

Rowland Ward's Measuring Handbook

Rowland Ward Ltd.

Rowland Ward's *Measuring Handbook*

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What Does *Rowland Ward's Records of Big Game* Represent?

- Conservation of wildlife and enhancement of habitat.
- Promotion of fair-chase hunting that benefits local people.
- Accurate measurements and data, record tables that are easy-to-understand.
- The assurance that high minimums are maintained to keep each entry in the book a special event.
- By registering an exceptional animal with RW you support legal, fair chase hunting.
- A measuring system that ranks the most desirable trophies the highest with the least amount of measuring.

Preface

This Handbook gives specific instructions for individual methods of measurement for big-game trophies; these instructions will allow you to assess if your trophy meets the minimum to be included in *Rowland Ward's Records of Big Game*.

Acknowledgments

RW Ltd. wishes to specifically acknowledge and thank its advisory board in helping to develop this measuring handbook. Our members are: Dr. Rolf D. Baldus, Frederik Brys, Johnny Chilton, Dirk de Bod, Robin Hurt, Garry Kelly, Corey Mason, Emilio Paris, Tony Sánchez-Ariño, Gray Thornton, and Coenraad Vermaak.

About Rowland Ward

James Rowland Ward was born in 1848 into a family of taxidermists and naturalists. Initially he worked for his father, but by 1870 he had established his own taxidermy shop in London. In 1891 Rowland Ward became incorporated and Ltd. was added to the name. In 1892 Rowland Ward Ltd. published its first record book, which was entitled *Horn Measurements and Weights of the Great Game of the World*. It was an instant success. In 1896 the company issued a second edition, which was significantly bigger and the name *Rowland Ward's Records of Big Game* was adopted. When the third edition came out in 1899 it was twice as big as the first. Initially only trophies that were brought to the London premises were measured for the book, but by the end of the 1930s, a network of measurers had been established to measure trophies from all over the world.

Rowland Ward died in 1912, and his general manager, John Burlace, over time became the majority shareholder. After World War II, Gerald Best bought the company and when he died in 1969, his sons Timothy and Anthony Best continued the taxidermy and publishing businesses. In 1982 GameCoin of San Antonio, Texas, bought *Rowland Ward's Records of Big Game*; and shortly thereafter they hired Steve Smith from South Africa to publish the book. When Steve Smith died in a car accident in 1993, Robin Halse of Cape Town bought Rowland Ward Ltd.; his daughter, Jane Halse, succeeded him. In 2015 Rowland Ward Ltd. moved to California and in 2020 it became a non-profit organization.

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*This handbook gives specific instructions for individual methods of measurement for big-game trophies; these instructions will also let you assess if your trophy meets the minimum to be included in Rowland Ward’s Records of Big Game. Before reading the individual methods of measurement, please refer to the General Instructions in this handbook and Guiding Principles (on our web site as a separate document), for these must be adhered to for each entry. The **RIGHT** way to measure is shown in **Blue** and the **Wrong** way to measure is shown in **Red**. All methods are on separate pages to allow the user to print out individual sections.*

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• Introduction •

Overview of the Process to Enter a Trophy in the Record Book:

- Download the appropriate method form from RW.org.
- Following the instructions on the form and measure the trophy yourself.
- If you think your trophy makes the minimum, find a measurer on our website.
- Have the measurer score the trophy and sign and date the method form.
- Sign and date the form yourself.
- Attach any photos, if needed.
- Send in the form with payment to our office (check or credit card).

Minimums Necessary to Enter a Trophy:

Minimums for trophies from (1) Africa, (2) North and South America, and (3) Europe, Asia, and the South Pacific can be found in PDF format on rowlandward.org. Introduced animals are listed at the end of each of the regions.

Distribution Boundaries for Categories in *Rowland Ward's Records of Big Game*:

Distribution boundaries for all game-animal categories are listed in the latest edition of *Rowland Ward's Records of Big Game*. These are revised from time to time depending on available scientific data and field studies conducted.

Rowland Ward's Measuring System

Initially trophies were ranked on the longest horn/antler, spread, span, or largest weight. The measurement system was updated under Gerald Best in 1961 who published instructions for measuring in *Records of Big Game*. In 1984 GameCoin introduced cumulative scores for deer as well as altering the method used for measuring spiral-horned antelopes and published a detailed measuring manual. The year 2018 saw the introduction of new method forms and the online publication of the *Measurers Handbook*, which offers detailed measuring instructions. In 2018 RW, building on the work of the previous editors, also updated the deer methods considerably and began ranking African buffalo and other categories such as wild bovines, elephant, muskoxen, pronghorn, sheep on cumulative score. True to its origins, all straight-horned animals continue to be ranked on the longest horn; supplemental measurements for the length of the other horn and both bases are required and published. The system has always measured a horn, antler, or tusk without deductions and nor has it given credit for symmetry or appearance; these aspects will continue in the future.

• General Instructions •

1-a Tools Needed to Measure, with Remarks on Usage

The following items are the minimum tools needed to measure any animal correctly for entry into *Rowland Ward's Records of Big Game*. All can be purchased from Rowland Ward and are sold as one unit in a pouch. The Rowland Ward Measuring Kit includes the following:

Steel Tape with a Hook

All measurements must be made using a ¼-inch-wide steel tape unless otherwise indicated. This is normally a steel tape with a hook, which is convenient for measuring lengths and bosses but less so for measuring circumferences.

To measure circumferences using a tape with a hook: First loop the tape and begin measuring at the 10-inch mark. (By doing this, the hook will not interfere with obtaining an accurate reading.) Take the circumference measurement and deduct 10 inches. Alternatively, you can use a steel tape with a ring; see below.

Soft Vinyl Tape

In a few cases, you will find that a circumference to be measured will be 1 inch (2.5 cm) or less. These cannot be effectively measured by a steel tape because the metal will not make a small enough circle; furthermore, if forced, it will damage the tape. When measuring circumferences of 1 inch (2.5cm) or less, a nylon or vinyl tape may be used. Nowhere else may a soft tape measure be used. A soft tape measure is ONLY allowed for the base measurements of the following: 1) for blue duikers and Bates pygmy antelopes and 2) for measuring the teeth of mouse deer, water deer, and musk deer. Again, a soft tape measure can be used only IF THE CIRCUMFERENCE MEASUREMENT FALLS AT 1 inch or BELOW.

Cable

The use of a steel cable is allowed when measuring the main beams and tines of all deer, including fallow, moose and caribou, and for all length measurements of antelopes, sheep, and wild goats. A cable is not allowed for any other measurements. RW provides cables with a stop/clamp so that once a measurement is taken, the position may be held securely while it is measured with a tape.

Carpenter's Square

This is a metal L-shaped device with two legs that connect at an exact 90-degree angle. It is used for the greatest spread measurement of all horned and antlered animals and is a requirement for Methods 12-b and 13-b, which include dwarf forest and West African buffaloes and black wildebeest /white-tailed gnu.

Carpenter's Folding Ruler

This tool measures the inside span or an outside spread. It is a ruler made from wood that extends in 12-inch increments, can be elongated out to 8 feet, and has brass hinges. It also has a brass extension slider of 6 inches that enables the ruler to stay inside an antler's main beams and, thus, can be kept at the correct angle to measure an inside span.

Caliper

This is a two-legged device that is connected via a hinge; it is used to measure distance in a straight line where there is an obstacle in between the two points to be measured. They are used for measuring skulls, irregular growths on horns or antlers, and for muskoxen.

1-b Additional Tools to Help Measure Trophies

The following items are not provided in the Rowland Ward Measuring Kit, but they are recommended if you are an active measurer.

Steel Tape with a Ring

A steel tape with a ring is better for measuring the circumference and base of a trophy because the ring will allow the tape to lie flat on the antler or horn. (A hook will prevent the tape from lying flat.) Because there is about 1.5 to 2 inches of tape before the measuring increments begin, a tape with a ring is also convenient to hold when making a circular measurement. (Available from our offices for \$20.00. This is a quality steel tape in a metal housing.)

Triangle Square

This is a triangle-shaped device (also called rafter/angle square or speed square) made of hard plastic or metal with wide rimmed edges. It can be used to measure the greatest spread of all horned and antlered animals. As this device can stand up, it is preferred over a carpenter's square for measuring greatest spread. It is especially useful when measuring greatest spread on deer and bovines. However, a triangle square is not to be used for method 12-b and 13b; an L-shaped carpenter's square is required for these methods. (Available from our offices for \$30.00 for a pair. These are quality, light-metal triangular squares.)

Digital Field Scale

Used for weighing tusks and for measuring supplemental weights for antlers and animals in the field. On/off switch to save batteries, displays both Standard (lbs.) and Metric (kilos) records to 660lbs/300kg. Has a digital readout and runs 150 hours on 2 AAA batteries. Portable, compact unit of approximately eight inches high and four inches wide. Weight of scale is 1.5lbs, 0.6 kilo. Comes with metal top U-bolt that attaches to scale to be used for dispensing from a tree or rafter. Bottom scale has a steel S-shaped hook for hanging objects on. (Available from our offices for \$50.00)

High-Intensity Flashlight & Paper Masking Tape.

A very bright, high-intensity flashlight is recommended if a mounted head is to be measured inside a building where lighting conditions are not ideal. It will help identify what is real horn/antler and what is artificial material. Two colors of 0.5-inch-wide rolls of paper masking tape help with identifying typical and non-typical points on complex deer antlers.

1-c Measuring Basics

Before reading the individual methods of measurement, please refer to the General Instructions, in this Handbook and Guiding Principles as published on our web site for these must be adhered to for each entry. The **RIGHT** way to measure is shown in **Blue** on the method forms and the **Wrong** way is shown in **Red**. All methods are on separate pages to allow the user to print out individual sections.

Who Can Measure?

Only trophies measured by Official Measurers are accepted for entry into our record book. Only a measurer may fill in the measurement information on the entry form, and the measurer who measures the trophy must be the person who signs the form. See below for who can measure Top-10 trophies.

Refunding of Entry Fees

Entries received that do not comply with the RW Guiding Principles, are below the current minimum score or entries that do not comply with the rules in this Measuring Handbook are not refunded.

Trophies Must Be Measured in Person by an Official Measurer

Measuring a trophy must always happen with a measurer physically handling a trophy; no trophies may be measured via a camera or other device nor may measurements be accepted upon the say-so of a third person, even if that person is another measurer. Note that an official measurer can request a live-video conference with the RW offices to verify a measurement.

Keep Copies of Official Measurements

The measurer shall keep a copy of each filled-out and signed entry form. In rare instances the editors may ask the measurer for verification of an entry.

Measurement of a New Trophy for a Second Time

If a hunter feels that a measurer has measured an animal incorrectly, the first step is to return to the measurer and explain his concerns and state why he feels the animal deserves to be re-measured; the measurer shall decide whether to do so. If the measurer decides not to re-measure the trophy, the hunter may contact the Rowland Ward offices to seek guidance.

The hunter or owner shall not ask a second measurer to re-measure the same animal unless he has received permission from the Rowland Ward editors. Seeking re-measurement of a trophy without permission from RW may disqualify it for the book; should an animal be re-measured without permission, only the lowest-score that was obtained by such activities will be accepted. (Please note that all measurers should to ask the owner if the trophy was previously scored by another Rowland Ward measurer before commencing a measurement.)

Re-Measurement of a Recorded Trophy

These are the only legitimate reasons for re-measurement: (1) a method was changed and you are submitting the same trophy under a new method, (2) a second measurement is necessary for a top-10 trophy, (3) the editors requested a re-measurement, or (4) you have legitimately purchased a trophy that was previously recorded in *Records of Big Game*, and, after checking, you believe the measurements to be incorrect. All other trophy scoring should be for new measurements. If an animal has been re-measured, clearly state so in the comment section on the entry form.

Re-Measurement and Shrinkage

There are many reasons for shrinkage to occur, but the age and condition the animal are important factors. Even after the initial 60-day drying out period, many trophies will continue to shrink over time;

consequently, our editors have developed statistics based on historical records of trophies measured as far back as the 1920s that have been re-measured in recent times. These statistics are augmented whenever possible. Should a trophy be re-measured and if the shrinkage recorded for the second measurement falls within the norm of what has been established by the Rowland Ward database, the trophy shall remain as it was recorded the first time.

Transport of Trophy and Fees and Costs for Measuring

It is the responsibility of the trophy owner to transport the trophy to the measurer. A measurer may offer to measure an animal at another location; should that happen, the trophy owner needs to reimburse the measurer for travel expenses. This shall be for actual travel, nothing else. Please note that Rowland Ward has made arrangements with a few measurers who measure a great many trophies year-in, year-out. These are normally people who are professionally involved in big-game hunting, for instance, taxidermists. A few of these charge for measuring with the permission of Rowland Ward at agreed-upon prices.

Filling Out Method Forms and Encouraging the Submission of an Entry

Measurers shall fill in a method form completely; a measurer shall not leave a method form partially completed so that it can be filled out by a third person later. All measurers are asked to make a copy of each entry so that Rowland Ward can verify the data if needed.

There are hunters who persist in asking measurers to spend time measuring their trophies and getting the original method form filled out, signed, and returned to them and who then never submit the forms and other paperwork to our offices. To discourage this behavior, we offer the following to measurers:

- A measurer is free to collect copies of the photos—if needed—and the payment (or have the owner fill in the credit card information on the method form) and submit everything to the Rowland Ward offices. In such cases a measurer can justly ask for reimbursement of postage.
- A measurer is encouraged to tell an owner that the entry fee is \$35.00 so that there are no wrong expectations as to the cost.
- A measurer is encouraged to make copies of the entry form(s) and can check with our offices to see if the owners have submitted an entry. If an owner repeatedly fails to submit trophies for entry into the record book, the measurer is in his right to refuse measuring further trophies for such a person.

Legally Hunted or Legally Acquired

When submitting a trophy to the editors, it must have been legally hunted or legally acquired. If circumstances warrant it, the editors can—and do—ask for official paperwork that shows the trophy was legally hunted or legally purchased. If such paperwork is not forthcoming in a timely manner, the animal will not be entered in the record book. No refunds of the entry fee will be given in such cases. Should the editors discover that a previously listed trophy was not legally hunted/obtained, it will be removed, and, again, no refund will be given.

Enter Only One Animal per Order Form

If you plan to submit more than one animal for entry into our record book, each animal must be entered on a separate order form. Only the most recent entry forms, which are found on rowlandward.org, may be used.

Acceptance and Publication

Receipt of an entry form by the editors is no guarantee of publication; the entry must be complete, there must be no math errors, it must meet current minimum standards, and it must be paid for. Entry fees will not be refunded if the information entered is false or incomplete or illegible; this causes extra work for the editors. Editors reserve the right to ask for additional information and clarification of any entry, and any such entry will be placed on hold till a complete reply is received.

Measurements Units

All measurements for determining rankings must be made in inches (2.54cm) and weights must be recorded in English pounds (454 metric grams or 0.454 kilo).

Measurements in Metric

Measurements may be done in the metric system but must then be converted in accordance with a standard conversion table or via one of several conversion websites on Google. In case a length measurement is taken in centimeters record to the nearest millimeter and convert to inches and then round off, see below. In case a scale with only a metric dial is available when weighing record the exact weight to the nearest gram and convert to English pounds and then round off, see below.

How to Record Fractions

All length measurements must be recorded as eighths: $\frac{1}{8}$, $\frac{2}{8}$, $\frac{3}{8}$, $\frac{4}{8}$, $\frac{5}{8}$, $\frac{6}{8}$, $\frac{7}{8}$. Do not record in quarters: $\frac{1}{4}$, $\frac{1}{2}$, and $\frac{3}{4}$. Using a quarter-of-an-inch measurement causes mistakes during data entry. For skull measurements, enter the measurements in: $\frac{1}{16}$, $\frac{2}{16}$, $\frac{3}{16}$, etc. The following animals are also recorded in sixteenths $\frac{1}{16}$: four-horned antelope, all duikers, all dwarf (pygmy) antelopes, Vaal rhebok, walrus, Chinese water deer, chevrotain, European roe deer, muntjac, brocket, tufted deer, pudu, and musk deer. All crocodilians are taken to the nearest quarter-inch, $\frac{1}{4}$.

Rounding

Measurements falling at or above the half mark of a fraction are recorded at the next higher increment; measurements falling below the half mark are recorded at the next lower increment. Note that in order for a tine to be valid on a deer, there can be no rounding off; see General Deer Instructions.

Weight Measurements

Elephant ivory is weighed in pounds (454 metric grams, 0.454 kilo), and all weights should be recorded to the nearest pound. Weights falling at or above the half-pound mark are recorded at the next higher pound while weights falling below the half-pound mark are recorded at the next lower pound.

Supplemental Measurements for Method 18 (Skull Trophies)

The supplemental measurements listed below will only be accepted if the skull measurement qualifies the animal for inclusion into the record book. Animals are ranked only on skull measurements and not on body measurements/weights. These measurements can be taken by the guide or outfitter and a witness if an official Rowland Ward measurer is not available. The guide and witness must sign and date the measurement form.

Supplemental Body Lengths

Rowland Ward will accept a body-length measurement as supplemental data for all cats, civets, hyenas, wolverines, and wolves. This is a field measurement and must be taken before skinning. It is a measurement of the total body length, including the length of the tail. Measure to the nearest quarter-inch. Do not measure a skinned animal because a fresh, green skin stretches considerably.

Lay the animal on its side on flat terrain. This is important in order to get a proper measurement. Pull the nose and tail into a straight line, and then drive pegs into the ground at each end. Place the peg at the end of the tail flesh/skin and not at the end of the hairs. Make sure the pegs are at a 90-degree angle to the ground. Remove the animal. Take the measurement between the pegs, and measure directly on the ground, not with a gap between the tape and the ground. Do not measure over the contours of the body of the animal. The terrain must be flat and cleaned of debris and the tape measure must not be pushed into depressions in the terrain.

Supplemental Squared Measurements

For all bears whose skulls meet the minimum standard, Rowland Ward will accept as supplemental data a “squared” skin measurement. This is a field measurement of a fresh skin and must be taken after skinning. It is a measurement of the total width and length of the skin.

Lay the skin on a flat, even surface, but do not stretch it. Measure to the nearest quarter-inch. Measure from the tip of the nose to the end of the tail, but not the hairs that extend beyond the tip of the tail. Next, measure the width of the skin from the claws of the left front leg to the claws of the right front leg; the claws of the front feet are part of the measurement. Add the two measurements together and divide by two.

Supplemental Weight Measurements

For any animal that falls under Method 18 (skulls), we will accept as supplemental data a body-weight measurement. This must be taken before skinning or gutting and as soon as practical after the animal is shot. Animals may not be measured when wet, either from rain or having been dunked in water. Be sure not to weigh any harness or other devices that may be used to hold up the animal on the scale. The weight must be taken with a scale; no estimated weights will be accepted. When measuring in pounds (lbs.), record to nearest 0.5 (half) pound. When measuring in kilograms (kg), record to nearest 0.25kg (250 metric grams). (A pound equals 454 metric grams.) Make a photo of the scale in such a manner that the weight on the scale can be clearly seen; send the photo of the scale in with the entry.

Carding Off at the Tip and Base

In case a tip of a horn, antler, or tusk has worn considerably (Figure 1) or is broken (Figure 2), the measurer must card off. See figures 1 thru 3 below. Do not bend the tape off the line of progression and do not push it toward the center/ending. A measurer must not follow a ragged or broken edge to the farthest point. Use the carpenter’s square or a small straight object like a pencil to create a straight line at a 90-degree angle to the axis of the horn, antler, or tusk. Measure along the natural curve to this straight line as though the ending has not been worn/broken. This is referred to as “carding off.”

In case the base of a tusk or pronghorn antelope horn is uneven, draw an imaginary line at a 90-degree angle along the farthest point of the tusk/horn (Figure 3). This straight line is used to establish the end point. This straight edge must always be at a 90-degree angle to the axis of the horn. See individual methods for when carding off can be used.

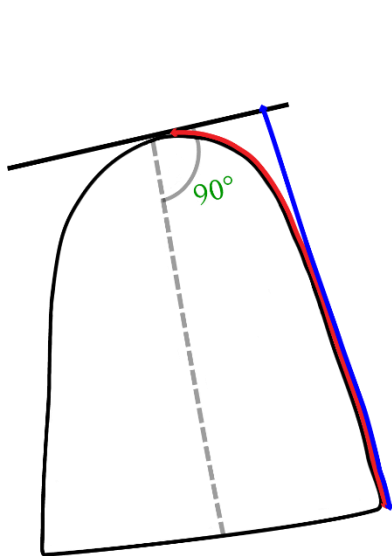


Figure 1

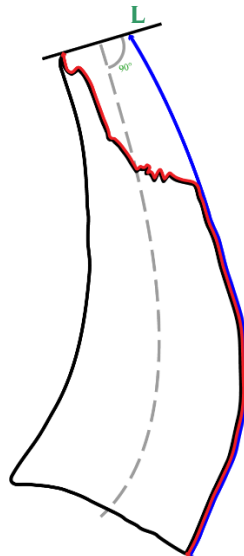


Figure 2

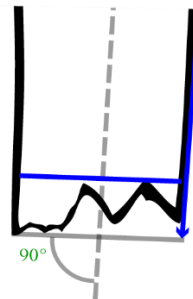


Figure 3

Determining Left from Right on a Trophy

All measurements are taken for the left or right antler, tusk, or horn. To determine which is the right or left of an animal do this: When standing behind an animal, the left of the animal is on the person's left and the right of the animal is on the person's right side; when standing in front of the animal, the animal's right antler is at the person's left side and the animal's left side is on the person's right side. Make sure the data filled in on the entry form reflect this.

Trophies Must Be Cleaned

Only completely cleaned skulls, antlers, and horns will be measured. No trophies with dried flesh, fat, and pieces of hide should be measured.

Horns Removed from Skull

Horns are often removed from the skull so that the inner cores may be cleaned. The inner-bone cores are often partially cut off as they contain cells with oils that would otherwise seep out over time. After the cleaning and cutting, the horns are re-attached to the skull. This must be done in such a manner so that the trophy's greatest spread is not affected. This means that at least 25 percent of the inner core must remain attached to the skull (i.e. cannot be cut off) in order for the horns to maintain the same greatest spread as before. Any manipulation to create a larger greater spread than naturally occurring will disqualify a trophy; this applies to all bovines.

The CIC System and Rowland Ward

The International Council for Game and Wildlife Conservation (CIC) is a conservation organization based in Budapest, Hungary. It has a unique measurement system that particularly emphasizes features prized by European hunters. Rowland Ward and CIC have a reciprocal relationship whereby each group recognizes the other's measurement system. Rowland Ward will accept CIC measurements of the animals listed below (when measured by official CIC measurers only), and such trophies will be listed in our *Records of Big Game* as a separate category for the same animal. Animals entered under the CIC system may still be entered under the Rowland Ward system if a second entry fee is paid.

