

# RECORDS ON THE RISE

**DANIEL  
ANDRES**  
Department of Biology,  
University of Saskatchewan

**JAMES A.  
SCHAEFER**  
Professor, Department of  
Biology, Trent University



By knowing how records changed previously, we can predict how records will emerge in the future, if subject only to chance.

Records, they say, are meant to be broken. In time, even the most exceptional performances are bound to be eclipsed. One of the greatest feats in athletic history occurred at the 1968 Olympics when Bob Beamon smashed the world record in the long jump—a leap of 29 feet, 2¼ inches—nearly 2 feet further than anyone had ever achieved. Some analysts predicted this record might never be outdone. But over the years, athletes edged ever closer to it. Finally, at the 1991 World Championships, Mike Powell surpassed it. His new mark stands unbroken—for now.

**LEFT:** In 1993, after 29 years at the top of Boone and Crockett records, the Jordan Buck is overtaken by Milo Hanson's 213-5/8 buck from western Saskatchewan, Canada. **BELOW:** Ninety-nine deer seasons have passed since James Jordan pulled the trigger on a gargantuan whitetail that would become one of the best-known trophies of all time—and still stands as the biggest typical buck ever taken in the U.S. With the 100th Anniversary coming up in November, the Boone and Crockett Club is pausing to remember a tale that remains the stuff of legends.



Alongside athletic feats, the Boone and Crockett Club's Records of North American Big Game represent one of the most intriguing compilations of records of any kind in the world. Each hunting season, we hear of colossal big game taken across North America, and rumors abound of new contending records in one trophy category or another. Some reports, like the massive Alaska-Yukon moose in autumn 2013, stand the test of the tape; others fall short of making their mark in the book. In all, 11 new records have appeared since 2000. And whatever the sport, it's tempting to attribute a succession of new records to an underlying cause. But we may forget that record-setting events always contain an element of chance; and sometimes chance is all that is needed.

As an illustration, let's return to the field of athletics. Imagine a competitive sprinter trying to improve upon a personal best in the 100 meters. Even when the athlete's running ability remains unchanged, he or she can expect to set a new best performance from time-to-time—just as a gambler might have

a run of luck in roulette. In other words, progress in record-breaking could happen due to chance alone. The question of mere chance or systematic improvement is not trivial. The answer might reveal whether there are real shifts hidden under the pinnacle of sporting performance, swings in stock prices, extremes of weather—as well as Boone and Crockett records.

How can we distinguish progress from chance? The key lies in looking at the past. By knowing how records changed previously, we can predict how records will emerge in the future, if subject only to chance. Then, much like scientists do, armed with this forecast, we can compare prediction to reality. If for instance, the records prove much higher than expected, we can conclude that something other than chance—better management, better access, or better techniques—has caused the prospects of record-breaking to improve. Similarly, records broken only as expected can be ascribed to mere randomness; those that remain stagnant and fall below expectations may be cause for concern.

**TOP:** Mike Gallo took this huge buck, hunted in Socorro County, New Mexico, in 2013. It scores 96-4/8 B&C points. Overall, New Mexico is second in pronghorn entries in Boone and Crockett records with 627.

As some enthusiasts know, the Boone and Crockett Club offers access to their database through their online **Trophy Search**. In this study, we delved into these records and analyzed the annual best scores from 19 trophy categories representing 13 unique species. The categories are summarized in **Table 1**. Because we needed an unbroken time-series for the analysis, not all B&C records could be used; species that lacked entries in one or more years were not included.

For each trophy category, we extracted the highest record (B&C score), each year, over the span of a half-century. We focused on the postwar period, when the Club's activities and measurement system had become more-or-less stable and standardized. We used the first 25 years (1960-1984) to generate predictions for the next 24 years (1985-2008). We then compared forecast to observation. Thus, we were able to identify species and categories that have been progressing at an unusually

fast or slow pace, patterns different than predicted by chance.

