a ram that measures 190 at 6 years old from Montana indicates better habitat than say a ram measuring 190 at 12 years old from a different location. Unfortunately, age information has rarely been recorded as part of the data collected in the big game records, and this gap makes it difficult to interpret trends we observe in the size and number of record-book entries. To address this issue, the records program has been collecting information about the age of harvested individuals since the 16th awards program (1974-1976), so researchers will be able to monitor how the age-structure of big-game record-book harvests change through time.

Another improvement to the database deals with potential biases in the records data. As with many human behaviors, self-reporting of harvest information by hunters is subject to bias. The motivations that are unique to each hunter can influence how likely the harvest of an animal will be reported to the

Boone and Crockett Club. We know that not every successful hunter will get the animal measured by an Official Measurer and then submit the scoresheet and other required materials to the Club. However, no research has been conducted to understand the variation in reporting rates and, consequently, the interpretations of the records data can be misleading. For instance, without knowing the reporting bias, we are unable to determine if the observed trends in antler and horn sizes are the result of changes in the actual population or merely changes in reporting to the Boone and Crockett Club by hunters. To ensure appropriate conclusions are made from analyses using the big game records data, research to evaluate the variation in reporting rates is necessary. The investigation of reporting bias will be a crucial next step in improving the records data.

The Boone and Crockett Club can be proud that its records program was one of the first citizen-science initiatives to be instituted in conservation and that it has become one of the longest living citizen-science efforts. Of course, much appreciation goes to the countless sportsmen, sportswomen, and Official Measurers. Perhaps most importantly, Theodore Roosevelt's dream for the records as a valuable source of information for wildlife conservation is being realized, and the future of the Records of North American Big Game is bright. ■

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**LEFT: Rebecca learned how to score various species at an Official Measurers workshop.**