	Minimum CIC points
European Roe Deer	140
Central European Red Deer	225
European Fallow Deer	200

1-d Fenced Game Populations

Rules Concerning Fenced Game

A fenced population means that animals are confined by human-made and or natural barriers that, under normal circumstances, are impossible, or nearly so, to cross. Such barriers are considered "game proof" by Rowland Ward, **and all animals confined by such barriers are "fenced game" under RW** even if temporary events such as a flood, a fence fallen in disrepair, or a gate left open would make it possible for animals to enter or exit. A game-proof fence is in direct contrast to a normal farm animal fence that, in most cases, can be crossed by game on a regular basis. However, it is possible for a farm fence to be of such a confining nature for (certain) animals that it is "game proof." It should be noted that smaller animals such as duikers and pigs are often not confined by regular game fencing.

Rowland Ward accepts entries from game-proof-fenced areas in Africa and Europe that have self-sustaining animal populations. RW does not accept game-proof fenced entries from any other continent.

What Is a Self-Sustaining Population?

Under RW self-sustaining shall mean the following:

- The population can feed itself from naturally occurring food sources.
- No continuous supplemental feeding takes place, although occasional supplemental feeding during droughts, severe winters, etc., is allowed.
- The outcome of hunting an individual animal is not guaranteed.
- The animals hunted are born on the property and lived there continuously.
- No individual animals to be hunted are released into the property.
- The property shall provide enough acreage & vegetation where animals can hide.
- No animals from the property are temporarily caught and subsequently released again.

1-e Limitations on What Rowland Ward Will Accept for Entry in the Record Book

All measuring systems have limitations, and Rowland Ward is no different. The list below is purely based on the biological conditions of the trophy and has no bearing on the methods of taking an animal or on the conditions of the hunt.

Abnormal, Malformed, Noticeably Unbalanced, or Freakish Trophies

When asked to record an abnormal, malformed, noticeably unbalanced, or freakish set of antlers, teeth, tusks, or horns, the measurer should refer the trophy, before measuring, to the editors for a decision as to whether it will be accepted. The request must provide appropriate data and photographs. If approved, such a trophy must be noted on the entry form. Examples include: deer with exceptionally thick, deformed skulls; deer with grossly malformed antlers or multiple antlers; antelopes with bulging, extra thick horns; skulls with teeth growing at unnatural angles.

Diseased Horns or Antlers

In rare cases, horns and antlers can be severely deformed through disease or genetics. Such heads may display extremely large bases and/or completely deformed horns/antlers and skulls. Such animals are not accepted for entry into the record book. The decisions on this are made by the editors.

Cross-Bred Species or Hybrid Animals

There are occasions when wild animals will cross breed. For example, in North America, white-tailed deer and mule deer sometimes cross breed, and in 2019 a cross-breed between a lechwe and a waterbuck was recorded in Zambia. Hybrid-animal categories will only be accepted under these conditions: 1) the animals have a large population and a natural hybridization zone, 2) the animals are completely free range, and 3) the offspring are fertile and breed readily. A good example of this is the red sheep, which is a cross between an Armenian mouflon and the Transcaspian urial. Human-induced cross-bred animals are not accepted. If there is no category a naturally occurring hybrid animal will be accepted in the category with the higher minimum entry score of the two species.

No Deer with Antler(s) That Do Not Shed in Normal 12-month Cycles

Deer that do not shed antlers in regular natural cycles are not accepted, see General Instructions for deer.

Deer with a Separate Third Antler

Please see General Instructions for deer.

No Antlers in Velvet

Antlers in velvet cannot be measured, see General Instructions for deer.

No Zoo Animals

No animals from zoos or game-breeding facilities are accepted. (Historically Rowland Ward has accepted a very few zoo specimens; these have been kept in our tables for historical completeness.)

Artificial or Reproduction of Horns, Antlers, and Skulls

The last twenty years has seen tremendous increases in the skill of creating reproduction skulls, antlers, and horns. In fact, artificial skulls are now being sold on the Internet to collectors, and these look very realistic. Only by handling a trophy closely and in extreme cases conducting a test can it be learned if a trophy is real or not. Artificial antlers/horns cannot be measured. It does not matter how accurate they are purported to be compared to the original; they are not accepted into the record book. Artificial horns and antlers are normally recognizable because, so far, the artificial skulls that are made with them do not look

realistic. However, artificial antlers and horns placed on a taxidermy shoulder mount are harder to recognize.

Antlers or Horns Augmented with Manmade Materials

The augmentation of antlers, but more commonly horns, is so widespread that, unfortunately, all trophies should be considered as potentially augmented. This is especially true for mounted heads on which augmentation, in combination with real horn/antler is hard to detect. Please be aware that skull mounts of African buffaloes are also augmented on a regular basis. A few areas of particular concern that all measurers must look for are:

- Augmented African buffalo bosses
- Augmented bases/bosses on all other bovines
- Augmented bases on sheep and wild goats
- Augmented bases on antelope species
- Augmented antler & horn tips

Detecting augmentations is harder especially if (a) viewed inside a house where lighting is poor, (b) the trophy was mounted by a skilled taxidermist, and (c) the mount was completed recently. Typically, added taxidermy materials shrink little, but horns continue to “work” and may even shrink further as time goes on. Occasionally cracks between the two will sometimes develop over time. Antlers are bone and are not likely to “work” as much; thus, augmented antlers can be an even bigger challenge to detect.

We have found that a high-intensity flashlight is a great aid in detecting whether a trophy has been augmented. We highly recommend having one along when measuring mounted heads inside a home. Here is what to do: Shine the light at different angles on the horn/antler. You will notice that the light reflects differently off natural and man-made materials. If trophies have been enhanced or accentuated or otherwise been altered by taxidermist materials, the head **CAN NO LONGER BE MEASURED** under the Rowland Ward system. Practical experience has taught us that in the case of a more skillful augmentation job, it is impossible to know where the actual horn/antler starts and human-applied taxidermy materials end; in fact, actual horn may or may not be underneath artificial material.

Most taxidermists will apply an “air brush” paint layer to the antler or horn that has been augmented, so looking at the overall color may not immediately indicate that there has been augmentations. However, any horns or antlers that are painted should be treated with great circumspection.

To understand how difficult it is to recognize man-made material on a mount, the following anecdote should be educational: A mounted argali sheep was examined by our editors, a taxidermist, and a well-known international hunter. Not one of these people could detect that the horns had been significantly augmented along the bases, which had increased the horn lengths as well as the circumferences. Only by referring to a field photo of the trophy could augmentation be clearly established. The trophy was, however, about six feet away and a very close physical examination might have revealed more.

Testing for Augmentation of Trophies and Artificial Trophies (1)

Taxidermy materials tend to be softer than a fully developed horn or antler. A simple test with a sharp, pointed knife can bring resolution in most cases. Take the point of a knife and press it against the suspect

horn or antler. If the knife penetrates the substance, it will almost certainly be artificial material. You do not need to do anything else; this animal cannot be measured.

Testing for Augmentation of Trophies and Artificial Trophies (2)

If you have applied the “knife test” as above and there still is doubt, do this: If the measurer suspects (part of) a trophy is artificial but is not sure, he is free to proceed to measure but at the same time must insist that he be allowed to take a very small sampling of horn/antler material. The measurer can only do so with permission of the owner. If the owner will not grant permission, the measurer must not measure the trophy.

How to test for artificial material: Using a small drill bit, drill about $\frac{2}{8}$ -inch deep and then deposit the “shavings” into a small plastic bag. Send the shavings to the Rowland Ward offices along with photos to establish the “bona fides” of the trophy. At the same time, the measurer should contact the RW offices to make the editors aware of the situation. The editors will have the DNA of the shavings tested. Measurers may ask for reimbursement of postage charges from the owner of the trophy in such cases.

No Deliberate Removal of Materials

Any deliberate removal of horn, antler, or skull materials by any means will disqualify a trophy from being entered in the Rowland Ward record book. Such animals should not be measured by an official Rowland Ward measurer. Measurers must especially watch for the deliberate removal of antler material so that an animal could qualify for a typical rather than a non-typical classification. This will automatically disqualify the animal for acceptance into the record book.

Measuring of Mounted Heads

The editors realize that measuring mounted heads is unavoidable at times. However, measurers should strongly encourage trophy owners to have their heads measured before they are mounted. The measurer should explain that if he suspects a trophy has been augmented that he can no longer measure it for the Rowland Ward record book unless it is tested. **It is RW’s explicit policy at all times to encourage the measuring of heads before they are mounted.**

Taxidermists and Measuring Mounted Heads

Taxidermists who are Rowland Ward measurers must measure all heads before the mounting process starts, and such taxidermists are obliged to tell their clients up front that their trophies must be measured before they are mounted. Remember, in all cases the trophy must pass the 60-day drying out period before it can be measured and the mounting process begun. This is normally not a problem because from the day an animal is shot to the day it arrives at the taxidermist’s shop usually takes at least 60 days; moreover, by the time the skin is tanned and the skull and horns cleaned, 60 days will normally have passed.

No Cast-off Antlers

Cast-off antlers cannot be measured under the RW system.

Split Skulls and Other Damaged Trophies

No measurements may be taken of damaged and repaired trophies unless the measurer is absolutely certain that such repairs have not added to the measurements. In all cases, repaired trophies must be noted on the entry forms. Special care must be taken with split skulls, and the measurer must be completely satisfied that the splitting of the skull did not increase any dimension.

No Electronic/Laser or Wheel Measurement Devices

Systems are now being offered that measure the length of main beams, volume of antlers, etc. via a laser beam. These systems convert the laser measurements into linear numbers via a software program. Another system is a hand-held measuring device with a built-in small wheel (some with a tape) that can be run over the trophy to create linear measurements. Rowland Ward specifically states that these devices must not be used to measure any trophies for entry into our record book. The editors are aware of such developments; however, so far no system examined by the editors has met Rowland Ward's standards. We will continue to monitor them, but as of this date, do not use them to measure trophies.

No Darted Animals

Rowland Ward does not accept darted animals.

No Use of Mechanical Vehicles While Hunting

Rowland Ward will not accept animals that have been chased by mechanical vehicles from which subsequently shots were taken. While a vehicle is needed for most forms of transport in the modern world, Rowland Ward expects hunters to stalk animals on foot. The one and only exception is for those hunters who are handicapped and, thus, are physically unable to stalk game on foot. Under no circumstances will RW accept animals shot from or with the aid of a helicopter, airplane or a remote-control airborne device.

No Use of Real-Time, Game-Tracking Devices

Any electronic device that allows for real time game tracking shall not be used to obtain animals that are submitted to Rowland Ward. These include trail cameras wirelessly linked to a second device that offers real-time images, cell phones linked to trail cameras, collared animals that can be tracked, and tracking devices in projectiles. Trail cameras that need to be manually checked to retrieve images are acceptable.

No Measuring of Live Animals

Official scorers shall never measure live animals under any circumstances.

1-f Entering Data on Method Forms and the Processing of Entries

Completing the Method Form for Submission

The hunter or owner's entire name, including initials, should be entered on the method form. An honorific such as M.D., Captain, Esquire, Sir, Earl, etc. can be added. Please note that you must be consistent from form to form because our system recognizes one uniform name and honorific. A name including a title and honorific can be at most thirty spaces; remember that a period and a gap between letters counts as a space. Note that Rowland Ward uses periods in honorifics, and that between each name and initial there must be one space. The word *unknown* will be used if the original hunter is not known.

Should a trophy owner not wish to use his actual name, he is allowed to use a pseudonym (“pen name”) in our record tables, but the actual name must be used on the method forms (it will not be published). The pen name should be placed in the “Owner’s/Hunter’s Information” on the method form and the actual name must be placed in the comments section. Entries for “anonymous,” “withheld by request,” or a number will not be accepted.

Trophies in Museums

It is Rowland Ward’s policy to indicate the original hunter or the person who found the pick-up. Heads that were killed by a known hunter but have since changed ownership and are now in a museum or major collection are indicated with the name of the original hunter and a number that refers to a museum or collection in the reference section of the record book. List the original hunter or pick up owner on the method form and note the ownership of the museum in the comments. (Note that in future editions we are considering listing both the original hunter/owner and the current owner.)

Photo Submissions

Clear, focused side- and front-view “in-the-field” photos must accompany all animals. Digital photos must be a minimum of 300DPI (12 dots per mm) or 2100 x 1500 pixels. If not in the Top 10, the following animals are exempted: blesbok, southern bush duiker, klipspringer, steenbok, springbok, Cape hartebeest, southern impala, common gemsbok, common and southern mountain reedbuck, common sable, Chobe and South African bushbucks, Cape eland, southern greater kudu, Southern nyala, common waterbuck, blue and black wildebeests, Cape buffalo, introduced fallow deer, bush pig, and warthog.

Recording the Location Where Animals Were Shot

Every trophy entry form must register the exact locality where the trophy was taken. The name of the country must always be given, and a geographical name of where the trophy was taken must be tied in with a name readily identifiable on Google or a standard map of the country. Examples include the name of a nearby river, mountain range, or village. Also acceptable is the name of the hunting concession or its block number or the name of the province or district. Only if the above cannot be ascertained can a location based on the compass quadrant system, e.g. southwestern Sudan, be acceptable. Incomplete measurement forms will be placed on hold until additional information is supplied to our editors. An “unknown” location is accepted only if genuinely unknown. A subspecies for which a geographical location is crucial cannot be accepted from an unknown location.

Drying Period

As of 1 July 2020 a drying period of 60 days is required for all trophies. Previously this was 30 days for most trophies with some exceptions (rhino), but after deliberation, the editors decided to extend the drying out period to 60 days for all animals.

Hunting Methods Accepted and Acquired Trophies

In all cases the hunting method must be legal. For example, no trophies will be accepted for a bow entry if there is no legal bow hunting in the region or on the date the animal was taken. In addition, Rowland Ward will only accept the following methods for taking game: rifle or shotgun, either slug or buckshot; handgun

(H); long bow, compound bow and cross bow (B); muzzleloader both with in-line firing systems, caps, and traditional flint ignition systems (M); and acquired animals through purchase or gift (A). With the exception of rifle or shotgun, these weapons are indicated in the record book with the letters indicated in brackets. No other methods are accepted; specifically, RW does not accept animals killed by poison, traps, knives, spears, air guns or lances. Finally, pick-up trophies are eligible for entry as long as the specimen came from a population that would be accepted if hunted.

Measuring Top-10 Trophies

A Top-10 trophy is any head that falls in the Top 10 based on the latest edition of Rowland Ward's Records of Big Game. For Top-10 trophies, the owner will be sent a questionnaire from the Rowland Ward offices after the entry has been received. Determination and acceptance of a Top 10 record will occur only after this questionnaire has been filled in completely by the hunter/owner. For the questionnaire to be complete, it must be signed, dated, and returned to our offices at which point the entry will be considered. Failure to fill in the Top 10 questionnaire (completely) or to make incorrect statements will suspend the entry; no refunds will be made for such suspended entries.

The measurer of such a trophy must have been an Official Rowland Ward Measurer for 2 years and must have measured 20 animals in order to measure a Top-10 trophy. Measurers may not measure their own Top-10 trophies instead he must have another official measurer measure his trophy. A measurer may not measure a Top-10 trophy where the measurer has an association with the hunter/owner of the trophy. Association shall include client, guide, outfitter, family member, booking agent, business associate, and so on. In other words, there may be absolutely no conflict or potential conflict of interest when measuring a Top-10 trophy for entry into the record book.

Submissions

While we prefer digital submissions, physical entries may be sent to Rowland Ward, 15621 Chemical Lane, Bldg. A, Huntington Beach, California, 92649, USA. To submit your entry, scan the completed method form at 400dpi (16 dpm, metric) and send it to info@rowlandward.org. Digital photos should be attached.

1-g Important Reminders for Measurers

Integrity of Measurements and Data

Rowland Ward is grateful and much appreciative of the measurers who volunteer their time and effort worldwide to keep our system active. Being a measurer means that you have a high degree of integrity and share the goals of Rowland Ward in presenting honest data to the database of trophies, with records that go back to the early 1800s. No other system has such a legacy and history. Remember at all times that your conduct as a measurer is reflective of who you are as a person, hunter, and Rowland Ward measurer. Measurers are reminded that their efforts will be in print for essentially ever. Rowland Ward stands for sound conservation, protection of habitat, promotion of fair-chase hunting with direct benefits shared by indigenous peoples, and honest measurements and data. Measurers need to conduct themselves accordingly at all times.

Good Housekeeping

“Good Housekeeping” for measurers includes the following: Always downloading the forms from our website so that you have the latest version; using black ink only to fill in data on the forms; writing in block letters; and making sure your current email address is on file with Rowland Ward. Place the Rowland Ward domain @rowlandward.org on your safe or white list in your email system.

Becoming a Measurer and Retaining Measurer Status

Measurers are appointed by Rowland Ward Ltd. after having submitted an application and paying a fee of \$100.00. The cost may be applied as a credit toward a measuring kit. Measurers not accepted are reimbursed. As of year-end 2021, all measurers will have to pass a written, open-book exam, which must be passed with a score of 85 percent or more. Measurers are assigned according to geographical needs. Rowland Ward holds classes on how to measure African trophies in conjunction with Northern Cape Professional Hunting School in South Africa www.ncph.co.za. Measurers must be active and respond to correspondence from the Rowland Ward offices. Repeated failure to respond will lead to suspension. Measurers must have an email account and must make sure that the current email address is on file with Rowland Ward. Measurers must respond to sportsman requesting the measurement of trophies; repeated failures to respond to people requesting a measurement will lead to suspension of measurer status. Measurer may list a second email address on their applications, which shall not be published but be used for individual correspondence between the Rowland Ward offices and the measurer.

Use of Rowland Ward Logo by Measurers

Rowland Ward measurers may use the Rowland Ward logo on their business cards, website, and other places as long as they are active measurers of good standing. Contact the RW offices if you need a “vector” digital file of the Rowland Ward logo. This logo use is for free. If a measurer is suspended or terminated, he shall remove the logo within 30 days from anywhere it was being used. Not removing the logo after getting written notification will expose a person to liability.

Sports Afield Magazine

All measurers can get a subscription to *Sports Afield* magazine at 50 percent off the prevailing published price, which contains Rowland Ward news in each issue. The *Sports Afield* magazine is issued 6 times per year. Contact the Rowland Ward offices for a subscription.

1-h Rowland Ward Programs

Besides entries into *Rowland Ward’s Records of Big Game*, Rowland Ward Ltd. offers the following programs for people who have entered a trophy in the book. These programs are only available after an entry has been properly submitted, paid for, and accepted.

Plaques and Certificates (Paper and Digital)

Ordering a certificate, a plaque, or other Rowland Ward products may be done on the entry form, which is downloadable from rowlandward.org. Unless the animal was previously recorded, an order for a certificate and/or plaque will only be accepted with a paid entry for the record book. Certificates are available digitally as well as in a paper format.

World Record and Top-10 Certificates

If a trophy falls in the Top 10 for any category for the next edition of *Rowland Ward’s Records of Big Game* or if an animal is accepted as a world record, a certificate may be ordered to affirm this status. The certificate is printed in black and has a gold stamped Rowland Ward logo on it. The certificate states the

dimensions of the animal and is signed by the editor. Each 8.5 x 11-inch certificate (landscape) is framed and costs \$85.00 plus postage. Orders outside the USA are for unframed certificates only; these cost \$50.00 including postage.

1-i Publication of Rowland Ward's Records of Big Game

New Categories

New categories will be considered for native game animals. The editors will keep both scientific and traditional hunting categories of species and subspecies in mind when making decisions. The editors of Rowland Ward will also consider categories for non-native or introduced game if they adhere to the rules laid out in this Handbook and our Guiding Principles.

Minimum Measurements

Minimum measurements for entry in the record book are listed online at rowlandward.org. The minimum measurements listed for the acceptance of trophies for entry into the record book may be modified at any time at the discretion of the editors. This will normally be done after the deadline for new entry submissions in the next edition of *Records of Big Game*.

Next Record Book and Deadlines

The Rowland Ward record book is published every four to five years; the latest edition (Africa) was published in November 2019. Normally entries are accepted up to approximately six months *before* the publication deadline; however, please send in your entries early, for should there be any omissions, mistakes, or unclear data on entries submitted right before the deadline, your trophy's entry will likely miss the deadline for that edition. The next edition, the 31st edition, will be published in November 2024. It will consist out of 2 volumes: Volume I: Africa, and Volume II: Americas, Europe, Asia, and the South Pacific.

[Deadline for submission of entries for both volumes is 1 March 2024.](#)

Color Variations

Color variations of species in certain animal populations and in particular regions have been occurring naturally, probably since the dawn of time. Rowland Ward, in fact, has several categories that are, by and large, based on naturally occurring coloration-only differences, such as the Angola impala. However, Rowland Ward will not establish a separate color-based category for animals that are specifically bred for their color.

All Hunting Methods Are Listed in One Table

Rowland Ward's record book honors the animal and no distinction is made on how the animal was obtained: on a sporting license, a picked-up or acquired head, a head shot by government hunters, or an animal taken by poachers. Heads taken from poachers will only be accepted in the record book if they are entered under the auspices of a proper authority, such as a wildlife/game department and if that authority was in legal possession of the animal. Names of poachers are, for obvious reasons, never listed. Heads that are indicated with an A (acquired) will be listed with the name of the current owner if the original hunter is not known and the ownership is legal.

Policy for Publication of Photos

Starting with the 30th edition, Rowland Ward again published photos of the top heads in each category. An animal does not have to fall in the Top 10 to be depicted; in fact, particularly good specimens and well-composed photos will be preferred over a higher ranking. Photo quality is paramount. All photos must be tasteful; reprehensive pictures will not be accepted for inclusion. Photos that show the guide, outfitter, or trackers are preferred over images with the hunter alone. All photo selections are at the discretions of the editors of Rowland Ward. Further, by submitting a photo, the person warrants that he/she is the legal owner of the image and holds the editors harmless and free of liability against any claims for the use of the photo(s). Photos maybe adjusted in such programs as Photoshop for clarity and color balance.

Removal of an Entry

The editors will remove any trophy that has been willfully measured in a wrong manner, misrepresented, or not hunted legally. All such cases will be reviewed, and normally all entries by the person who submitted a trophy under false pretenses will be removed from the RW system. We will attempt to contact any person whose trophies are to be removed, explain the reason for their removal, and give a reasonable time for an answer. However, the decision to remove any trophy rests solely with the editor. If the editors receive a request to remove a trophy that was previously listed, such a request will normally be granted if the party requesting removal is the original hunter/owner; however, all removals are at the discretion of the editors. The cost per removal of a record is the same as the cost of an entry.