The results were surprising. In the course of our analysis we uncovered significant improvements in the records of many North American big game animals. In particular, we found that 6 out of the 19 trophy categories during 1985-2008 displayed records sharply above forecast. These included the Alaska-Yukon moose, Alaska brown bear, bighorn sheep, pronghorn, typical whitetail deer and typical Coues' deer (**Table 1**).

Bighorn sheep serve as an interesting illustration of the chronology of record breaking (**Figure 1**). Since 1960, the World's Record has been broken seven times, but this progression in top scores was unremarkable until relatively recently. It was not until the late 1980s and particularly in 2000 when the theoretical, random expectation was exceeded. Records for pronghorn show a similar trend (**Figure 2**), nudging just above expectation in 2000 and again in 2002.

**TABLE 1.**  
**OBSERVED AND FORECAST BOONE AND CROCKETT WORLD'S RECORDS, 1985 TO 2008**

Where the observed records fall outside the forecast bounds (below the lower bound or above the upper bound), we conclude that record breaking was not simply a result of chance. Systematic improvements were observed in six species. **They appear in orange.**

Species	Lower bound of forecast	Observed record	Upper bound of forecast
black bear	23 0/8	23 4/8	23 7/8
grizzly bear	27 1/8	27 1/8	28 1/8
<b>Alaska brown bear</b>	28 7/8	<b>30 2/8</b>	29 6/8
cougar	15 6/8	16 2/8	16 2/8
typical American elk	411 6/8	428 6/8	437 3/8
typical mule deer	215 0/8	216 2/8	225 7/8
non-typical mule deer	281 0/8	306 3/8	314 4/8
Columbia blacktail deer	169 3/8	170 4/8	181 1/8
<b>typical whitetail deer</b>	197 2/8	<b>213 5/8</b>	208 0/8
non-typical whitetail deer	280 0/8	307 5/8	319 2/8
<b>typical coues' whitetail deer</b>	123 7/8	<b>143 0/8</b>	133 5/8
Canada moose	225 7/8	240 6/8	245 6/8
<b>Alaska-Yukon moose</b>	247 6/8	<b>261 5/8</b>	259 6/8
Shiras' moose	184 6/8	199 6/8	201 4/8
barren ground caribou	459 2/8	477 0/8	485 0/8
<b>pronghorn</b>	90 4/8	<b>95 0/8</b>	94 5/8
Rocky Mountain goat	54 5/8	56 6/8	57 1/8
<b>bighorn sheep</b>	196 1/8	<b>208 2/8</b>	204 4/8
desert sheep	190 6/8	197 1/8	203 1/8