Geographical Regions

Rowland Ward's Records of Big Game has been divided into the following four geographical regions for record-keeping purposes: (1) North and South America, which includes all of the Canadian Arctic and Greenland and all islands found in the Pacific east of the International Date Line; (2) Africa, which includes Madagascar and Mauritius and all islands in the Atlantic within 200 miles of the continent; Africa terminates at the Suez canal. (3) Europe and Asia, which includes Iceland, Svalbard, all of the Russian Arctic west of the International Date Line, and (4) the South Pacific, which includes Australia, New Zealand, New Guinea, and New Caledonia.

• General Deer Instructions •

Important: Read These Instructions before Measuring Any Deer

Abbreviations Used throughout the Text

RWRBG	<i>Rowland Ward's Records of Big Game</i>
RW	Rowland Ward
GDI	General Deer Instructions
GI	General Instructions

(GDI and GI are referred to throughout to remind the reader that detailed information is found in these sections and that they should be consulted when measuring specific species. This keeps the individual deer method sections as concise as possible.)

Abbreviations Used in the Illustrations and Text

C	Circumference of burr
C1, C2, etc.	Circumferences of the main beam
F	Inside span
G	Outside spread
L	Main beam
T	Typical tine
T1, T2, etc.	First typical tine above the burr, 2 nd typical tine above the burr, etc.
NT	Nontypical tine
NT1, NT2, etc.	First nontypical tine above the burr, 2 nd non-typical tine above the burr, etc.

• Introduction to Deer Measuring Methods •

For recordkeeping purposes, deer are by far the most complex group of animals to measure because of their intricate and ever varying antler structures. Because of this, deer represent more than one-third of the individual methods under the RW system.

Measurers should be aware that despite the editor's best efforts to describe as many variations and configurations of deer antlers as possible in this Handbook, occasionally a "black swan" will occur and a previously unencountered situation will present itself. Alert our offices when submitting an entry for such a head; the Advisory Board and the editors will make a decision as to the treatment and acceptance of such heads.

Methods for Deer under RW

Antlered deer under RW are measured under Methods 1, 2, 3, and 4. Method 1 is for round-antlered deer, Method 2 for caribou, Method 3 for fallow, and Method 4 for moose/Irish elk. Methods 2 and 3 have no submethods, Method 1 has nine submethods, and Method 4 has two submethods. Water deer, which have no antler growth but have enlarged canine teeth, are measured under Method 6, and this also includes the tufted deer, which have no substantial antler growth but do have elongated canine teeth. Chevrotain or mouse deer have minute canine teeth; these are not easily measured, and, thus, the dimensions of the skull are measured under Method 18.

Items You Will Need in Order to Measure Deer Antlers

All measurers must have a ¼-inch steel tape with a hook, which is the best tool for measuring tine lengths; however, please note that the hook will not lie flat when measuring circumferences. For measurers who

handle deer on a regular basis, we *strongly* recommend you purchase an additional ¼-inch steel tape with a ring ending rather than a hook as this makes circumferences easier to measure. (These are available from the RW offices.) We also recommend that you purchase ½-inch red-and blue-colored paper masking tape to mark and identify tines on complex heads. In addition, it is not possible to measure deer without a steel cable with a stop and a carpenter’s folding ruler with brass extender; both are provided with the RW measuring kit. Another good tool to have is a set of triangle squares made of hard plastic or metal with wide, rimmed edges. They are used to measure the greatest spread of all horned and antlered animals. As this device can stand up, it is preferred over a carpenter’s square for measuring greatest spread. They are available in hardware stores, or RW sells a set of quality, light-metal triangular squares. Finally, use a pen with a micro-point to enter measurements on the Method Forms as the spaces on the forms for deer are small.

Glossary of Terms Related to Deer in This Handbook

Baseline. A line drawn with the help of a steel tape or cable that delineates where a tine stops and the parent antler starts.

Bez or Bey Tine. The second tine above the burr on round-antlered deer. (Figure 2)

Brow Palm. The palmated antler section pointing forward on moose antlers. A brow palm will have two or more brow tines with a palmated connection between points. Caribou and moose are the only deer that have multiple tines coming off a brow palm on a regular basis. (Figure 1)

Brow Tine. A brow tine is the first tine found after the burr; on deer it points forward. Brow tines are found on most round-antlered deer. In some deer, such as the muntjac, brow tines are not well developed. When found near the burr, they are often referred to as eye guards. (Figures 1 and 2)

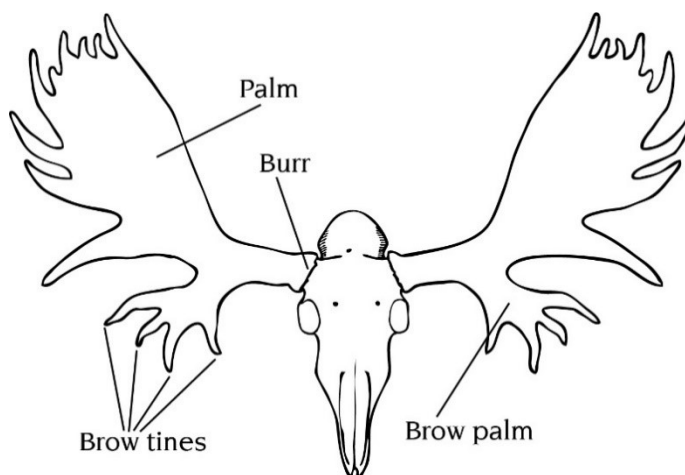


Figure 1

Burr or Coronet. A distinct growth ridge found at the base of the antlers on most deer. (Figures 1 and 2)

CIC. The CIC is the International Council for Game and Wildlife Conservation, which is based in Budapest, Hungary. RW and the CIC are associate organizations and recognize each other’s measurement systems. Specifically, RW accepts CIC measurements for selected deer species in RWRBG.

Crown. A group of three or more tines found in a cuplike shape on the upper part of the antlers of various round-antlered deer species. (Figure 2)

Drop Tine. An upside-down tine or a tine that grows in the opposite direction of the regular pattern of typical tines. Found mostly on round-antlered deer, drop tines often have a rather blunt ending and most grow downward and/or backward.

Eye Guard. Eye guard is a term most often applied to the brow tine of a whitetail or a mule deer, but it is also used to refer to a brow tine on an elk, red deer, sika, and other species of deer. As a general rule, an eye guard is the first tine to point forward on the main antler and grows close to the burr. If the first tine growing forward is well clear of the burr, it is normally referred to as a brow tine. Within the English-speaking world, there are regional differences as to what is considered an eye guard on various deer.

Main Beam. The main antler beam is the only part of the antler that originates from a pedicle on the skull; all tines grow from it. Note: The end of a main beam is the tip, not a tine.

Palm. The flat area of antler formation found in caribou, moose, fallow deer, and Irish elk. (Figure 1) The area of flat antler growth found on other deer is often called webbing, but may be referred to as palmation.

Pedicle. A circular bone structure that grows off the top or side of the skull from which the main antler beam grows. The pedicle stops where the antler detaches each year during shedding.

Point. Refers to all antler endings, including the main beam tip. See also tine and tip. It is most often referred to when talking about the total number of points a deer rack has, as in "I was in Nebraska and got a very nice 10-pointer." All points are not tines because the main beam tip is a point but not a tine.

Parent Antler or Root Antler. Any antler from which a tine grows. A tine can either grow off the main beam (in this case, the main beam is a root antler to that tine) or off another tine; in that case, the first tine will be a parent or root antler to the second tine. (Figure 2)

Round-Antlered Deer. Deer that do not generally form palmation in their antler growth.

Royal Tine. A royal tine is the fourth typical tine (T4) above the burr on elk, red deer, and maral. In the U.S., it is also called a dagger. With red deer, a royal tine can sometimes be clearly discerned, and at other times it is "lost" in the crown points. In most cases, either the brow tine or the royal tine is the longest tine on an elk, on most Asian marals, and on red deer.

Royal stag. A red stag that has six points on each side and fully formed crowns. These points include a normal brow, bez, and trez tines. By tradition, a royal stag has enough of a "cup" inside the crown to hold a glass of wine.

Shovel. The brow tine on a caribou is called a shovel if it has palmation.

Span. The inside measurement between the main beams, taken at 90 degrees from the center line of the skull axis. (Figure 2) The span is never measured between tines.

Spread. The outside measurement of the widest distance typical tines or main beams extends horizontally when measured 90 degrees from the center line of the skull axis. (Figure 2)

Tine. A tine is any antler growth that branches from (a) the main beam (b) another tine, or (c) palmation. The ending of a main beam is not a tine but a tip. Most deer have a set of antlers with multiple tines.

Valid Tine. A tine that qualifies to be measured because it meets certain length and width criteria.

Tip. The end of a main beam and the only part of an antler named so. The end of a main beam is not a tine. (Figure 2)

Trez or Tray. The third tine above the burr on deer antlers. (Figure 2)

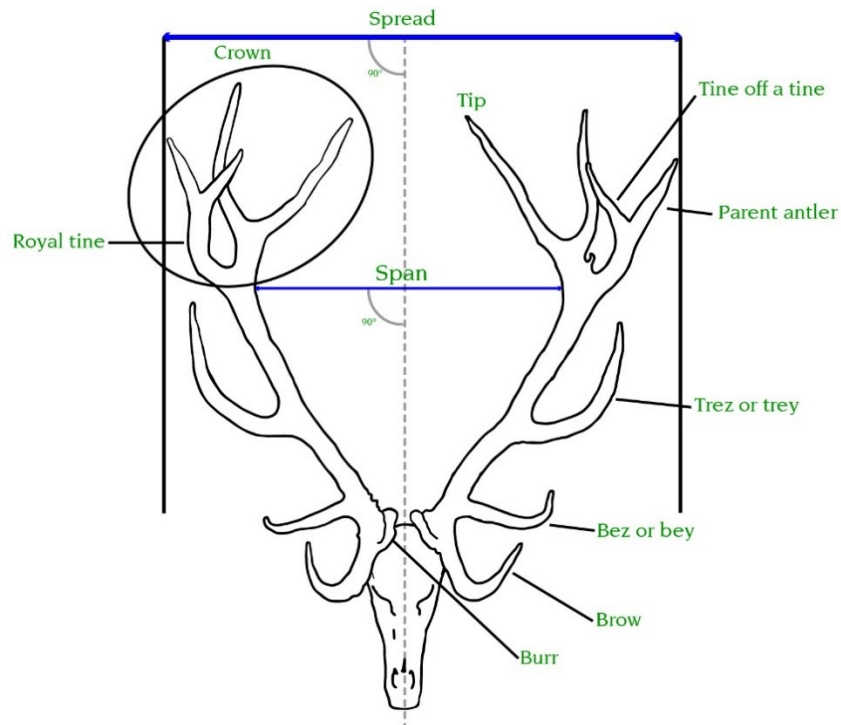


Figure 2

Typical Tine. A tine that grows in a regular pattern for a particular species of deer. See individual Methods for more details on what is considered typical and nontypical for each species.

Nontypical Tine. A tine that grows in an irregular pattern for a particular species of deer. See individual Methods for more details on what is considered typical and nontypical for each species.

Webbing. The formation of antler material that is found between two points. It normally takes the shape of a bridging formation between points. Note: The flattened horn area in caribou, moose, fallow deer, and Irish elk is called palmation. (See also GDI, Figure 7)

What Is and Is Not Measured

Deer with Antlers That Do Not Shed in a Normal Twelve-Month Cycle

Because of injury, disease, or imbalanced hormones, some deer do not shed their antlers in regular cycles; some never shed them. Examples include roe deer with a *perüecken*, which is a German word for the

highly stylized wigs worn by people at court in the fifteenth to seventeenth centuries. This permanent horn growth is most of the time covered in velvet. Typically, such bucks do not drop their antlers. These “antlers” look like two large clusters of grapes placed upside-down on a roe’s head. Caribou sometimes do not shed their antlers, and such animals are referred to as “stags.” Other types of deer that never shed their horn growth may sometimes resemble a typical head from that species, but often these animals carry clusters of horn growth that seem completely unnatural to the trained eye, and most are covered in velvet year-round. Such heads cannot be measured under the Rowland Ward system. (Please note that no antlers in velvet may be measured under the RW system.)

Third Main Beam

In rare cases, round-antlered deer may grow a separate third main beam. Third main beams come in two varieties: either a completely separate antler growth with its own pedicel, or (more common) a split antler off a common/fused pedicel. This type of growth is rare in wild deer and most often happens because of injuries. In very rare cases there may be more than three main beams. The length of an additional antler (and its tines) can be measured and recorded as nontypical tines if they meet the criteria for a valid tine; however, no measurements of the circumference of a third main beam shall be taken.

If the third antler has a common pedicle and its burr is connected with a regular main beam, no circumference of that burr shall be measured. If the third antler adds in any way to the C1 circumference of the regular main beam, this measurement shall not be used. In such cases, only the measurement of the burr (C) or circumference of the main beam (C1) of the opposite side shall be used. In other words, if the left main beam is fused with a third antler, take the C measurement of the normal right main beam and use its measurement for both sides. The same applies for the C1; if the left side circumference is affected by the third main beam, take the C1 value from the right side.

Third antlers cannot be recorded at all for caribou, moose, and fallow deer; this does not make the trophy ineligible for RW, but no measurements from any part of a third antler can contribute toward the score for these three species. In all cases, the presence of a third antler must be indicated in the comment section of the Method Form.

Injured Antlers or Skull

In some instances, a skull injury near the pedicle may lead to an atypical antler configuration, such as extreme spread or span. The same is true for injuries to antlers when they are in velvet. Any such injuries need to be noted on the Method Form and will be dealt with by the editors on a case-by-case basis. If extreme, it may lead to disqualification.

Velvet Antlers

No deer in velvet can be measured. Only if a trophy is “stripped” of its velvet can it be measured for RW. Remnants of velvet on antlers are acceptable as long as they do not alter the score of the antlers.

Filling in the Form Correctly

All measurements on the RW Method Forms for deer need to be filled in; if any are left incomplete, the entry cannot be processed. This includes measurements that are not part of the score, such as counts for typical and nontypical tines and spread. Only measurements that are marked “Supplemental” on the Method Forms can be left blank. These include weight, skull cut, and CIC points.

CIC Measurements

RW accepts CIC measurements in a partnership with the Hungarian-based organization for the following animals: European roe deer, Central European red deer, and European fallow deer. In order to get the trophy entered in the RWRBG, it must be measured by an official CIC measurer of good standing. Each animal is listed in its own tables. Animals entered under the CIC system may also be entered under the Rowland Ward system if a second entry fee is paid.

Nontypical and Typical Antlers in the RW System

NT antler growth under RW is treated as follows: (a) deer with NT tines and NT categories, (b) deer with NT tines listed as supplemental data, and (c) deer for which no NT antler growth is recognized. There are no NT tines for seven categories of deer; these are deer for which traditionally no nontypical antler configuration is recognized. (See Table 1)

When to Measure Tines and When to Count Tines

Not all tines of all deer species are measured for length; if they are not, they are counted and the count is added to the score. The length of the tines of (1) fallow deer and (2) moose/Irish elk are not measured. For (3) Pere David deer and (4) caribou, only a few are measured. (See Table 1)

Typical and Non-Typical tines under RW			
	Typical Tines Measured	Non-Typical Tines Measured	Non-Typical tables in RWRBG
1-a, Rocky Mtn, Roosevelt, Tule elk	All	All	Some*
1-c, Red deer, Maral, EU & Asia	All	NA	No
1-d, Whitetail, all subspecies	All	All	Yes
1-e, Mule, Sitka, Blacktail deer	All	All	Yes
1-f, 2x2, 3x3, 4x4, Axis, Hog, Sambar, Rusa, Sika etc.	All	All	Some**
1-g, European roe deer	All	All	Yes
1-h, w/o crowning, Bararsingha, Eld's Huemul etc.	All	NA	No
1-i, Pere David's deer	Some	NA	No
1-j, Muntjac, Pudu, Brocket	All	All	No
2, Caribou and Reindeer	Some	NA	No
3, Fallow Deer	None	NA	No
4-a, Palmated moose/Irish elk	None	NA	No
4-b, Nonpalmated moose	All	NA	No
* Rocky Mountain Elk has non-typical tables			
** Siberian and Manchurian roe deer have non-typical tables			

Table 1

How to Determine if a Deer Falls in T or NT Category

Look at the deer in NT categories listed above. If the deer meets the NT minimum, find the total nontypical tine length. If that length is equal to or greater than 3% of the total typical score, the head falls in the NT category.

For example, a Rocky Mountain elk head has a typical score of 366 and $16\frac{7}{8}$ inches of nontypical tine length. It will be placed in the nontypical category with a score of $382\frac{7}{8}$ inches because the NT tines are more than 3% of the typical score. If the same elk had a typical score of 366 and only $5\frac{7}{8}$ inches of NT tines, it will be placed in the typical category. In this case, it will have a typical score of 366 and a supplemental score of $5\frac{7}{8}$ of NT tines.

If the same elk had a typical score of 366 and $11\frac{7}{8}$ of NT tines, it would not be placed in the typical category because $11\frac{7}{8}$ is more than 3% of 366. Because the current NT minimum is 380, this elk would not qualify for either category in RWRBG.

All Valid Points Must Be Measured or Counted (Typical or NT)

It is important to remember that all deer must have all their valid typical or nontypical tines recorded. They must be measured for length or they must be counted. After receiving an entry, we compare the photos with the tine count that was recorded on the Method Form. If all valid typical and NT tines are not accounted for on the Method Form, the entry is placed on hold and additional information will be requested. (Table 1)

Where to Record Typical and NT Points on Method Forms

Typical points are indicated under T1, T2, etc. and NT points are indicated as NT1, NT2, etc. If there is a separate column for each, the typical will be on the left (or top) and NT will be on the right (or bottom) of each method form.

• General Deer Instructions (GDI) •

1. Mark Tines with Tape

With more complicated antlers, it is strongly recommended that the measurer use 0.5-inch-wide, red and blue paper masking tape to mark all T and NT points from the burr toward the tip. Use red for typical points and blue for NT tines. Remember the tip of the beam is not a tine and does not get measured as a tine; it will be measured when the main beam length is recorded, so do not tape it. Next, mark with a pencil or small piece of red tape where the circumferences should be measured between the typical points on the main beam. Measure the typical tines first and then remove the red tape after you have measured each tine. Repeat this step with the NT tines using the blue tape and then remove the tape.

2. Measuring the Length of the Main Beam

This applies to round-antlered deer as well as fallow deer and caribou. A cable is preferred and advised for this measurement. The main beam is measured from the lower edge of the burr to the tip of the beam. Start on the center outside of the antlers. Antlers are seldom perfectly round; they are frequently oval-shape in cross-section and often cant somewhat from the centerline of the skull axis. Therefore, the proper starting point for the length measurement can be slightly toward the rear of the skull. (Figure 2) The starting point for measuring the main beam length does differ per deer species and per individuals.

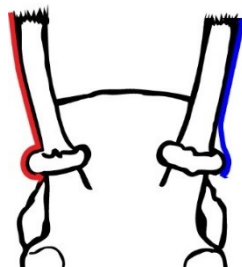


Figure 1

The blue line indicates the correct way of measuring the length of the main beam, and the red line the incorrect way.

Remember that the length measurement must be taken on the center outside of the antler. Do not press the cable/tape into the 90-degree edge where the antler meets the burr. (See Figure 1.) The main beam tip is generally that point that extends farthest from the burr, but this cannot be a tine off a tine. Each individual deer method has instructions on how to determine the main beam. The measurement should stay on the center of the main beam, and where the main beam broadens—because of crowning or palmation—attention must be paid to prevent the line of measurement from veering to the edges of the beam. As a general rule, the center of the main beam is halfway between the baselines of the tines and the bottom of the beam. On more complex antlers it is best to (a) tape off all points (see above), (b) lay out the line of length measurement with a pencil by measuring the width of the main beam where it broadens so that you can stay in the center, and (c) do the actual measuring along the marked points.

In some cases, a small antler protrusion may grow in the path of the line of measurement of the main beam. If this is so, measure along the shortest route to the left, right, or over the growth to reach the tip. If measuring over, do not push the tape/cable in before and after such a protrusion because this will increase the length measurement; instead, span the tape or cable like a bridge. If the growth is $\frac{3}{8}$ inch (1 cm) or more high or wide, use a caliper to measure its base along the line of the length measurement and mark each side of the base with a pencil. Stop the length measurement at the first pencil mark and start the length measurement again at the second pencil mark. Careful marking with a pencil is needed to do this accurately; write up all measurements, and add the caliper measurement to the two length measurements. Note such protrusions in the comment section.

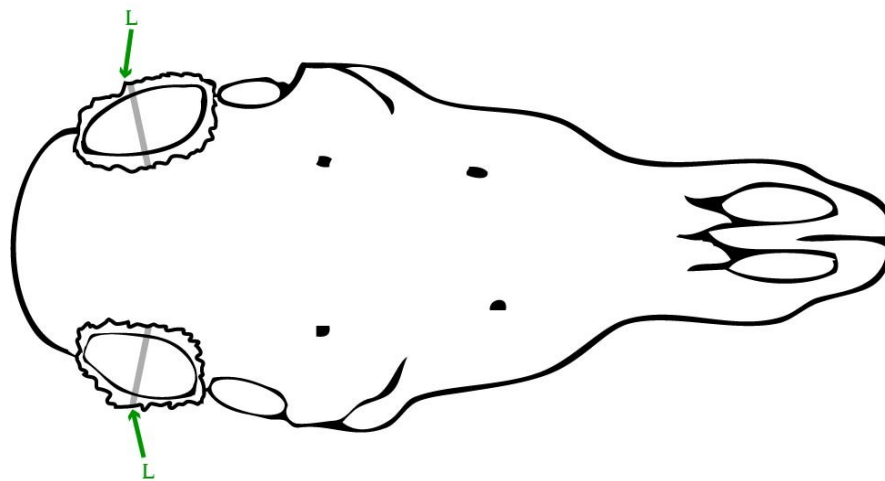


Figure 2

View of a deer skull with antlers cut off above the burr. The gray line dissects the antler base in half and the arrows (green) indicate the starting points for measuring the main beam lengths.

3. Broken Tip or Tine

When the end of a tine or beam tip is broken, card off the broken point and measure to the carded-off point. (See General Instructions, Carding Off at the Tip and Base.)

4. Order in Which the Length of Tines Are Measured

RW Method Forms number tines from the burr toward the main beam tip in order: T1, T2, etc. Measurers must start measuring the first tine above the burr (T1) and work up to T2, T3, etc. The same holds true for nontypical points, which should also be measured from the burr toward the beam tip: NT1, NT2, etc.

5. Recording Missing or Invalid Typical Tines

For methods 1-a (elk), 1-c (red deer/marals), 1-d (whitetail), 1-e (mule deer), 1-f, (3x3 and 4x4 deer), and 1-g (European roe deer), 1-j (muntjac only), missing or invalid typical tines(s) must be marked in the correct place on the Method forms. As an example, if an RM elk has no trez tine on one side, the space for the T3 on the Method Form should be marked with a zero. Do not measure the next tine up the main antler beam and place its value in the T3 spot. See table 1 below to determine which missing times should be recorded.

Record Missing/invalid Tines under RW	
1-a, Rocky Mtn, Roosevelt, Tule elk	T1-T6
1-c, Red deer, Maral, EU & Asia	T1-T3
1-d, Whitetail, all subspecies	T1-T5
1-e, Mule, Sitka, Blacktail deer	T1-T4
1-f, 2x2, 3x3, 4x4, Axis, Hog, Sambar, Rusa, Sika etc.	T1-T2 and T1-T3 for sika
1-g, European roe deer	T1-T2
1-h, w/o crowning, Bararsingha, Eld's Huemul etc.	na
1-i, Pere David's deer	na
1-j, Muntjac, Pudu, Brocket	T1 (muntjac only)
2, Caribou and Reindeer	na
3, Fallow Deer	na
4-a, Palmated moose/Irish elk	na
4-b, Nonpalmated moose	na

Table 1

6. Determining Where a Tine Stops

To determine where a tine stops on a parent antler, which can be the main beam or another tine, a cable or a steel ¼-inch tape is needed. A cable may be better than a tape, depending on the angle of the parent antler and the tine, but a cable is especially preferred when delineating tines on deer that form pearling along the parent antler, such as on roe deer and whitetail. Here a cable will lie much closer to the parent antler and align better with it. On smooth, straight parent antlers with a single tine emanating, a tape works just as well and is a bit easier to handle.

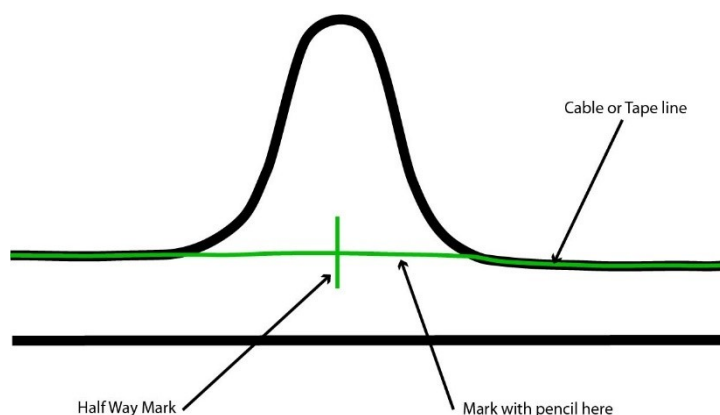


Figure 3

How to mark the baseline on a tine.

Lay the cable or tape along the base of the tine on the longest side, which is nearly always on the outside. Position the cable so that it forms a line as though the tine is not present. Mark this line with a pencil; be

sure to do so along the bottom edge of the cable. This is where the tine ends and is called a baseline. Next, find the center of the base by taking the line you have just drawn and dividing it in half; mark the middle point. To measure the tine, go from the point of the tine to the center of the baseline while keeping the tape in contact with the antler. (Figure 3)

7. What Constitutes a Valid Tine?

A valid tine must be 1 inch long, with the exception of those deer listed in Table 2 below. Those exceptions have a valid tine of 0.5 inch long. Besides length, there are three other rules that govern the validity of a tine. They are listed as A, B, and C below.

Length of a Valid Tine	
	Min Length
1-a, Rocky Mtn, Roosevelt, Tule elk	1 inch
1-c, Red deer, Maral, EU & Asia	1 inch
1-d, Whitetail, all subspecies	1 inch
1-e, Mule, Sitka, Blacktail deer	1 inch
1-f, 2x2, 3x3, 4x4, Axis, Hog, Sambar, Rusa, Sika etc.	1 inch
1-g, European roe deer	8/16 inch
1-h, w/o crowning, Barasingha, Eld's Huemul etc.	1 inch
1-i, Pere David's deer	1 inch
1-j, Muntjac, Pudu, Brocket	8/16 inch
2, Caribou and Reindeer	4/8 inch
3, Fallow Deer	4/8 inch
4-a, Palmated moose/Irish elk	1 inch
4-b, Nonpalmated moose	1 inch

Table 2

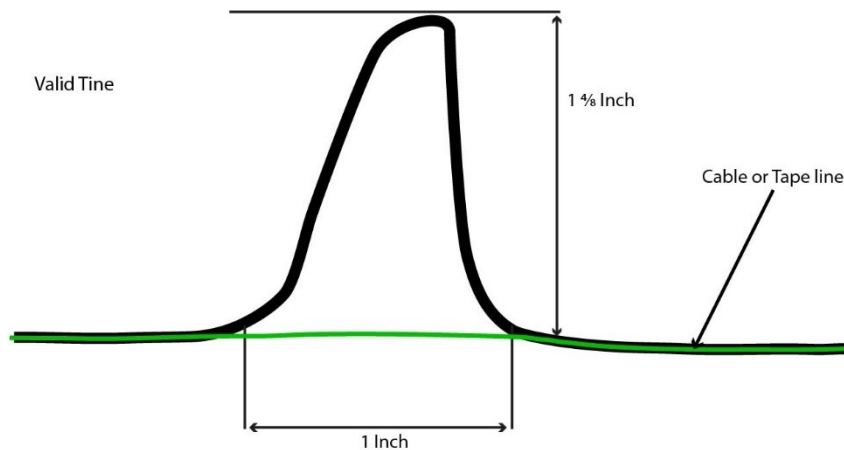


Figure 4

Valid tine. Height is more than width of base.

A) There can be no rounding off for either the 1-inch or the 0.5-inch minimum tine length; in other words, if a white-tailed deer has a tine that falls halfway between $\frac{7}{8}$ and one inch, that tine cannot be measured; it must be exactly 1 inch or more.

All Handbook instructions and Method Forms indicate which fractions should be used to measure deer. For most methods and species, we measure in $\frac{1}{8}$ of an inch but for some species we measure in $\frac{1}{16}$ of an inch. For example, a valid tine on European roe deer, muntjacs, pudus, and brocket deer is at least $\frac{8}{16}$, yet for caribou and fallow deer a valid tine is at least $\frac{4}{8}$. No rounding up may be used to determine if a tine is valid. See Table 2.

B) The length of a valid tine must be equal to or more than its width. In other words, a tine on a moose with a length of $1\frac{2}{8}$ inch with a base of 2 inches does not qualify as a valid tine. (Figures 4 and 5) Another example: a tine of $\frac{8}{16}$ inch in length on a roe deer with a base of $\frac{9}{16}$ inch not does qualify as a valid tine.

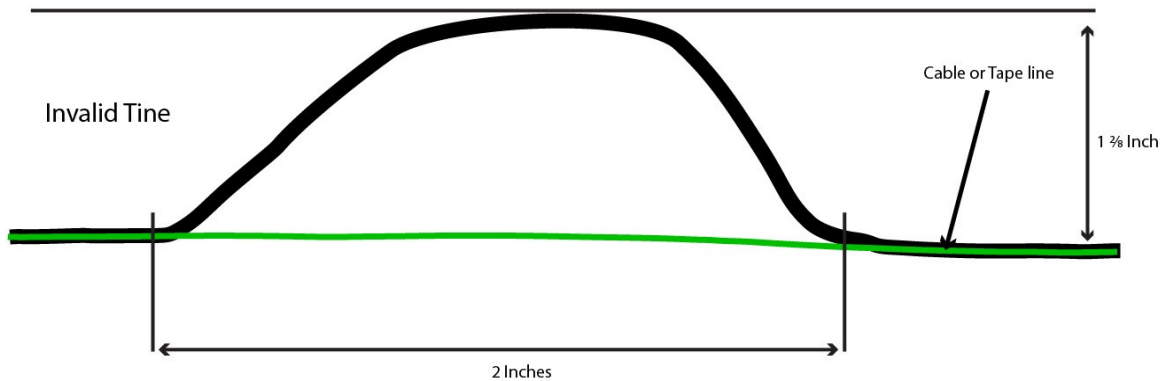


Figure 5

A nonvalid tine. Even though the tine is $1\frac{2}{8}$ inches high, the base is wider than the tine is high.

C) Regardless of the base size, if a tine has a width of 1 inch or less at 1 inch or more from the top, such a tine is a valid tine. In other words, if a tine could be cut at any place along its length in such a manner that it would be a valid tine (length equal to or greater than base), such a tine is a valid tine, no matter how large the base width at the parent antler. See Figure 6. This tine has a length of $1\frac{4}{8}$ inches and a base of 2 inches and this would normally disqualify the tine, but since the width of the tine 1 inch from the point is $\frac{7}{8}$ inch, it will qualify as a valid tine. The same is true for deer with a minimum tine length of 0.5 inch; regardless of the base size, if a tine has a width of 0.5 inch or less at 0.5 inch or more from the top, such a tine is a valid tine.

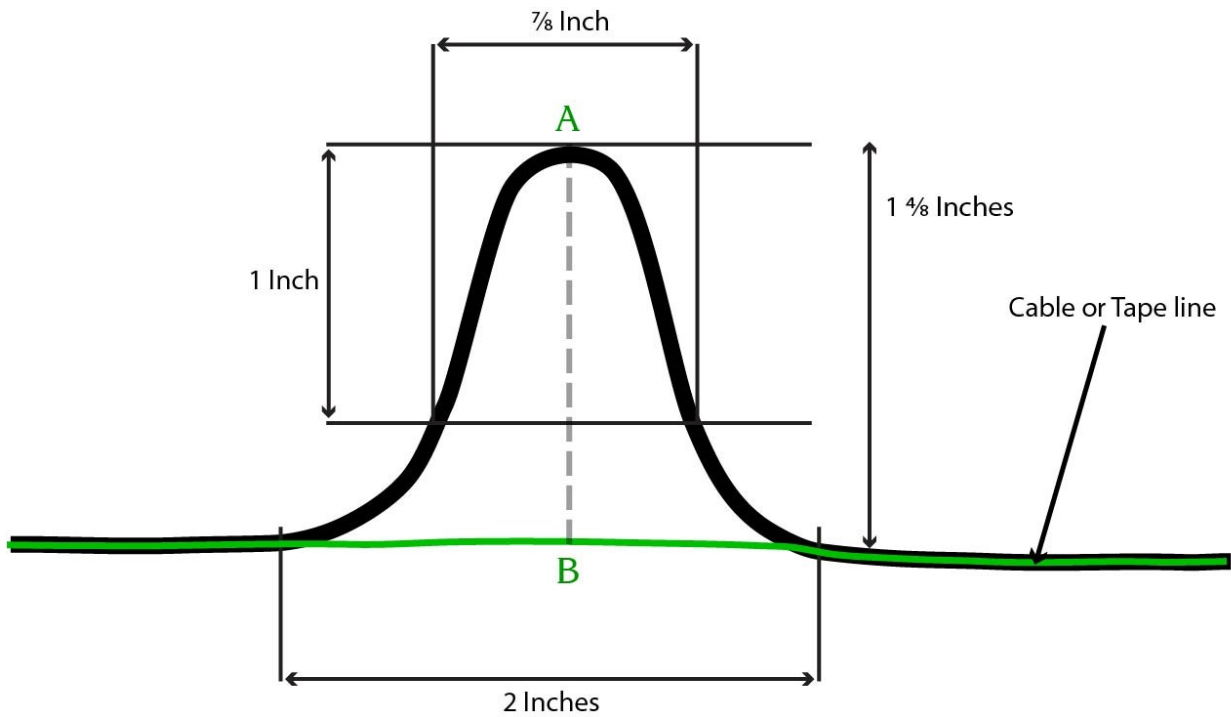


Figure 6

Valid tine. Base is wider than height, but 1 inch from the top, width is less than height.

8. What Measurements Are Not Used in Calculating the Score

All measurements on the RW method Forms for deer need to be filled in. We will not process entries where there is missing information. This includes those measurements that are not part of the score, such as counts for nontypical tines and, in some cases, spread. Only those measurements that are marked “Supplemental” on the Method Forms can be left blank; these include weight, skull cut, and CIC points.

9. Measuring Tines and Circumferences with Web Formation on Round-Antlered Deer

These instructions specifically exclude fallow deer, moose, and caribou. Some round-antlered deer, in particular whitetails and red deer, can have webbing, which is not unlike the palmation in moose, caribou, and fallow deer. The general way to deal with this is to measure the head as though the webbing does not exist. With webbing, antler structures form between the tines, and in most cases the tines can still be seen as “ribs” in the antler structure. With a pencil, mark where the tines would be as though the webbing does not exist, and mark the baseline of each tine where the webbing meets the parent antler. (Figure 7, T2, T3, T4, T5, and T6) Now measure the tines from the point to the baseline.

For any circumferences that should be taken but are blocked with webbing between the tines (Figure 7: C3 and C4) do the following: (a) If no webbing at all exists on the opposite antler, take the C measurements from that side and copy them exactly to the side with webbing. In case there is webbing on both sides, (b) measure the last circumference before the webbing starts (Figure 7, C2) and use it for the next C measurements that fall between webbed tines. (Figure 7, C3 and C4)

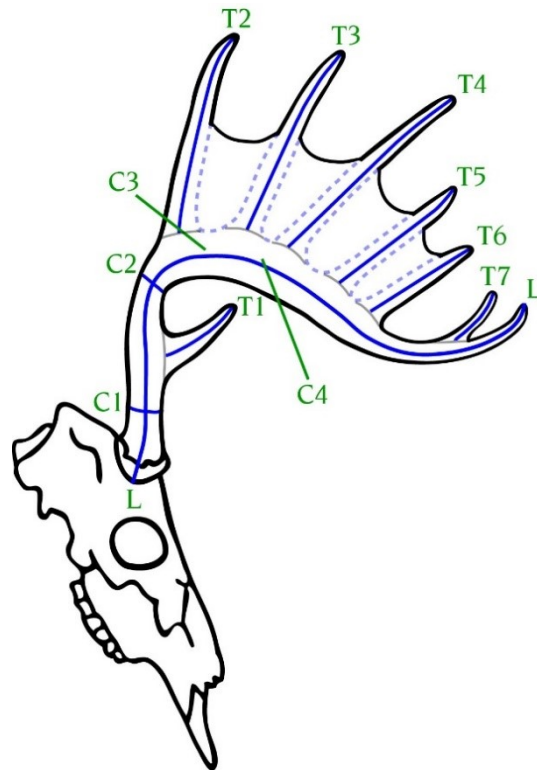


Figure 7

Web formation in antlers of white-tailed deer.

If webbing occurs on antlers where the tines cannot be discerned, the measurement of the tines is taken on the shortened tines. In such cases, the baseline for the tines is drawn where the webbing starts. (Figure 8) The tines are measured from the point to where the webbing commences. This will lead to decreased tine length(s), but there will be an increase in circumference. (Figure 8, C3 and C4) On those tines where the webbing is present on one side of a tine and not on the other—Figure 8, T2 and T6—the baseline must be drawn as though there is webbing on both sides of the tine. In other words, the baseline must not drop off sharply to one side.

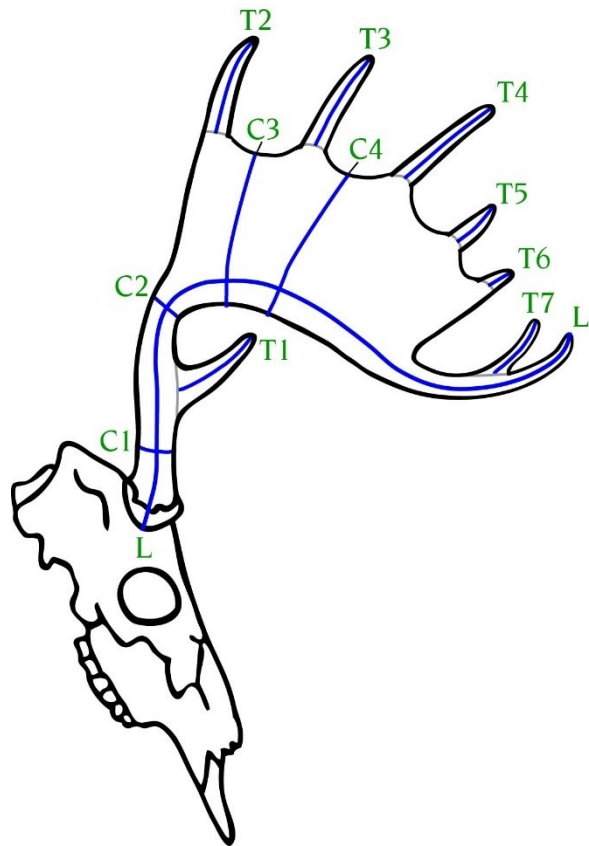


Figure 8

Web formation in antlers of white-tailed deer.

If measurements are taken that make allowance for webbing, this **must** always be recorded on entry forms.

10. Measuring the Main Beam When Webbing Is Present

The main beam must be measured as though the webbing were not present. In most instances, webbing is not thick and the contours of the tines and the main beam can clearly be seen. (Figure 7) After you have delineated the tines from the webbing, measure the main beam as though the webbing does not exist.

11. Tine Coming Off a Curved Section of Antler

Sometimes tines may grow on a parent antler that has a strong curve. If a tine grows in the center of the curve, the baseline needs to be drawn along the natural curve of the parent antler. This is to prevent overmeasurement of the tine if the antler curves outward (Figure 9) and prevent undermeasurement when the parent antler curves inward. (Figure 10) When drawing a baseline, make sure that the natural curve of the antler is taken into account. See green lines (correct) and red lines (incorrect) in Figures 9 and 10.

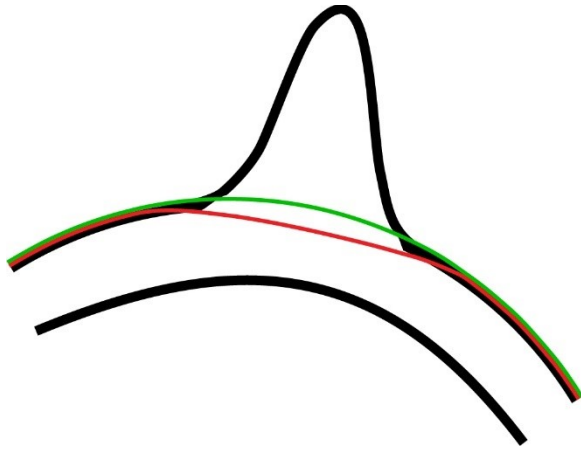


Figure 9

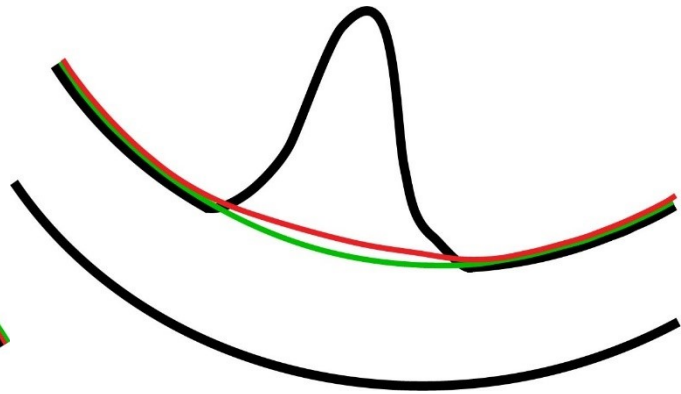


Figure 10

12. Tine Coming Off a Crown or Tines Clustered Closely Together

Tines coming off a crown configuration or clustered tines need attention to get their baseline correct. A close group of tines is likely joined at the bases with webbing. For instance, if three tines are clustered and a straight line along a cable is drawn between outer tines 1 and 3 to create a baseline for the middle tine, 2, it is easy to draw a baseline too far from the line of the parent antler. Should that happen, it would decrease the length of the middle tine. The baseline should be drawn along the natural line of the parent antler so that no part of any tine is left unmeasured. In Figure 11, the red line is incorrect, and the green line is correct.

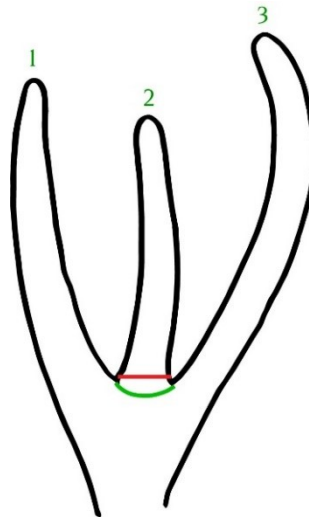


Figure 11

13. Two Tines with a Common Base

Before we explain how to measure two joined tines, remember that a valid tine must be 1 inch or 0.5 inch long (depending on deer species) and the base cannot be wider than the length. Tines with a common base are two tines that are joined at the base where it meets the parent antler. (In rare cases there may be three tines or even more, but the same principles apply.) Two tines joined can be either (a) two tines that are joined by a bridge of webbing at their bases, or (b) one base that sprouts one tine with another tine

branching off. Each is measured differently. In order to count as two separate tines, grooves must be seen on both sides; when viewed straight from the top in cross-section, the two tines must look like two circles that are joined. (Figure 12) In such cases, each tine (assuming it has the length needed to be valid) can be measured from its point to the common baseline that it shares with the other tine. If two separate tines share a common base, one baseline must be drawn for both, and each tine must have an end point for its length measurement in the center of its own width as though it were not connected. (Figure 13)

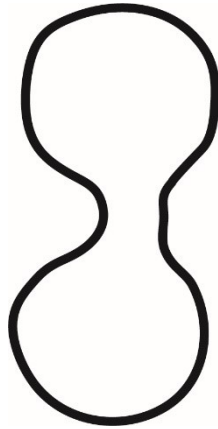


Figure 12

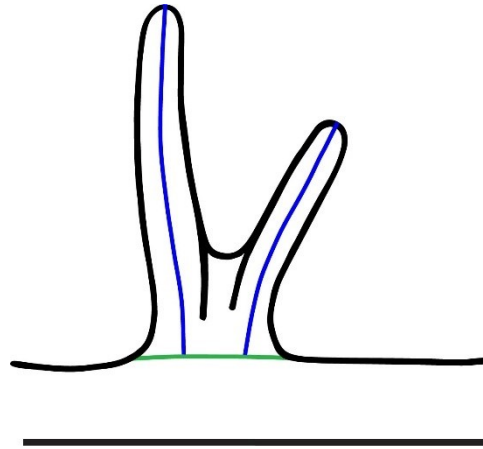


Figure 13

Examples of two separate tines joined by a common base.

If the base is oval-shaped on one or both sides when viewed as a cross-section from the top (Figures 14 and 15), that means there is one base for one tine, which acts as a parent antler for a second tine at some point higher up. In this case, one tine must be measured from the top of the tine to the baseline at the main beam, and the second tine from its top to a baseline drawn along the first tine. (Figure 16) Remember that both tines must be valid tines to be recorded. In many cases, where two tines have a common base, only one tine is a valid tine because the base is frequently wider than the tine is long.