### WORLD'S RECORD BIGHORN SHEEP

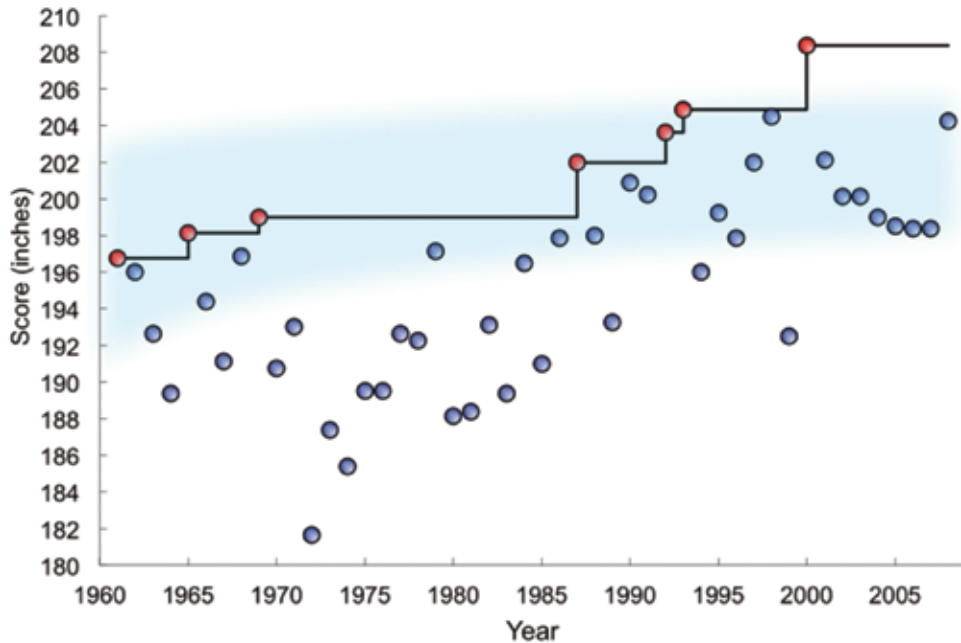


In addition to these six trophy categories with records well above prediction, another ten categories showed a tendency that was similar, albeit less striking—records broken at a pace slightly above expectation (**Table 1**). These patterns of improvement were not restricted to any particular groups; they included three carnivores, nine cervids, and four bovids. In contrast, only three categories (typical Columbia blacktail deer, typical mule deer, and grizzly bear) fell slightly below expectations (**Table 1**). Taken together, these results support the general notion that record-class animals are appearing at an unusually high rate. But why are we seeing a surge in these records?

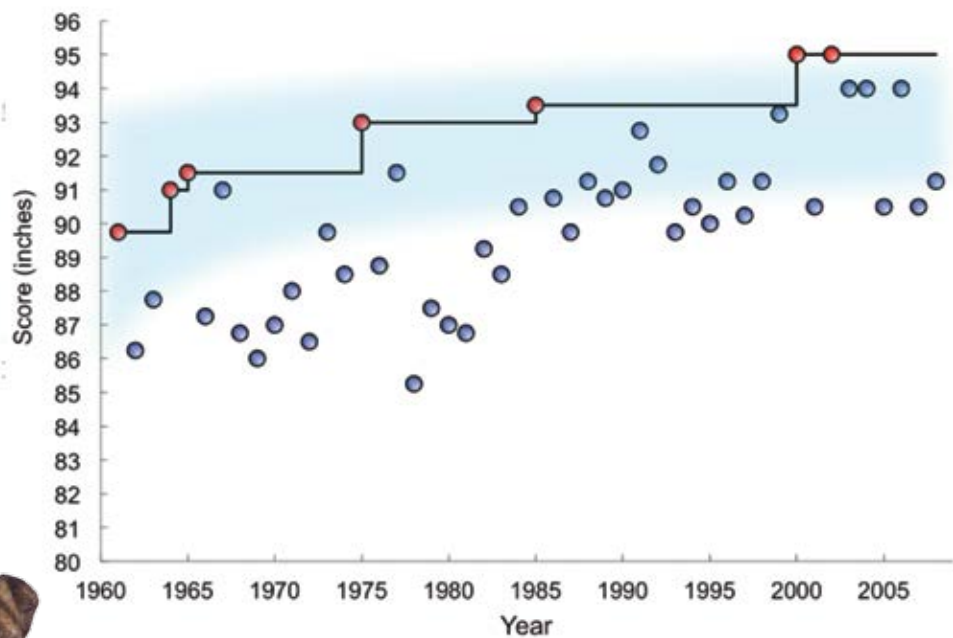
**WORLD'S RECORD BIGHORN SHEEP**

SCORE: 208 3/8  
 LOCATION: Luscar Mt., AB  
 HUNTER: Guinn D. Crousen  
 DATE: 2000

KEY MEASUREMENTS:  
 Length of horn:  
 Right 47 4/8 - Left 46 5/8  
 Circumference of base:  
 Right 15 7/8 - Left 15 7/8  
 Circumference of 3rd quarter:  
 Right 12 - Left 11 3/8  
 Greatest spread: 23 1/8  
 Tip to tip spread: 23 1/8



**FIGURE 1.** Changes in the annual top scores of bighorn sheep, 1960 to 2008 (world records shown with red circles, other annual best results shown in blue), compared to the forecast change. Records that fall above the shaded area are those particularly unlikely due only to chance. A pattern of rapid increase first appears in 1992.