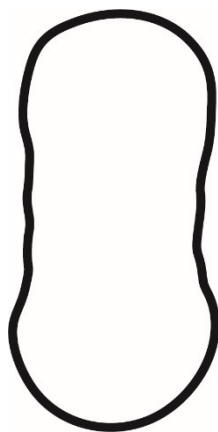


Figure 14

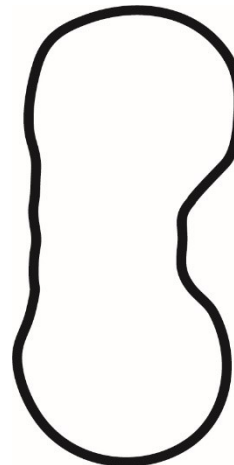


Figure 15

Cross-sections at baseline of one tine that sprouts another tine.

Cross-sections at baseline of one tine that sprouts from another tine; although one side is “grooved,” the other side is not, so this is one tine at the base.

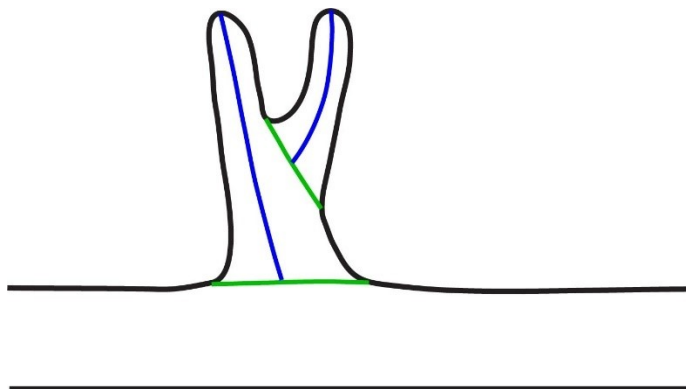


Figure 16

A tine off a tine; note that only the left tine originates off the main beam.

14. How to Measure a Tine (Except Brow Tines Immediately above the Burr)

A tine should be measured on its longest side, which is nearly always on the outside as it curves away from the main beam. In case the tine curves in an opposite direction, the longer measurement may be had on the inside. If a tine comes off another tine (parent antler), the same applies as above. After marking off the baseline for a tine, place the tape hook on the top of the tine and run the tape on the center of the tine parallel to its axis down to the parent antler; stop at the center of the baseline. In the case of drop tines, the end of the tine can be very blunt like the bottom of a handle on a screwdriver. Start the tape on the center of the tine end and proceed along its longest side, along the axis of the tine to the baseline.

15. How to Measure a Brow Tine at the Burr

Because the brow tine on many species merges with the burr, it is not possible to measure these on the outside curve because an ending point (the baseline) would be very difficult to determine. The following applies only to brow tines that grow immediately above the burr. A number of deer species—roe deer, pampas deer, and white lipped deer, etc.—normally have brow tines well above the burr, and these get measured as regular tines.

Brow tines are the only tines not always measured on the outer curve. Many originate right at the forward edge of the burr and thus often share a common base with the main beam at the burr. Like other tines, the baseline for a brow tine must be delineated parallel to the main beam axis. Use a cable, not a tape, and start right above the burr. Lay the cable over the brow tine and then between the T1 and T2 gap; draw a line with a pencil along the main beam side of the cable. Like other tines, the path of the length measurement of the brow tine starts at the point but then gradually curves to the side of the tine and from there to the baseline, which is on the side of the main beam; it does not stay on the outside curve and end at the burr. Start the measurement at the top of the tine, and where the antler curves, gradually allow the tape to come to the outside center of the tine and proceed to the center point of the baseline. Should a brow tine right above the burr be straight, as can happen, measure from the outside, right from the top of the tine to the baseline. (Figure 17)

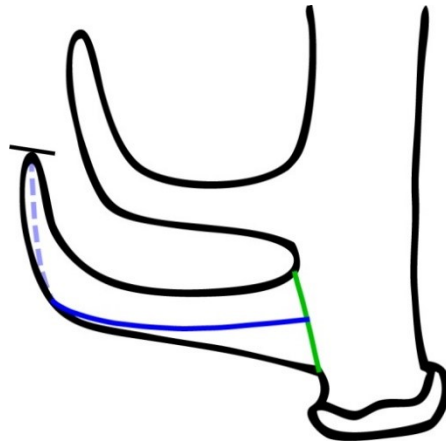


Figure 17

A brow tine must have a baseline on the side.

16. How to Count Points

Count valid tines after you have measured their lengths to be sure you are counting only valid tines. For typical points, count the main beam tips plus all valid typical tines. Your total number of typical points will always include the main beam tips. Separately, count all valid NT tines, which do not include the main beam tips.

17. Spread and Span

Spread (G) is the widest outside measurement a rack will reach from side to side. This is sometimes taken from tine end to another tine end but can also be taken from the main beams or the outer curve of a tine that curves out and then curves inward. The span is the inside measurement between the main beams, not any tines. Both are taken a 90-degree angle to the centerline of the skull. (Figure 18) *An injured skull, pedicle or antler may result in an extreme spread or span. Such cases must always be noted on the method forms.*

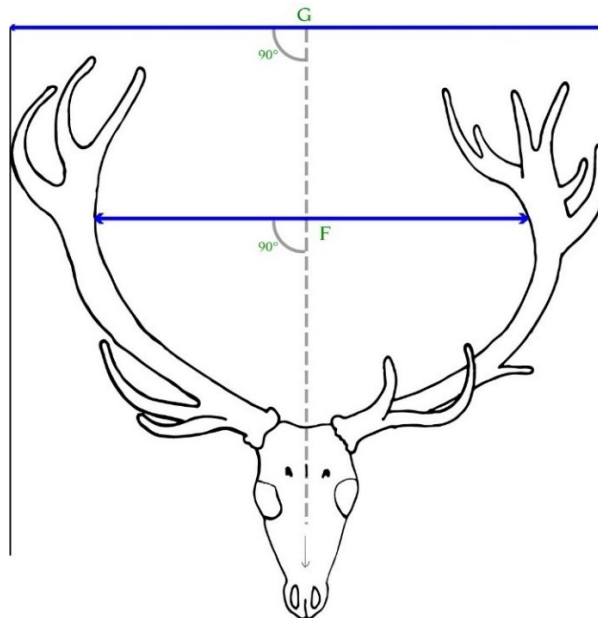


Figure 18

Spread and Span. (G) indicates the spread and (F) is the span.

18. Which Deer Are Measured for Span and Spread?

While span is a traditional method to measure the “width” of a rack for European and American deer, it is difficult to apply to moose and to those species that do not have easily identifiable main beams; RW does not use the span measurement for all deer. For moose, Irish elk and Pere David, the spread is recorded and counts toward the score. The spread on a moose and Irish elk is universally agreed upon as an important feature for hunters. For moose and Irish elk, it would be very difficult, if not impossible, to record a span. Because of the Y upon Y main antler configuration of the Pere David deer, it is in most cases not possible to reliably determine what is the main beam. In the case of Method 1-f, a number of species with 3x3 frames have top-end configurations that can make it difficult to determine what is the main beam; for accuracy, the spread and the span, are recorded on all deer in this method. Span is taken for all North American deer and most Eurasian deer. See Table 2 below.

Span and Spread Measured under RW system		
	span	spread
1-a, Rocky Mtn, Roosevelt, Tule elk, Asian marals.	yes	no
1-b, Red deer in, EU & Asia	yes	no
1-d, Whitetail, all subspecies	yes	no
1-e, Mule, Sitka, Blacktail deer	yes	no
1-f, 3x3, 4x4, Axis, Hog, Sambar, Rusa, Sika, Siberian roe etc.	yes	yes
1-g, European roe deer	no	no
1-h, w/o crowning, Barasingha, Eld's, Huemul, White-lipped etc.	yes	no
1-i, Pere David's deer	no	yes
1-j, Muntjac, Pudu, Brocket	yes	no
2, Caribou and Reindeer	yes	no
3, Fallow Deer	yes	no
4-a, Palmated moose/Irish elk	no	yes
4-b, Nonpalmated moose	no	yes

Table 2

19. How to Measure Spread

To measure the spread, one can either use a carpenter’s folding ruler or a tape and carpenter’s triangles. This measurement is sometimes taken from tine end to another tine end but can also be taken from the main beams or a tine that curves out and then curves inward.

With a folding ruler, take a measurement from the farthest left and right on the rack and at an exact 90-degree angle to the center axis of the skull. With a tape, lay the rack on a smooth and level surface and then place two large carpenter’s triangles (an L-shaped device made of hard plastic or metal that can stand up straight) on both ends of the farthest sideways extension of the antlers. If the rack is uneven, shim the antlers up with pieces of wood so that an imaginary line drawn through the center of the eye sockets is parallel to the level surface. Make sure that both triangles are exactly at a 90-degree angle to the center of the skull-axis line. Mark with a pencil where the carpenter’s square touches the floor (both sides), push the antlers and triangles away and measure the distance between the two marks. Because the widest extension of the antlers on the left side may not line up with the widest part on the right, care must be taken not to measure diagonally across the rack. Do not measure with a tape from a wall above the antlers and skull to the other side because an air measurement may lead to a tape sagging, and this will increase the score. Note that for Method 1-f the spread measurement can only be taken from the main beam or typical tines, not NT tines. (See Method 1-f for details.) Even though spread is not always part of

the score measuring it, where required, is not an option, it must be done, it allows recordkeeping to judge if the span was measured correctly.

20. How to Measure Span

Use only a carpenter's folding ruler with extension, not a cable nor a tape, to measure the span.

The span can only be measured after the main beam has been identified. On deer with complex antlers with many tines, first mark the tines with masking tape, then baselines should be marked off with a pencil as to where the tines branch off from the main beam. Now the flow and the centerline of the main beam can be clearly identified. The span must be taken on the inside center of the main beam from the left to the inside center of the main beam on the right, not from the edges; the span is never taken off a tine.

(Figures 19 and 20)

Measure the span between the main beams and hold the ruler exactly at a 90-degree angle to the centerline of the skull and parallel to an imaginary line drawn through the eye sockets. Some main beams do not line up when seen from the side as they come off the skull at different angles, thus not allowing a measurement that is both at 90 degrees to the centerline of the skull and parallel to an imaginary line drawn through the eye sockets. In such cases, a ridged ruler must be placed along the inner edge of one main beam so that the measurement can be taken correctly. In rare cases, there can be an injury or genetic anomaly in which a deer will have an excessive span; the span cannot be more than the length of the longest main beam plus 5%.

For all deer in Method 1-b, the span must always be taken below the crown, if present. A crown is defined as a cluster of at least three tines forming a cup at the base. (Figure 19) For deer without crowns under this method, the span will often be taken from the inside of one main beam near the tip to the other, as this is often the widest point between the main beams. But do not measure from tip to tip, as it is not the same as the span. They can be almost the same, but not quite; the span is taken between the main beams and a tip-to-tip measurement is taken at the very tip of the main beam from one side to the other.

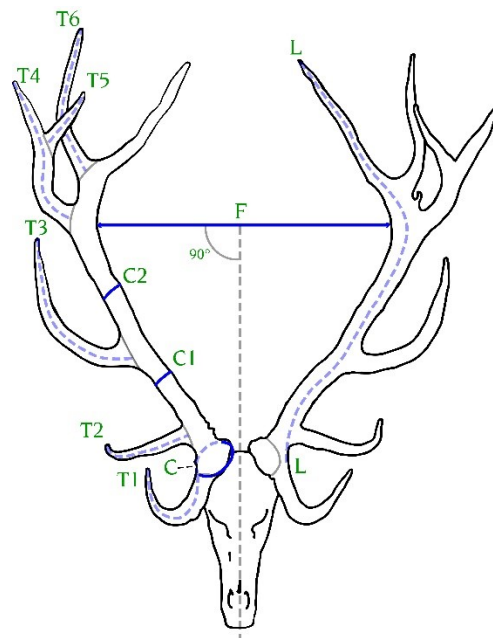


Figure 19 Inside span (F), here on a red deer.

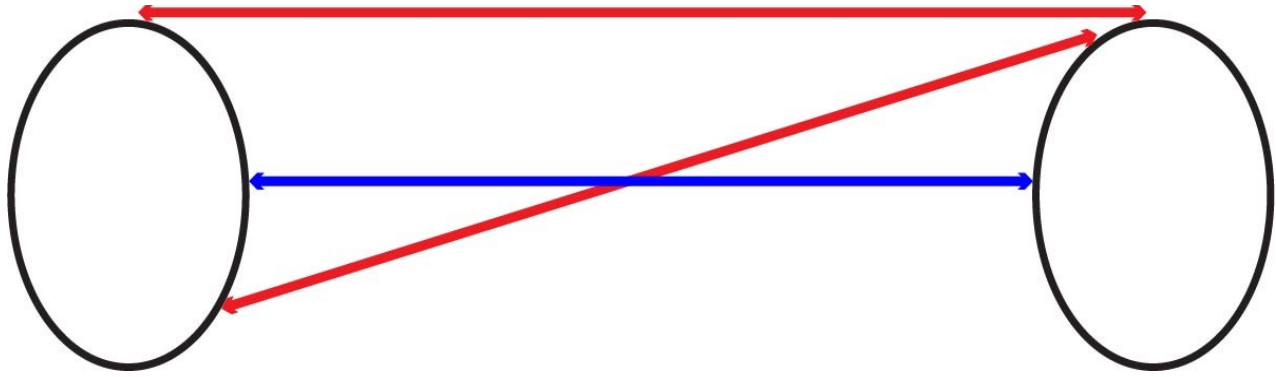


Figure 20
Cross-section of main beam antlers.

The correct starting and ending points for a span measurement is indicated by the blue line (center to center on the inside of the main beams). The red lines show the incorrect way.

21. Burr and Circumference Measurements

Either burr or circumference measurements are taken for all deer; in some cases, both are taken. Burr measurements are not taken for moose, caribou, fallow deer, or North American deer (mule deer, white-tailed deer and elk); for all other deer, a burr measurement is required. For European roe deer, because the burrs on almost all large European roe buck heads are merged, one oval measurement is taken for both burrs. (Table 3)

Burr and Circumference Measured under RW		
	Burr Measured	Circumference Measured
1-a, Rocky Mtn, Roosevelt, Tule elk, Asian marals.	No	C1,C2,C3,C4
1-b, Red deer in, EU & Asia	Yes	C,C2,C3
1-d, Whitetail, all subspecies	No	C1,C2,C3,C4
1-e, Mule, Sitka, Blacktail deer	No	C1,C2,C3,C4
1-f, 3x3, 4x4, Axis, Hog, Sambar, Rusa, Sika, Siberian roe etc.	Yes	C, C1
1-g, European roe deer	Yes*	none
1-h, w/o crowning, Barasingha, Eld's, Huemul, White-lipped etc.	Yes	C, C1
1-i, Pere David's deer	Yes	C
1-j, Muntjac, Pudu, Brocket	Yes	C
2, Caribou and Reindeer	No	C1,C2,C3,C4
3, Fallow Deer	No	C1
4-a, Palmated moose/Irish elk	No	C1
4-b, Nonpalmated moose	No	C1
* One measurement for both burrs		

Table 3

22. Circumferences of Main Beam

Most deer methods have circumference measurements. (Table 3) For the circumferences of the main beam above the burr, there can be 1 to 4 measurements: C1, C2, C3, and C4, as documented in the individual deer methods.

Circumferences must be measured with a steel tape, never with a cable. A tape with a ring end is best, but if one is lacking, a hooked steel tape will do. Start at the 10-inch mark and deduct 10 from the measurement. Circumferences are to be taken with a tight tape in a continuous loop, going over the top of normal protrusions/ pearling (less than $\frac{2}{8}$ inch or 6mm). Do not press the tape into indentations. All circumferences are always taken at the smallest place possible. After you have looped the tape around the antler, move it along its axis left and right to see where the smallest place can be found.

With all complicated antlers and especially heads with a lot of NT tines, first mark all tines with red and blue paper tape to identify typical versus NT tines. All circumferences must always be taken between two typical tines and not between any NT tines. An important rule for circumferences: A typical tine does not have to be of valid length in order to act as an indicator for where to take a circumference measurement.

Some deer will have one of its T1 through T5 typical tines broken, missing, or of such a size that they are not valid, but all circumference measurements must still be taken. If, as an example, an elk has its T3 tine completely missing, the C2 and C3 circumferences needs to be taken between T2 and T4 at the same place. (Figure 21) If a typical tine is broken off and does not qualify as a valid tine because of its length or length/base-width ratio, the “stump” must still be used. In this case, it acts as a full valid tine to determine where to measure the C1, C2, etc. measurements.

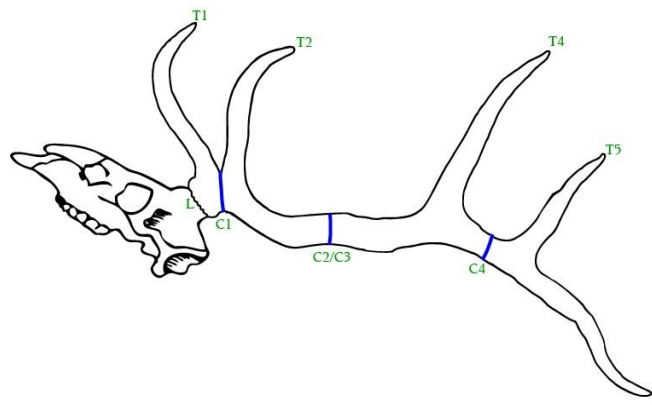


Figure 21

C2 and C3 fall in the same place because of missing T3.

In Figure 22, the T5 tine on this elk is broken, and the stump is not a valid tine. The C4 measurement is still taken between the T4 and the stump of what was the T5. In many cases, eye guards can be too small to be measured as a valid tine. If this is the case the C1 and C2 measurements for mule and white-tailed deer need to be measured as though the eye guards are valid tines.

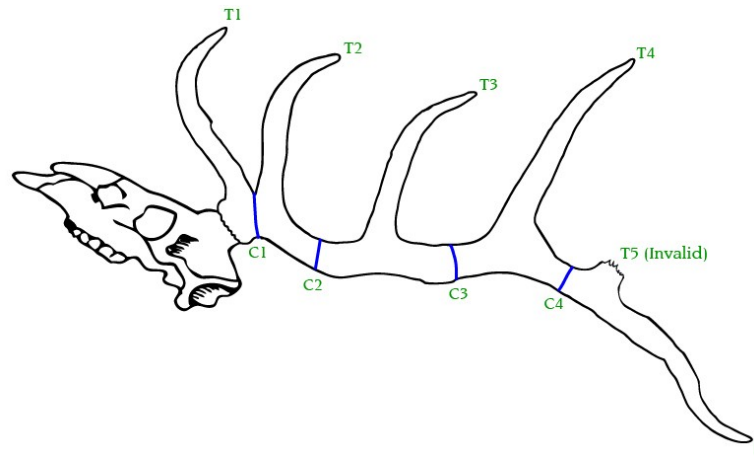


Figure 22

T5 is broken off and not a valid tine, so C4 must be taken between the stump and T4.

If the last typical tine on a main beam is missing, the C4 circumference needs to be taken between the previous typical tine and the beam tip. The location for this is found this way: Locate the center of the baseline of the last typical tine, which was already drawn for measuring the tine, and extend this line across the main beam at a 90-degree angle to the main beam axis. Measure from this line along the centerline of the main beam to the main beam tip, and divide by two. (Figure 23, C4)

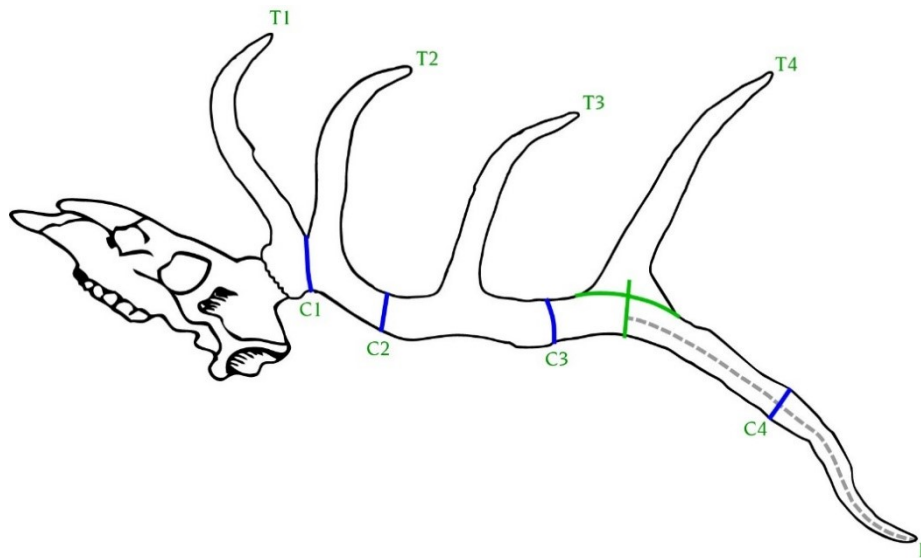


Figure 23 Tine T5 is missing; take C4 half way between beam tip and T4.

23. How to Measure a Burr

Use only a ¼-inch steel tape for burr measurements. These are taken with a tight tape in a continuous loop and by going over the top of small (less than $\frac{2}{8}$ inch or 6mm) protrusions or pearling. Do not press the tape into indentations. Projections growing from the burr that are $\frac{2}{8}$ inch or 6mm or longer must not be included in the measurement. Avoid such projections if possible, but if one cannot be avoided, see instructions below and in Figure 25. In Figure 24 the red line shows the wrong way of measuring the burr. It's wrong because the tape is pressed into the valleys and the NT tine is circumnavigated.

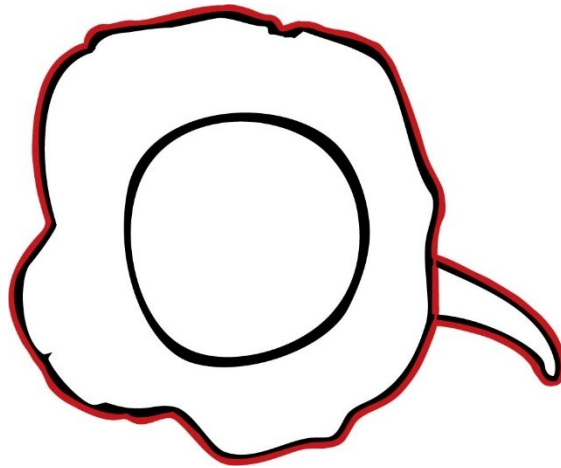


Figure 24

Burr with NT tine as seen from underside after shedding; red line indicates what not to do.

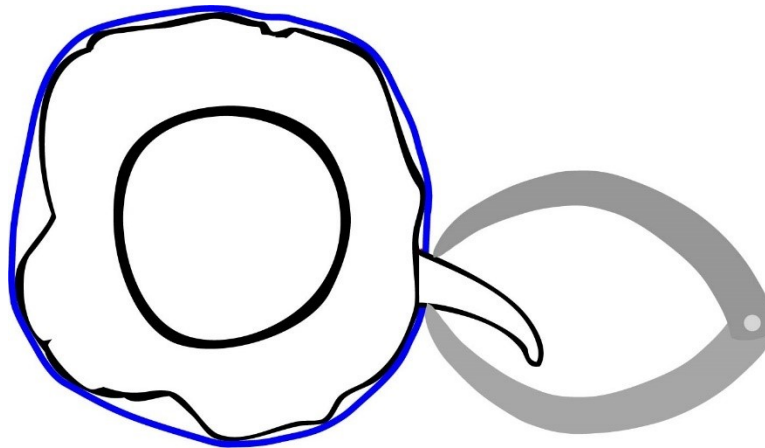


Figure 25

24. Tines or Growths off the Burr/Coronet

Tines can grow right on the outer edge of burrs; this is more often found on roe deer and whitetail than any other deer. If tines/antler grow over $\frac{2}{8}$ inch or 6mm coming off the burr, they may not be used to add to the burr circumference measurement. Should you encounter such a tine or protrusion, first take a measurement with calipers from one side of the base of the tine to the other and mark both with a pencil. Note the width of the calipers. Now measure the burr with a steel tape from one mark to the other, and add the two values together for the burr circumference. The final measurement will be as though the tine/protrusion is absent. Remember: All tines off a burr are always nontypical tines and, if they qualify as valid tines, must be measured. (Figures 24, 25, 26)

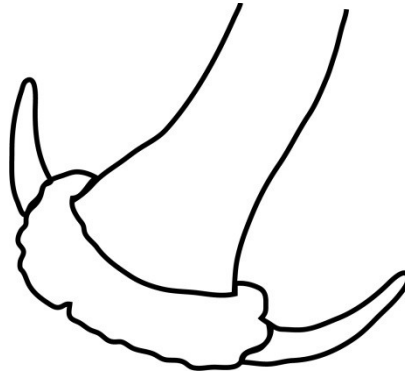


Figure 26

A burr with two tines coming off the crest of the burr; these must not be measured for the burr circumference. They do get measured (as NT tines) if they are valid tines.

Photos

All deer entries are required to be submitted with enough photos that the editors may see all typical and NT tines. Photos need to be sharp, in focus, and include at least one taken in the field. Main beam tips must be clearly shown and any clustering of antlers must be separately photographed so the editors can clearly see all points, valid or not. Please take photos from the front and the back and from the top, if needed. Please remember, RW cannot approve any deer entries unless the photos clearly show all tines. One field photo is required for possible publication in RWRBG. By submitting a photo, the person warrants that he/she is the legal owner of the image and holds the editors harmless and free of liability against any claims for the use of the photo(s).

• Instructions for Individual Deer Methods •

Before reading details on the following Methods, be thoroughly familiar with General Deer Instructions (GDI) at the start of the deer section and General Instructions (GI) at the start of this Handbook.

Method 1-a Rocky Mountain (RME), Roosevelt (RE), and Tule Elk; Alshansk, Izubur/Manchurian, Siberian, and Tian Shan Marals.

Note: This method includes these four Asian marals because their antler configurations are very close to American elk.

Ranked on the Sum of All Typical Tines, Main Beams, Circumferences, and Span. (Typical RME)

Ranked on Sum of Typical Score Plus the Length of All NT Tines. (Non-typical RME)

Ranked on Sum of All T and NT Tines, Main Beams, Circumferences, and Span. (RE, Tule Elk, and Marals) (There are no NT categories for these elk and marals.)

General remarks: For years, deer experts considered the European red deer and the American elk one species (*Cervus elaphus*). These deer range from North Africa, through Europe and Russia, and into Central Asia and China. They cross into Alaska—where they were introduced—and the New World through Canada and the U.S. and then into Mexico.

While this seems to make sense when one looks at the specimens in Central Asia where the animals differ little from populations in the Rockies, it is harder to make the case when comparing a Scottish red stag with an elk from Wyoming. The body-size difference is enormous, the roar from the stag is very different from the whistle from the bull elk, and a large Wyoming bull elk can have antlers and body weights of two to three times that of a Scottish hill stag. While a few biologists have always classified the American elk as *Cervus canadensis* and the European red stag as *Cervus elaphus*, in recent times the two-species approach has become the accepted standard.

The name “elk” is an accident of history. European immigrants applied it to a large deer they saw in the Americas, thinking it was related to the *elg* of Scandinavia, which is really a moose. The Shawnee name *wapiti* is more appropriate, but is not often used in the U.S. Together with the wild sheep, the large American bears, white-tailed deer, and mule deer, free-ranging bull elk are among the finest American trophies in the estimation of most hunters.

1. Identify the tines. Draw a baseline for all tines (T and NT) with a pencil. This was explained in GDI. You complete this step even if they appear to be slightly less than 1 inch in order not miss a potential valid point. For complex antlers, mark all T and NT tines with colored tape, but do not mark the main beam tip. It is important to note that all tines for all three elk varieties must be designated as T or NT before starting to measure. (Figures 1 and 2)

For Rocky Mountain elk, there are T and NT categories in RWRBG; for Tule and Roosevelt’s elk and the Asian marals, there are no NT categories, but T1 through T5 tines or more need be determined as T or NT even though it will not affect the total score. Correctly designating the T versus NT tines on Method Form 1-a is needed because circumferences of the main beam, especially C3 and C4, cannot be taken in the correct locations without properly designating tines as T or NT.

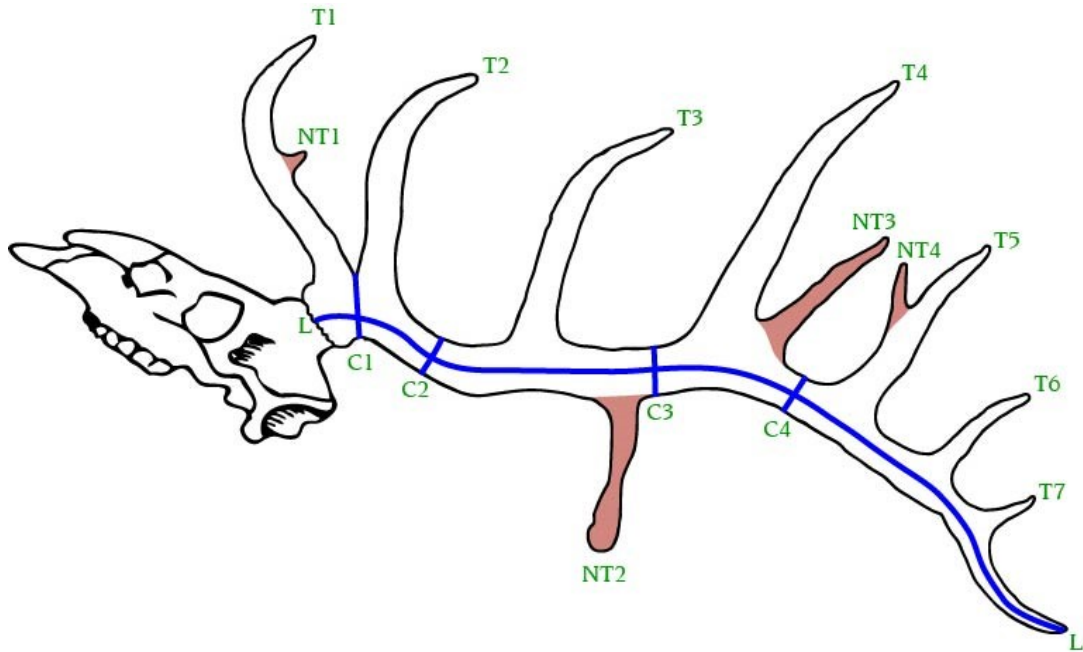


Figure 1

Typical tines are indicated as T1, T2, etc. and nontypical as NT 1, NT2, etc. The main beam is shown with a blue line.

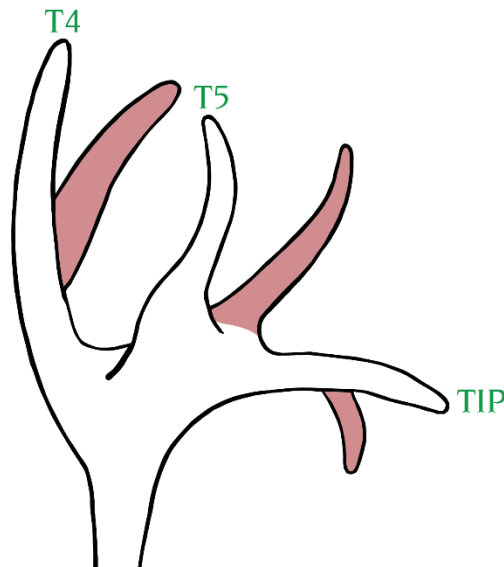


Figure 2

The shaded tines are NT for any elk. The circumferences can only be taken between the typical tines, T4 and T5 in this case.

2. Main beam. A cable is much preferred over a tape for this measurement. Measure the main beam antler on the center of the outside curve from the lowest edge of the burr to the tip. (Figure 1, L) The tip is that point that is farthest from the burr and is nearly always the point that reaches the farthest back; the tip cannot be a tine off a tine. Before starting, mark the center points to the tip along the beam with a pencil. The cable must not be pressed into the groove above the burr. Stay on the outside center of the main beam at all times; see GDI.

3. Typical tines. Measure the length of all valid typical tines of 1 inch or more, starting with the brow tine (T1) and working up; see GDI. You may have drawn baselines on some tines that were just under 1 inch; do not record these. Measure from the top of a tine to the center baseline, as delineated, for T1, T2, T3, etc. (Figure 1) Remember, typical tines project forward (T1), sideward (T2, T3), and upward T4 and beyond from the main beam; if a tine grows in a different direction, it is not typical. With large, mature elk, normally the first 5 tines above the burr are matched with tines on the opposite side (T1 through T5), but if one is missing on one side, mark it with a zero in the cell. (Figure 2) If T6 and T7 are not matched with a valid typical tine(s) on the opposite side, they are designated as NT unless the opposite tine is clearly broken off. It is worth noting that it is rare (not impossible) for an elk to have matching T6 and T7 tines on both sides, this would be a typical 8x8.

Start by measuring the brow tine (T1) from the point to the main beam. The brow tine is the only tine that is not measured on the outside curve; it is measured on the side. Measure the bez and the trez points next (T2 & T3). After the brow tine (T1), all tines are normally measured on the outside, which is the longest side, but if the inside is longer, measure it there. While there is no theoretical upper limit to the typical tines on an elk under RW, practically speaking, anything beyond 7 typical tines per side plus the main beam tip (8 points total) is highly unlikely. Next, record any valid nontypical tines; see below.

4. Nontypical tines. For Rocky Mountain elk: Measure the length all nontypical tines of 1 inch or more on their longest side, starting from the burr and working up. (Figure 1, NT1, NT2, NT3, and NT4) Any tine off a tine is NT (Figure 1, NT1 and NT4); any tines growing off the main beam backward are also NT (Figure 1, NT2). Note that the valley between T4 and NT3 is V shaped and not U shaped and thus NT3 is nontypical.

Typical tines must be spaced like those on a typical elk (Figure 1 and 4) and the tines on the left main beam must be positioned with the same spacing as those on the right main beam. Typical tines do not “cluster” at the base; this means that in the U-shaped valley between two tines, there cannot grow another typical tine, even if that tine is growing in the same direction as the other two near it; these are called inter-tines and are NT (Figure 1, tine NT3). All elk and marals, especially Roosevelt’s and Tule elk, can form crowning; crown points are not designated typical (Figure 2, shaded tines). If an elk has typical T6 and/or T7 points (that is, they point straight up from the beam) on one side, they must be matched with typical tines on the opposite side and be spaced the same; if they are not, they are designated NT tines.

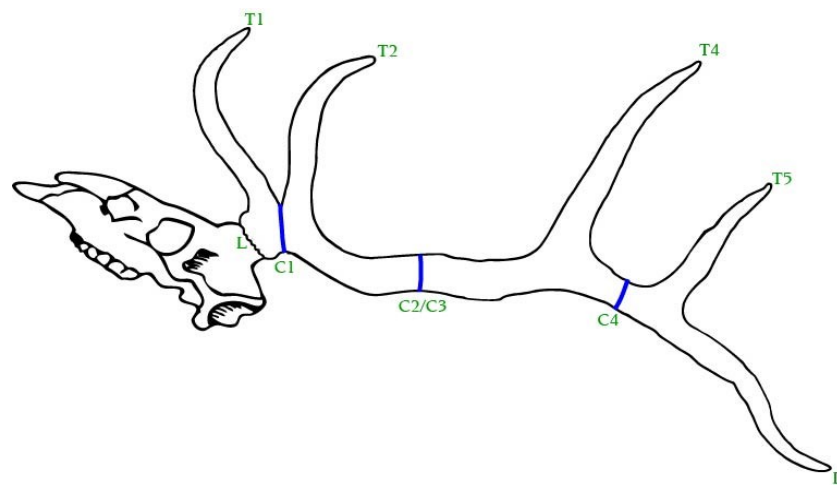


Figure 3

Tine T3 is missing, so C2 and C3 fall on the same place.

5. Circumference. Use a steel tape with a ring, not one with a hook. Measure the smallest circumference between the T1 and T2, T2 and T3, T3 and T4, and finally between T4 and T5. (Figure 1, C1, C2, C3, C4). Please note that this must be the smallest measurement that can be found and must only be taken between typical points. In case one tine is missing, the circumferences is taken twice at the same place at the smallest point between the two nearest valid tines. As an example, if T3 is missing, C2 and C3 will fall on the same place. (Figure 3.) In case the T5 tine is missing, the circumference needs to be taken halfway between the T4 and the main beam tip; see GDI number 23.

The C4 measurement can be a challenge if the animal in question has crowning. (This applies for RME, Tule, RE, and the Asian marals under Method 1-a.) Crown points must be ignored when trying to find the smallest place between T4 and T5. (Figure 2) The T4 tine will normally be the longest tine above the brow tine and will point straight upward from the main beam. The T5 tine must point upward and emanate straight from the main beam. Find the smallest circumferences between these two points to measure the C4 value. If a typical tine is broken off or too short to be a valid tine, the circumference still must be taken between the next typical tine and typical broken/too short tine; see GDI.

6. Span. Use only a carpenter’s folding ruler with extension, not a cable nor a tape, to measure the span. The span can only be measured after the main beam and tines have been identified. The span must be taken on the inside center of the main beam from the left to the inside of center the main beam on the right, not from the edges, and the span is never taken off a tine. Hold the ruler exactly at a 90-degree angle to the centerline of the skull and parallel to an imaginary line drawn through the eye sockets. Some main beams do not line up when seen from the side, thus not allowing a measurement that is both at 90 degrees to the centerline of the skull and parallel to an imaginary line drawn through the eye sockets. In such cases, a rigid ruler must be placed along the inner edge of one main beam so that the measurement can be taken correctly. In rare cases there can be an injury or genetic anomaly in which a deer will have an excessive span; the span cannot be more than the length of the longest main beam plus 5%.

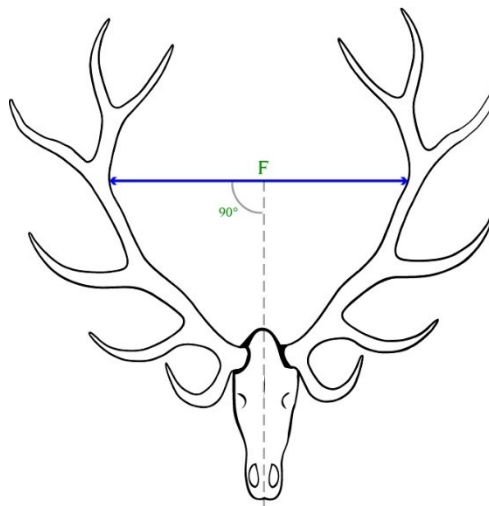


Figure 4. Classic configuration, typical 6x6 elk rack with the span measurement indicated.

7. Count. Only count tines after you have measured their lengths to be sure you count only valid tines. For typical points, count the main beam tips plus valid typical tines. Your total number of typical points will always include the main beam tips. Separately, count all valid NT tines, which does not include the main beam tips.

8. Weight/Cut. (Supplemental) The following are not required but will be published if provided. Weigh the cleaned and boiled skull and antlers when they are completely dry. This should happen no sooner than one week after the skull was boiled and cleaned and has dried in natural circumstances. Note on the comment section of the Method Form if the skull is uncut, has been cut through the center of the eye socket, or is a skull cap cut. Weigh to the nearest quarter pound (250 metric grams).

Note: The typical score is determined by the sum of all typical tines, main beams, circumferences, and span (subtotal C on Method Form). While NT tines are recorded in RWRBG, they are not added to the typical score nor are they deducted. As long as the cumulative length of NT tines (subtotal E on Method Form) is less than 3% of the total typical score (subtotal D on Method Form), the animal is eligible for the typical category. If 3% or more are NT tines, the head automatically falls into the NT category.

Method 1-b Asian and European Red Deer. Includes all red deer from Europe, Asia Minor (Turkey), the entire Caucasus Mountains, and all of Asia. Also includes introduced red deer from the South Pacific and South America

Ranked on the Sum of All Tines, Main Beams, Circumferences, and Span.

General remarks: The European red deer and its very close Asian relatives are considered one species (*Cervus elaphus*). They range from North Africa, through Europe, Russia, the Himalayas, Central Asia, and into China. Across the Bering Strait they are replaced by their closely related cousins, the American elk (*Cervus canadensis*). Some European populations are closely managed and when in the best habitat can grow enormous antlers. It is likely the most widely introduced deer species worldwide with populations found in Argentina, Canada, New Zealand, Australia, and many other countries. The marals found in Kazakhstan and Mongolia are very close in all aspects to the American elk, while the populations found in India and westward resemble the European red deer to a greater degree. Hunting a free-ranging stag in the roar in mountainous terrain is one of the greatest hunting experiences on the planet.

1. Identify/Measure tines. Start by drawing a baseline for all tines with a pencil as explained in GDI, even if they appear to be slightly less than 1 inch. Again, this is so you will not miss a potential valid point. Next, measure the length of all valid typical tines of 1 inch or more. Start above the burr with the brow tine and work toward the tip. You may have drawn baselines on some tines that were just under 1 inch; do not record these. Measure from the top of a tine to the center baseline as delineated for T1, T2, T3, etc.

While red deer and their Asian relatives do not have NT tines under RW, the first three typical tines above the burr must be determined in order to take circumference measurements at the right locations; they are the brow tine, which projects forward, and the bez and trez, both of which point sideward and upward. (Figures 1 and 2, T1, T2, T3.) These 3 tines are nearly always the longest three below the crown. Any other tines below the crown are not considered typical.

If there are a lot of points on the rack, mark these six tines (three on each antler) with one color of tape. Start by measuring the brow tine (T1) from the top to the main beam. The brow tine is the only tine that is not measured on the outside curve; it is measured on the side. Next measure T2, T3, etc.; only record those that are 1 inch or more and a valid tine; see GDI. Other than the brow tine, all tines are measured on the longest side, which is normally the outside, but the inside may be measured if it is longer. In case the antlers show webbing, the tines must be measured as though the webbing is not present; see GDI.

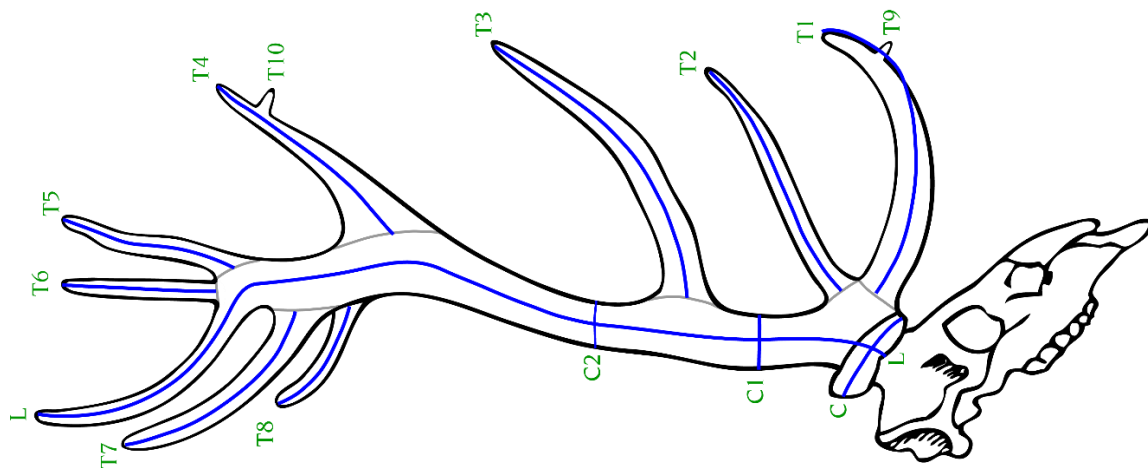


Figure 1

2. Main beam. A cable is the preferred tool for measuring the main beam. Measure the main beam antler on the center of the outside curve from the lowest edge of the burr to the tip. (Figures 1 and 2, L) The tip is the point that is farthest from the burr and is nearly always the point that reaches the farthest back; the tip cannot be a tine off a tine. Before starting, mark the center points along the main beam to the tip with a pencil. The tape must not be pressed into the groove above the burr. Stay on the outside center of the main beam at all times; see GDI. (Figures 1 and 2)

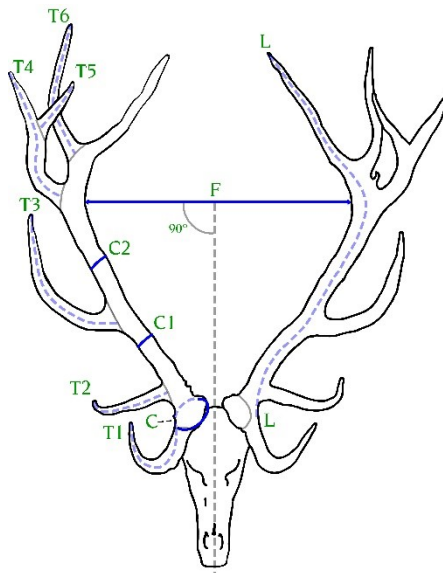


Figure 2

3. Circumference. Use a steel tape with a ring, not a hook. Measure the burr (C), then measure the smallest circumference between T1 and T2 (C1), measure the smallest circumference between T2 and T3 (C2), and finally measure the smallest circumference between T3 and the crown (C3). All circumferences must be the smallest measurement that can be found and can only be taken between typical points. (Figures 1 and 2.) In case one typical tine is missing, the circumference is taken twice at the same place at the smallest point. As an example, if T3 is missing, C2 and C3 will fall in the same place between T2 and T4.