**FIGURE 2.** Another example of record development unlikely driven by chance: Pronghorn, 1960 to 2008 (World's Records as red circles, other annual best results in blue), compared against the forecast change (blue shaded area). The records appearing above the shaded area in 2000 and 2002 were particularly unlikely the result of mere chance, given the pattern from 1960 to 1984.

**TROPHY SEARCH**

Everything you could ever want to know about record-class animals, where they are coming from or have come from, when, how big, and how one area might stack up against another area is all just a few key strokes away. Trophy Search is available as a yearly subscription. For just \$40 a year you can have unlimited access to the Club's trophy database.

## WHY THE RISE IN RECORD-BREAKING?

Our study confirms Boone and Crockett records are being broken at an unprecedented rate. While we can discount chance as the sole cause, the trend itself does not give us a definitive answer underlying this progress.

To some, our results might seem to contradict the existing evidence that harvest-induced selection for trophy animals is causing a reduced capacity for growth; however, this view is based on an oversimplification of a complicated reality. Importantly, we know that the size of an animal and its weaponry is a complex function of age, genetic, and environmental effects, including nutrition and weather. In addition, record-breaking events can become more common even when the average size of a game population remains static. For instance, a shift toward more selective hunting of trophy animals could by itself drive up the likelihood of a new record-class animal being taken. The pattern could also follow from increases in hunting activity, such as when formerly inaccessible areas are opened up through improvements in technology (ATVs, float planes), new infrastructure (roads, trails), or changes in hunting regulations.

The potential effects of new hunting regulations are particularly revealing. Consider again the history of records of the bighorn sheep (Figure 1). Over the last decade, some of the largest rams in history have been taken in Alberta, Canada. Part of this surge has likely been driven by the introduction of special licenses, which allow winners of an auction or random draw to hunt bighorn sheep outside the regular hunting season. Some of the recent trophy

rams have ordinarily found themselves in sanctuary areas and emerged from these zones to breed only once the regular hunting season had ended. Interestingly, two of the largest bighorns taken in Alberta since the year 2000 have been direct outcomes of these special license programs—the largest of these, a ram measuring 208-3/8 inches, now sits as the current world record.

Similar stories emerge from other jurisdictions. For instance, in 2008, a non-typical American elk was shot under a special license in the state of Utah; this elk scored 478-5/8 inches and toppled the previous record by an extra 13 inches. In Arizona, the prior world record pronghorn, tied with another pronghorn from the same state, was also killed under a specially auctioned license. Perhaps the rapid progression of records is not such a surprise. Indeed, careful inspection of general book entries (not just world records) quickly reveals at least several other entries linked to special license hunts. But this is one of myriad possible causes.

Like hunting itself, big game records represent a complex interplay among biological, regulatory, and cultural influences. Although Lady Luck may play a hand too, our analysis underscores that she is not the sole actor on this complex stage. Records delight and excite us; the progress in record-breaking of trophy big game in the past three decades adds another dimension to this intrigue. ■

## ACKNOWLEDGEMENTS

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ABOVE: A Special Judges Panel to verify the score of Heinz E. Naef's Alaska-Yukon moose was convened at the Wild Sheep Foundation Convention, on January 24, 2014, in Reno, Nevada (above). The bull was declared a World's Record with a final score of 263-5/8 B&C points. Naef of Dawson City, Yukon Territory, (shown below with his trophy) harvested the moose while hunting along the Yukon River near Stewart Island on September 22, 2013. Naef was carrying a .303 British with open sights and 180-grain Winchester ammunition when he stalked to within 35 yards of the big moose before taking the shot. The bull has the largest antlers ever recorded for the Alaska-Yukon moose subspecies. The previous record, taken in Alaska in 1994, scores 261-5/8. These are the only two specimens on record to score over 260. The third-largest bull scores 256-6/8.