4. Span. Use only a carpenter’s folding ruler with an extension—do not use a cable or a tape—to measure the span. The span can only be measured after the main beam has been identified. The span must be taken on the inside center of the main beam from the left to the inside center of the main beam on the right and below the crown. A span is not taken from the edges nor is the span is taken off a tine. For all deer in Method 1-b, the span must always be taken below the crown, if present. A crown is defined as a cluster of at least three tines forming a cup at the base. For deer without crowns, under this method, the span must be taken above the T3 but below the T4 if a T5 is present. It is unlikely that any red deer without T5s will make the RW minimums but if no T5 is present and the rack flares at the main beam ends, and thus is the widest point, the span will be taken from the inside of one main beam near the tip to the other. But do not measure from tip to tip, as it is not the same as the span.

Hold the ruler exactly at a 90-degree angle to the centerline of the skull and parallel to an imaginary line drawn through the eye sockets. If the main beams do not line up when seen from the side, they will not allow a measurement that is both at 90 degrees to the centerline of the skull and parallel to an imaginary line drawn through the eye sockets. In such cases, a rigid ruler must be placed along the inner edge of one main beam so that the measurement can be taken correctly. In rare cases there can be an injury or genetic

anomaly in which a deer will have an excessive span; the span cannot be more than the length of the longest main beam plus 5%.

5. Count. After you have measured all tines and determined which are valid, count the valid tines and include the main beam tips.

6. Weight/Cut. (Supplemental) The following are not required but will be published if provided. Weigh the cleaned and boiled skull and antlers when they are completely dry. This should happen no sooner than one week after the skull was boiled and cleaned and has dried in natural circumstances. Note on the comment section of the Method Form if the skull is uncut, has been cut through the center of the eye socket, or is a skull cap cut. Weigh to the nearest quarter pound (250 metric grams).

7. Spread. To measure the spread, one can either use a carpenter's folding ruler or a combination of a tape and carpenter's triangles. With a folding ruler, take a measurement from the farthest tine on the left to the farthest tine on the right side and measure at an exact 90-degree angle to the centerline of the skull. With a tape, lay the rack on a smooth, level floor and then place two large carpenter's triangles (an L-shaped device made of hard plastic or metal that can stand up straight) on both ends of the farthest sideways extension of the antlers. If the rack has uneven main beams, shim the antlers up with pieces of wood so that the skull does not cant to either the left or the right when viewed from straight in front. Then remove the rack and measure between the carpenter's triangles. Even though spread is not part of the score, measuring it is not an option; it must be done, for it allows recordkeeping to judge if the span was measured correctly.

8. CIC Points. (Supplemental) RW accepts CIC measurements in a partnership with the Hungarian-based conservation organization for Central European red deer (no other red deer). In order to get the trophy entered in RWRBG, it must be measured by an official CIC measurer of good standing. CIC entered trophies will be listed in its own tables. Animals entered under the CIC system may also be entered under the Rowland Ward system if a second entry fee is paid.

Method 1-d White-Tailed Deer, All Varieties

Ranked on the Sum of All Typical Tines, Main Beams, Circumferences, and Span. (Typical)

Ranked by Adding the Typical Score to the Length of All NT Tines. (Nontypical)

General remarks: The white-tailed deer (*Odocoileus virginianus*) is the most populous deer on Earth. Tremendously adaptive, it lives in complete wilderness, agricultural areas, and inside cities. Whitetails are not only the quintessential American deer, they also are part of a completely separate deer genus, (*Odocoileinae*), which contains five genera. Of these, the whitetail is by far the most successful, ranging from Chile to the Yukon.

Their antler configuration is unique, with all typical tines growing upward from the main beam that, when completely archetypical, forms a basket shape. NT heads can be very complex, with more than thirty valid points per side. In North America alone, the population has varied from twenty-eight to thirty-four million in the last decade. This is thought to be approximately what it was when Columbus arrived in the New World. To obtain a record head in the wild from a population exposed to hunting pressure is among the most difficult accomplishments in hunting.

1. Identify tines. Start by drawing a baseline for all tines, T and NT, with a pencil (Figure 1 and 2), as explained in GDI, even if they appear to be slightly less than 1 inch. This is so you will not miss a potential valid point. All tines must be 1 inch or more and not be any wider along the baseline than they are long to be valid; see GDI. If a rack has many NT tines, we recommend that you mark all typical tines with red paper tape and all NT tines with blue tape; you will remove these pieces of tape as you measure the head. This ensures you do not overlook any tines or measure any twice.

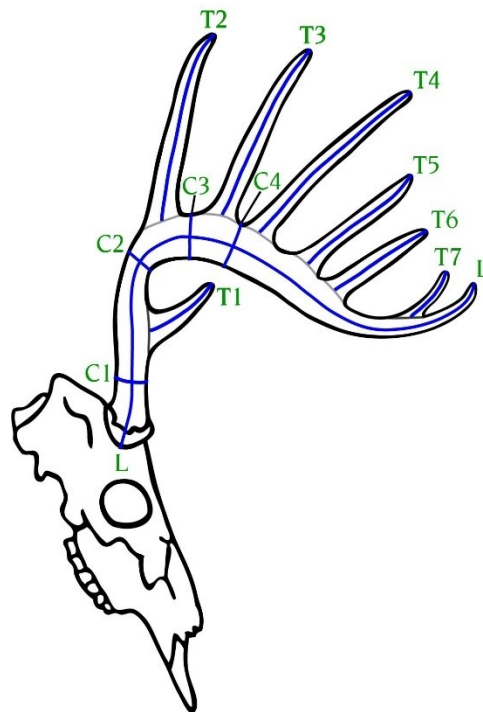


Figure 1

2. Main beam. A cable is the best tool for measuring the main beam. Measure the main beam on the center of the outside curve from the lowest edge of the burr to the tip. (Figure 1, L) The main beam is the part of the antler that curves forward, is closest to the skull, and in most cases curves inward at the tips. Before starting, mark the center points along the beam to the tip with a pencil; the center points are halfway between the baselines of the tines and the bottom of the beam. The cable must not be pressed into the groove above the burr. Stay on the outside center of the main beam at all times; see GDI.

3. Typical Tines. All typical tines must come off the main beam, grow straight upward from the center of the main beam, and must not “cluster” at the base. This means that in the U-shaped valley between two tines, there cannot grow another typical tine even if that tine grows straight upward. All typical tines must have a corresponding typical tine on the opposite main beam in roughly the same position and approximately the same length. All typical tines must be evenly spaced along the main beams and have approximately the same spacing on the opposite side. The eye guard or brow tine is a typical tine. It is very rare for there to be more than seven typical points per side including the eye guard; however, a few rare cases of 8 x 8 whitetails have been documented.

Measure from the top of a tine to the center baseline as delineated. You may have drawn baselines on some tines that were just under 1 inch; do not record these. First, measure the length of the eye guard; if the eye guard is bifurcated, measure the longest tine. If there are more valid tines on/near an eye guard, these need to be measured as NT; see below. Measure the lengths of the T2, T3, and T4, and all other typical tines (Figures 1, 2, and 3.)

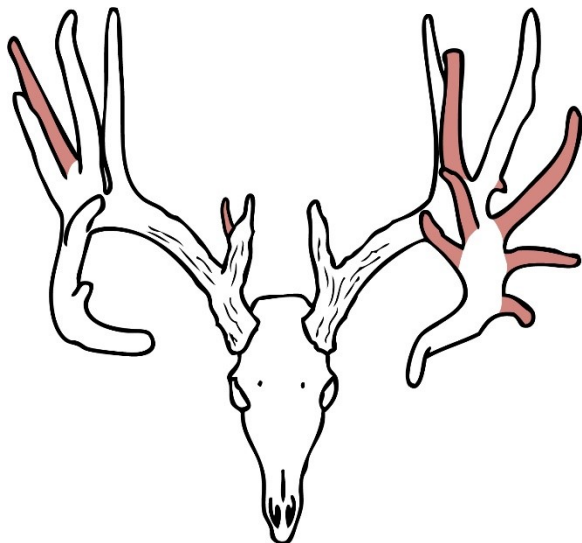


Figure 2

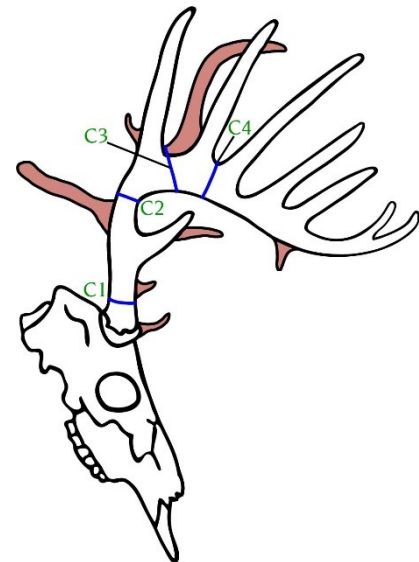


Figure 3

All shaded tines are NT.

4. Nontypical tines. The following are all NT tines: any tines off the burrs, any tines growing backward or downward from the main beam, any tines off another tine, any tines below the eye guard, any tines clustered around the eye guard, any tines not growing straight off the main beam (other than the brow tine), and any tine growing straight up from the main beam but not matched on the opposite beam. Measure the length of all NT tines of 1 inch or more, starting from the burr and working up (NT1, NT2, NT3,

etc. See Figure 4). These count toward a NT score if the animal falls in the NT category, or if the animal falls in the Typical category, they are published as supplemental information and are not deducted.

5. Circumference. Do not use a cable; a tape with a ring is preferred. All circumferences must be measured at the smallest place and must always be taken between two typical tines and not NT tines. If a typical tine is broken off or does not qualify as a valid tine because of its length or length/base-width ratio, the invalid tine must be used as though it is a valid tine to determine where to measure circumferences.

The C1 circumference falls between the burr and the first tine (T1). For the C2 circumference, measure the smallest place between the brow tine (T1) and T2. Next measure the smallest place between T2 and T3 on the main beam. Finally, for the C4, measure the smallest place along the main beam between T3 and T4. (Figures 1 and 3) In the cases where T1 (the brow tine) is missing, the C1 and C2 circumferences are taken in the same place.

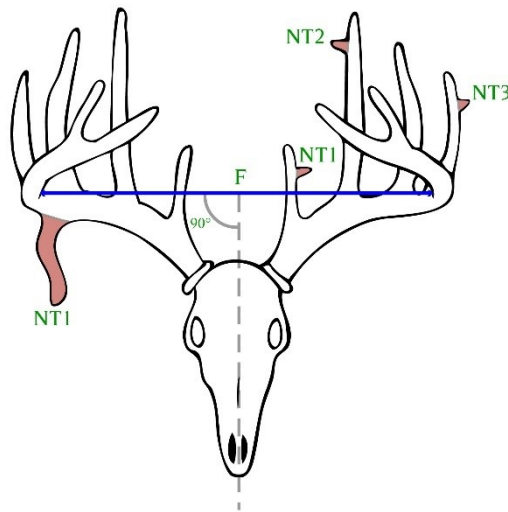


Figure 4

6. Span. Use only a carpenter’s folding ruler with an extension, not a cable and not a tape, to measure the span. The span can only be measured after the main beam has been identified. The span must be taken on the inside center of the main beam on the left to the inside center of the main beam on the right, not from the edges; the span is never taken off a tine. Hold the ruler exactly at a 90-degree angle to the centerline of the skull and parallel to an imaginary line drawn through the eye sockets. Some main beams do not line up when seen from the side, thus not allowing a measurement that is both at 90 degrees to the center line of the skull and parallel to an imaginary line drawn through the eye sockets. In such cases a rigid ruler must be placed along the inner edge of one main beam so that the measurement can be taken correctly. In rare cases there can be an injury or genetic anomaly in which a deer will have an excessive span; the span cannot be more than the length of the longest main beam plus 5%.

7. Count. Count tines only after you have measured their lengths to be sure you count only valid tines. For typical points, count the main beam tips plus valid typical tines. Your total number of typical points will always include the main beam tips. Separately, count all valid NT tines, which does not include the main beam tips.

Note: The NT tines are not added to the typical score but are not deducted, either. As long as the cumulative length of NT tines (D on Method Form) is less than 3% of the total typical score, the animal is eligible for the typical category. If 3% or more are NT tines the head automatically falls into the NT category.

Method 1-e Mule and Black-Tailed Deer

Ranked on the Sum of All Typical Tines, Main Beams, Circumferences, and Span. (Typical Mule/Black-Tailed Deer)

Ranked by Adding the Typical Score to the Length of All NT Tines. (NT Mule/Black-Tailed Deer)

General remarks: Mule deer, together with whitetails, are not only quintessential American deer but they also form a completely separate genus (*Odocoileinae*), making them one of five genera of New World deer found from Chile to Alaska. Mule deer are confined to the western side of the North American continent and are not found east of the Mississippi River. They occur in three countries: Canada, United States, and Mexico. They are one of a handful of deer that have only one configuration for a typical set of antlers (5x5 including eye guards).

After the whitetail, the mule deer is the most widely hunted deer in the Americas, and getting a large rack from a free-ranging population can take years of serious hunting with no success guaranteed. The populations along the Pacific Coast have noticeably smaller antler growth and have subspecific categories in RWRBG.

1. Identify tines. Start by drawing a baseline for all tines—T and NT—with a pencil (Figure 1), as explained in GDI, even if they appear to be slightly less than 1 inch. This is so you will not miss a potential valid point. All tines must be 1 inch or more and not be any wider along the baseline than they are long to be valid; see GDI. If a rack has many NT tines, we recommend that you mark all typical tines with red paper tape and all NT tines with blue tape. Remove these pieces of tape as you measure the head to make sure you do not overlook any tines nor measure any twice.

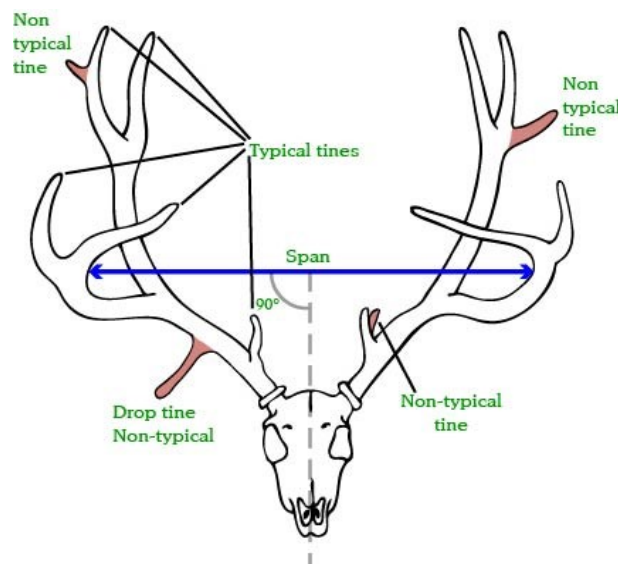


Figure 1

Showing a typical frame with five typical tines per side plus NT tines, which are shaded.

2. Main beam. A cable is the preferred tool for measuring the main beam. Measure the main beam antler on the center of the outside curve from the lowest edge of the burr to the tip. (Figure 2) The main beam antler is that part of the antler that curves forward, is closest to the skull, and in many cases curves inward toward the tip. Before starting, mark the center points along the beam to the tip with a pencil. The cable

must not be pressed into the groove above the burr. Stay on the outside center of the main beam at all times; see GDI.

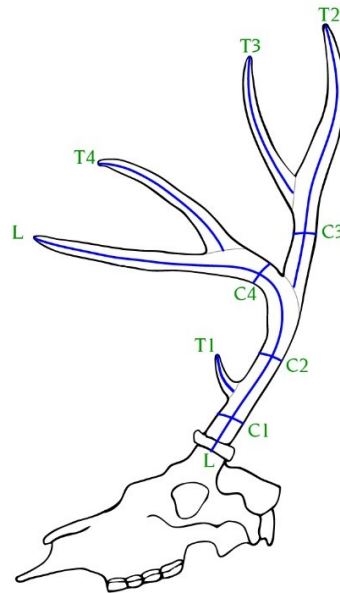


Figure 2

A typical configuration with five points per side. Note that the T2 tine branches off about halfway along the main beam and splits into two.

3. Typical Tines. A mule deer can only have four typical points per side, plus main beam tips. These include an eye guard above the burr (T1); the T2, which branches off the main beam; the T3, which branches off T2; and, finally, the T4, which branches off the main beam after the T2. (Figures 1 and 2) Any other tines are NT. All tines must be 1 inch or more and not be any wider along the baseline than they are long.

Start with the brow tine (T1) (the eye guard) and continue toward the tip. You may have drawn baselines on some tines that were just under 1 inch; do not record these. Measure from the top of the tine to the center baseline as delineated. If the eye guard is bifurcated, measure the longest tine. If there are more valid tines on/near an eye guard, these need to be measured as NT; see below. Measure the lengths of T2, T3, and T4.

4. Nontypical Tines. As stated above, if a rack has many NT tines, we recommend that you mark all typical tines with red paper tape and all NT tines with blue tape. Remove these pieces of tape as you measure the head to make sure you do not overlook any tines nor measure any twice. The following are all NT tines: any tines off the burrs, any tines growing backward or downward from the main beam, any tines growing off another tine (excepting T3), any tines below the eye guard, and any tines clustered around the eye guard.

Measure the length all NT tines of 1 inch or more on their longest side, starting from the burr and working up. (Figure 1, NT1, NT2, NT3, etc.) These count toward a NT score if the animal falls in the NT category; if the animal falls in the typical category, they are published as supplemental information and are not deducted.

5. Circumference. Do not use a cable; use a tape with a ring. Measure the smallest circumference between the burr and T1, the brow tine. (Figure 2, C1). For the C2 circumference, measure the smallest place after the brow tine but before T4 branches off. Next measure the smallest circumference on the T4 between the main beam and where the T3 branches off. Finally, C4 is measured at the smallest place along the main beam between the T2 and T4. All circumferences must be taken between typical tines and not between NT

tines. If T1 is missing, the C1 and C2 circumferences are taken on the same place. (Figure 4) If any other typical tine is visible but not valid because it is less than one inch, the circumference measurements should be taken as though it is a valid tine. If T2 is missing, the C4 circumference is taken halfway between the main beam tip and the center of the main beam where the T4 branches off. (Figure 4) If the T3 is missing, measure T4 from the top to the baseline, divide in half, and take the circumference at the halfway point; see GDI.

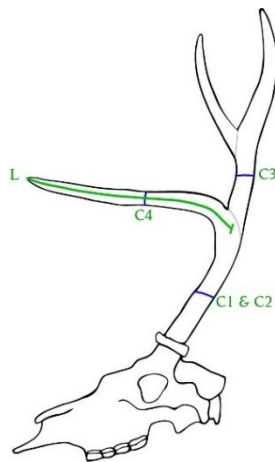


Figure 4

The eye guard and T4 are missing, so C1 and C2 are taken in the same place, and C4 is taken halfway between the tip and where the T4 branches off.

6. Span. Use only a carpenter's folding ruler with extension, not a cable nor a tape, to measure the span. The span can only be measured after the main beam has been identified. The span must be taken from the inside center of the main beam on the left to the inside center of the main beam on the right, not from the edges; the span is never taken off a tine. Hold the ruler exactly at a 90-degree angle to the centerline of the skull and parallel to an imaginary line drawn through the eye sockets. Some main beams do not line up when seen from the side, thus not allowing a measurement that is both at 90-degrees to the centerline of the skull and parallel to an imaginary line drawn through the eye sockets. In such cases, a rigid ruler must be placed along the inner edge of one main beam so that the measurement can be made correctly. In rare cases, a deer can have an excessive span. Note: The span cannot be more than the length of the longest main beam plus 5%.

7. Count. Only count tines after you have measured their lengths to be sure you count only valid tines. For typical points, count the main beam tips plus valid typical tines. The total number of typical points will always include the main beam tips. Separately, count all valid NT tines, which do not include the main beam tips.

Note. The typical score (C on Method Form) is determined by the sum of all typical tines, main beams, circumferences, and span; the NT tines are not added to the typical score but are not deducted, either. As long as the cumulative length of NT tines (D on Method Form) is less than 3% of the total typical score the animal is eligible for the typical category. If 3% or more are NT tines the head automatically falls into the NT category.

For NT mule deer and blacktail, take the typical score on the method form (C) and add to it the length of all NT tines (D) for the total score.

Method 1-f Deer with 3x3 or 4x4 Frames. Includes Axis or Chital, Bawean, Calamian, Hog, Manchurian Roe, Pampas, Rusa, Sambar, Siberian Roe, Sika, and Visayan.

Ranked on the Sum of All Typical Tines, Main Beams, Circumferences, and Spread.

Note, the following deer have a separate subsection after general remarks and instructions: (a) Axis; (b) hog, bawean, calamian ; (c) Siberian and Chinese roe ; (d) rusa ; (e) sambar; (f) sika; (g) Visayan and (h) pampas. Do not measure these animals without reading their specific instructions.

General remarks: This group of deer has a number of characteristics in common: They all originally are from the Eurasian continent, save one (pampas), and they all have 3x3 or 4x4 configurations when sporting typical antlers. The sambar, sika, axis, and hog deer have been widely introduced throughout the world.

Because the main beam is often hard to identify accurately for these deer, RW takes the greatest spread as well as the span as supplemental information that is not added to the total score. Below are images and descriptions of the typical configuration for each deer species. The configuration description for each species is done to identify typical and NT tines. NT tines must be measured and are published as supplemental data in the tables of RWRBG but do not count toward the score. The exceptions are Siberian and Manchurian roe deer, which have NT tables. NT tines must also identified in order to only measure the greatest spread on the main beam or typical tines.

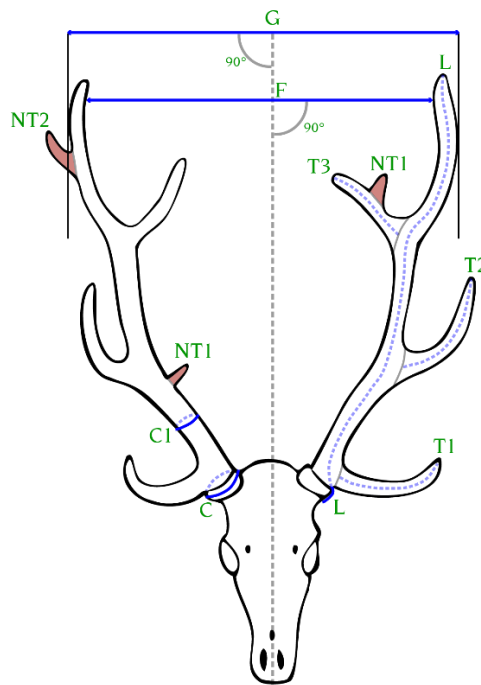


Figure 1 (Sika deer)

Figure 1 shows all elements that are measured for the deer that fall under Method 1-f. (1) Main beam (L). (2) Length all typical tines, T1, T2, and T3. (3) Circumferences of burr (C) and main beam (C1). (4) Spread (G), which is taken from typical antler to typical antler only, note that NT2 is excluded from the spread measurement. Then there is (5) span (F) taken on the inside of the main beams and, finally, (6) Length of all NT tines, NT1 and NT2 on right side and NT1 on left side.

1. Identify tines. Start by drawing a baseline for all tines, T and NT, with a pencil (Figure 1), as explained in GDI. Do this even if they appear to be slightly less than 1 inch so as to not miss a potential valid point. All tines must be 1 inch or more and not be any wider along the baseline than they are long to be valid.

2. Main beam. See descriptions above for what constitutes the main beam for the various species. A cable is the preferred tool for measuring the main beam. Measure the main beam antler on the center of the outside curve from the lowest edge of the burr to the tip. Before starting, mark the center points along the beam to the tip with a pencil. The cable must not be pressed into the groove above the burr. Stay on the outside center of the main beam at all times; see GDI.

3. Typical tines. Measure all valid typical tines. Because some species in this method have brow tines that start right above the burr and others have brow tines that emanate from the main beam well above the burr, attention must be paid to how to measure the brow tine. In the case of Siberian and Manchurian roe deer and pampas deer, the brow tine nearly always starts well above the burr. When this occurs, the brow tine is measured like any other tine. If the brown tine comes off the burr it should be measured as explained in GDI, no 15.

If the brow tine starts immediately above the burr, draw a baseline with the help of a cable or tape—see GDI No 15—on the outside of the rack along the main beam axis starting at the burr and ending above the brow tine. (Figure 9, T1) Start the measurement at the top of the tine, and where the antler curves gradually allow the tape to come to the outside center of the tine; proceed to the center point of the baseline. Measure all other typical tines of 1 inch or more on their longest side (normally the outside curve) from the top to the center of the baseline on the main beam; keep the tape tight on the center of the antler. All deer for this method have three typical points per side, with the exception of a sika, which can have a 4x4 as a typical frame. Only typical tines that are found on a 3x3, 3x4, 4x3, or 4x4 frame for this species may be measured. See above what constitutes typical tines on a species-by-species basis.

4. Nontypical Tines. Measure the length of all nontypical tines of 1 inch or more. Measure from the tine end to the baseline. (Figures 1, 2, and 8: NT1, NT2, NT3, etc.) Nontypical tines do not count toward the total score and are not deducted but are shown as supplemental information. The exception is the Manchurian and Siberian roe; see below.

5. Circumference. Use a steel tape, not a cable, and maintain a tight tape in a continuous loop. For the burr (C), go over the top of normal (less than $\frac{2}{8}$ -inch or 6mm) protrusions or pearling. Do not press the tape into indentations. Projections growing from the burr that are $\frac{2}{8}$ inch or 6mm long or longer must not be included in the measurement; see GDI. For the circumference of the main beam, measure the smallest place between the brow (T1) and the next (T2) typical tine. (C1 on figures 1 through 12) Keep the tape tight around the antler and go up and down the axis of the main beam till you find the smallest place.

6. Count. Count only valid tines; see GDI. For typical points count the main beam tips plus valid typical tines. The total number of typical points will always include the main beam tips. Separately, count all valid NT tines, which do not include the main beam tips.

7. Span. (This is a supplemental measurement but required.) Use only a carpenter's folding ruler with an extension to measure the span; do not use a cable or a tape. The span can only be measured after the main beam has been identified. The span must be taken on the inside center of the main beam from the left to the inside of center of the main beam on the right, not from the edges; the span is never taken off a tine. Hold the ruler exactly at a 90-degree angle to the centerline of the skull and parallel to an imaginary line

drawn through the eye sockets. Some main beams do not line up when seen from the side, thus not allowing a measurement that is both at 90 degrees to the centerline of the skull and parallel to an imaginary line drawn through the eye sockets. In such cases, a rigid ruler must be placed along the inner edge of one main beam so that the measurement can be made correctly. *See below for specific instructions on how to identify the main beam on each deer species.*

8. Spread. *(This is a supplemental measurement but required.)* Only typical tines or beam points may be used to measure the spread. To measure the spread, one can either use a carpenter's folding ruler or a combination of a tape and carpenter's triangles. With a folding ruler, take a measurement from the farthest tine or main beam on the left side to the farthest tine or main beam on the right side and measure at an exact 90-degree angle to the centerline of the skull. With a tape, lay the rack on a smooth and level floor and then place two large carpenter's triangles (an L-shaped device made of hard plastic or metal that can stand up straight) on both ends of the farthest sideways extension of the antlers. If the rack has uneven main beams, shim the antlers up with pieces of wood so that the skull does not cant to either the left or the right when viewed from straight in front. Under Method 1-f, do not measure any NT tines that protrude on the outside of a rack because that would increase the spread value. (Figure 8: G.) When a NT tine is found on the outside of a rack (Figure 1, NT 2) even if this NT tine is not a valid tine, a base line must be drawn (see GDI) and the spread measurement must be taken from this line as though the tine were not there.

9. Weight/Cut. Siberian and Manchurian roe deer only. (Supplemental) The following are not required but will be published if provided. Weigh the cleaned and boiled skull and antlers. Record the weight of the antlers and skull after they have been completely cleaned and dried. This should happen no sooner than one week after the skull was boiled and cleaned and has dried in natural circumstances. Note on the comment section of the Method Form if the skull is uncut, has been cut through the center of the eye socket, or is a skull cap cut. Weigh to the nearest ounce (25 metric grams).

Note. The score is determined by the sum of all typical tines, main beams and circumferences. The NT tines are listed as additional information; they are neither added to nor deducted from the score. **The following only applies to Siberian and Manchurian roe deer:** Measure the length all nontypical tines of 1 inch or more. Measure from the tine point to the baseline. (Figure 5: NT1, NT2, NT3) If the NT tines are 3% or more of the typical score, the trophy falls in the NT category and must meet the NT minimum in order to qualify for RWRBG.

Specific instructions for sub-categories

The deer under this method are divided into sub-categories. The following are notes on how to measure each one of them.

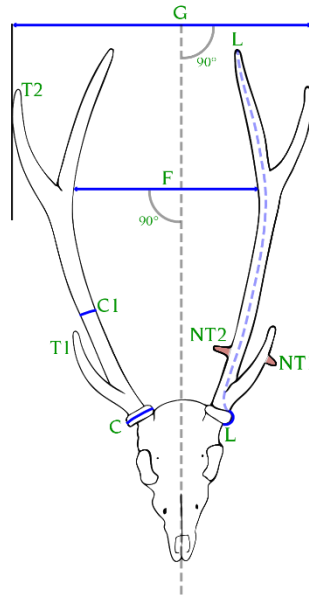


Figure 2 Axis deer

The main beams on axis deer are normally the highest-extending antler points. There is a prominent brow tine on each antler that starts immediately above the burr and points forward, then curves upward. Each antler also has a rearward-facing tine about halfway up the main beam. Only 3x3 racks as described above are typical; all other tines are NT. Free-ranging populations occasionally have NT tines on the brow tines and off the main beam rearward. (Figure 2)

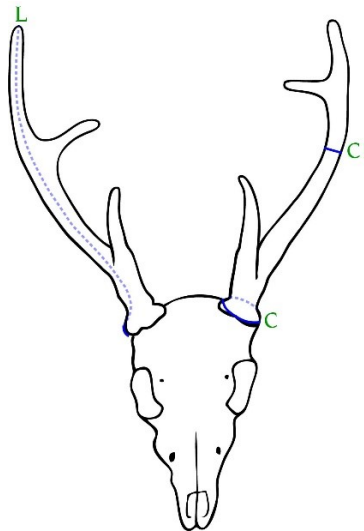


Figure 3 Hog and closely related deer

Bawean, Calamian, and Hog. These closely related deer are grouped because their antler configurations are identical. Normally the main beams on hog deer extend more or less straight from the burr, with the points directed upward and slightly inward. The brow tine starts slightly above the burr and grows forward and upward, and the rear tine on the upper half of the main beam points backward. (Figure 3) Only 3x3 racks as described above are typical; all other tines are NT. Free-ranging populations infrequently have NT tines. RW considers the two highest points the main beams.

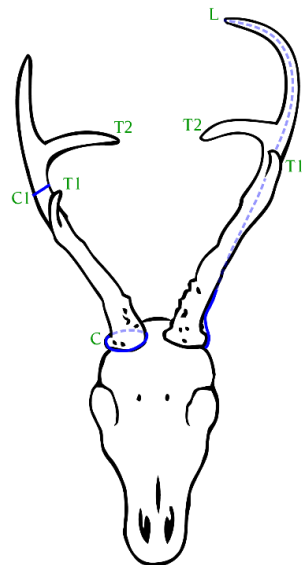


Figure 4

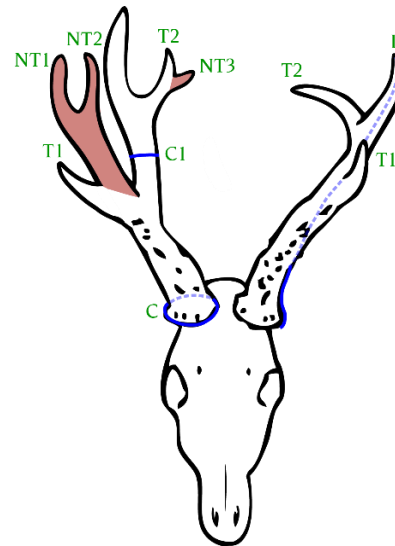


Figure 5

Asian Roe Deer (Manchurian and Siberian shown above)

The main beam on Siberian and Manchurian roe deer is virtually always that part of the antler that grows the highest; there is a brow tine coming forward about halfway up the main beam and another tine going rearward in the upper half of the main beam. All Asian roe deer are considered typical with a 3x3 frame as described above. Figure 4 shows a classic, typical configuration. All other tines are NT. Figure 5 shows three NT tines on the right (NT1, NT2, and NT3). Especially among Siberian roe deer, NT tines are prevalent. The Siberian and Manchurian roe deer are the only deer under this method that have NT categories in RWRBG.

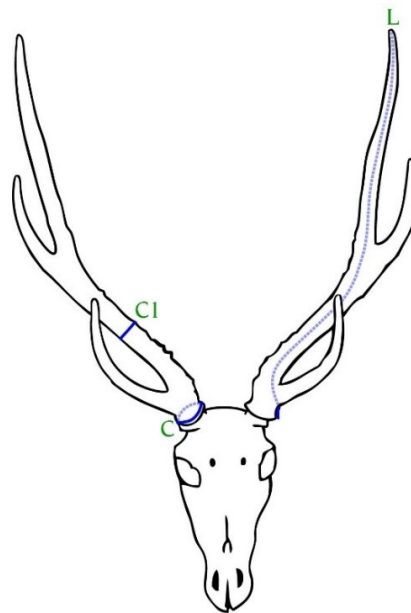


Figure 6 Rusa deer

All typical Rusa deer are 3x3 and NT tines are rare in the wild. The main beams are the two innermost points, which are almost always the highest reaching; in rare cases the outer points can reach as high as the innermost but the main beams are the two inner most points. Other typical tines are a brow tine on each antler coming off the main beam right above the burr, and a tine coming off the main beam going forward and outward. Only 3x3 racks as described above are typical; all other tines are NT.

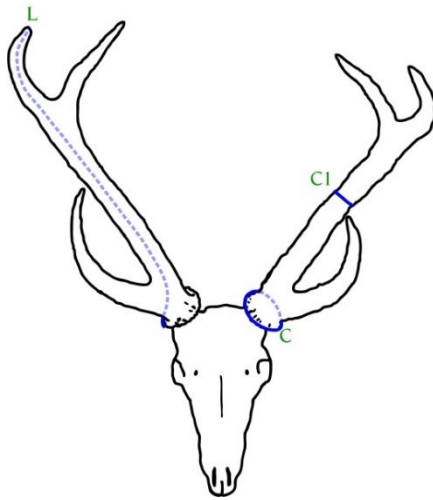


Figure 7 Sambar deer

Sambar deer have three points per side, and it is rare for wild, native populations, to produce NT tines. The main beams on a sambar can be very hard to determine; they are normally those antlers that point outward the most and are often, but certainly not always, the highest-reaching on the rack. RW considers the two most outside typical points the main beams. Other typical tines are a brow tine coming off the main beam right above the burr, and one tine coming off the main beam on the upper third of the beam, which normally points backward and inward. Only 3x3 racks as described are typical; all other tines are NT.

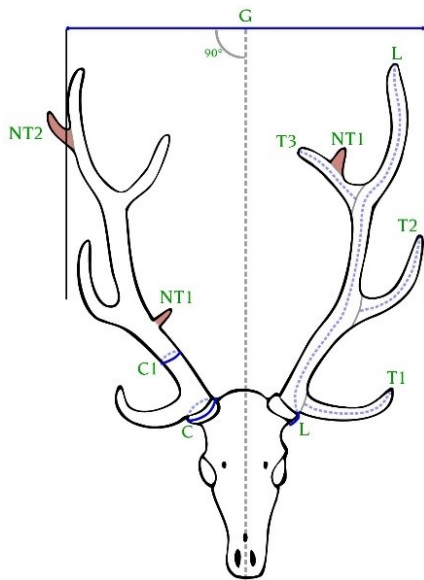


Figure 8

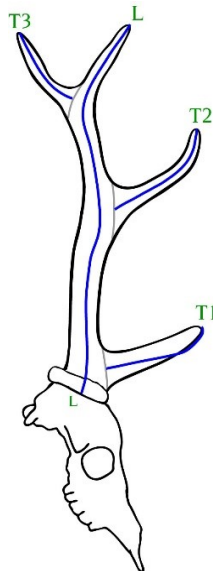


Figure 9

Sika deer

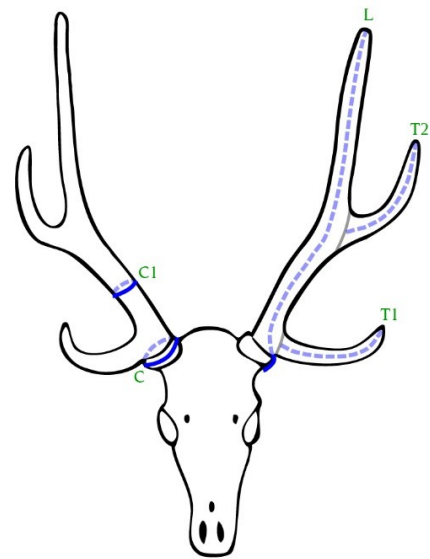


Figure 10

Sika deer are the only deer in this method that can have two typical configurations. The smaller subspecies, such as the Japanese sika, normally has only three typical points per side. (Figure 10) The main beam is normally the highest point on a rack, and it goes fairly straight up. There is a brow tine right above the burr and on the top third of the main beam, there is one tine pointing sideways/backward; this tine will, in rare cases, surpass the height of main beam tip. The 4x4 configuration in sikas occurs in the larger subspecies such as the Manchurian or Dybowski's sika and the northern Japanese sika. (Figures 8 and 9) They can have

an additional set of prominent tines curving forward from the main beams about halfway to 2/3 up the main beam. With a 4x4 configuration it is sometimes possible to have the two top tines grow forward. RW considers the two most outside and highest typical points the main beams. Only tines on 3x3, 3x4, 4x3 and 4x4 racks as described above are typical; all other tines are NT. (Figures 8, 9 and 10)

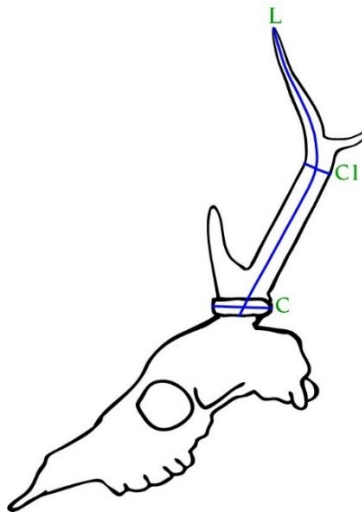


Figure 11 Visayan deer

The Visayan deer is one of the least known deer on Earth. Historically they had 3x3 frames much like a hog deer's, but the population in the wild is now so small that science has to rely on zoo specimens for indications of antler configurations. Captive specimens frequently have 2x2 frames in typical configuration. The main beam on the Visayan deer is the antler that extends highest from the burr with the beam directing approximately upward and inward. The brow tine is right above the burr and tends to angle upward and the rear tine points backward on the upper half of the main beam. Specimens with no rearward tines are common. RW considers the two highest points the main beams. Little is known about NT configurations; RW only treats 3x3 and 2x2 racks as described above as typical; all other tines are NT.

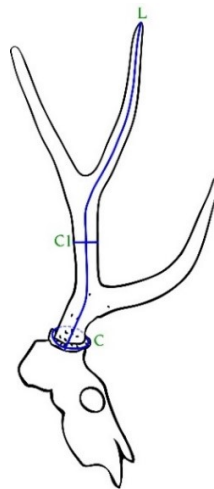


Figure 12 Pampas deer

The pampas deer is a South American deer that is found mainly on the eastern side of the continent. In general, they have 3x3 frames, but NT tines are not unknown. The brow tine starts well above the burr. The main beam is the middle part of the antler and almost always the highest points on the rack. Finally, there is a tine that branches off the main beam to the rear about halfway up the main beam. Only 3x3 racks, as described above, are typical; all other tines are NT.

Method 1-g European Roe Deer

Ranked on the Total Score of Circumferences, Main Beams, and Typical Tine Lengths for Typical Roe Deer.

Ranked on the Total Lengths of Typical and Nontypical Tines for Nontypical Roe Deer.

General remarks: Together with the white-tailed deer of the Americas, the roe deer is the most hunted deer species in the world. The population is estimated at 10 million. The European variety ranges from Portugal to the southern shores of the Caspian Sea and from northern Finland to Sicily. It is a much-beloved game animal that yields excellent meat; a large trophy is admired among European hunters. The Asian roe, a larger variety that lives in Central Asia, is measured under Method 1-f. Around 1870, European roe were introduced in Ireland, but they are no longer present there. A mature typical roe buck sports a 3 x 3 set of antlers with a very distinct configuration. Many of the largest heads have nontypical points and fused burrs, and in some of these a typical configuration is unrecognizable. (Figure 1) RW maintains two categories for European roe deer: typical and NT. Unlike most other deer species, European roe are measured to the nearest $\frac{1}{16}$ of an inch (1.3 mm) and any tine of $\frac{8}{16}$ inch or longer that is not wider than $\frac{8}{16}$ at the base is a valid tine.

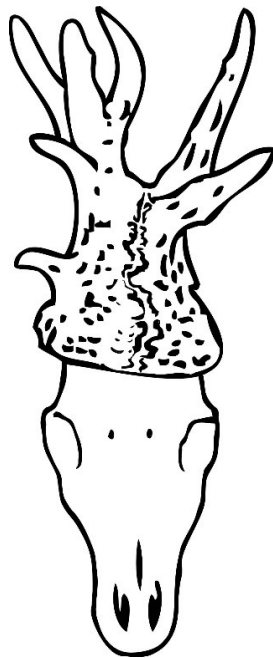


Figure 1

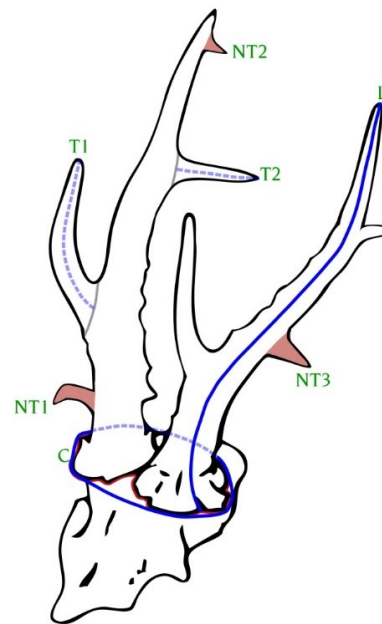


Figure 2

Figure 1 shows a non-typical head with completely fused burrs and lower sections of the main beams.

Figure 2 has a typical configuration with three additional NT tines.

1. Identifying Tines. For European roe deer, a valid tine is $\frac{8}{16}$ inch (1.3 cm) or more in length with a base no wider than its length. Start by drawing a baseline for all tines, T and NT, with a pencil (Figure 2), as explained in GDI, even if they appear to be slightly less than $\frac{8}{16}$ inch. This is so you will not miss a potential valid point. To be valid, all tines must be $\frac{8}{16}$ inch or more and not be any wider along the baseline than they are long; see GDI.

2. Main beam. Measure on the center of the outside curve from the lowest edge of the burr to the tip. For heads with pearling, a cable and not a tape must be used because it will lie closer to the main beam; pearling makes measuring with a tape harder. (Figure 2, L) The tape must not be pressed into the groove above the burr. As a general rule, the main beam is nearly always the longest antler growth. See NT tines, below, on how to identify the main beam on severe NT-antler configurations.

3. Typical tines. Measure the two typical tines on each side, which must be at least $\frac{8}{16}$ inch (1.3 cm) long. (Figure 2, T1 and T2) Measure on the longest side from the top of the tine to the baseline on the main beam. The typical roe deer configuration is a 3 x 3, with a main beam tip that goes straight up, a brow tine that points forward/upward about half to $\frac{2}{3}$ of the way up the front of the main beam, and a rear tine that points backward and emanates from the main beam in the upper third on the rear side. (Figure 3) This is the classic, typical European roe deer configuration. All other tines are NT. Figure 2 has a clearly identifiable typical frame, but in addition has three NT tines (NT1, NT2, and NT3). The direction and position of typical tines is critical: The brow tines grow forward and/or upward from about the middle of the main beam or higher. The rear tines grow straight backward.

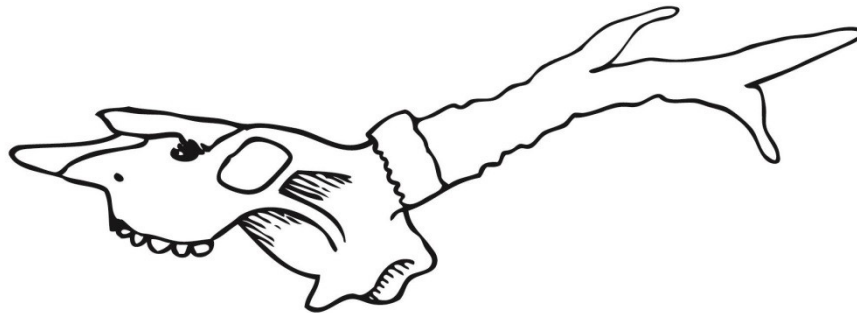


Figure 3

Classic 3x3 configuration for European roe deer.

4. Nontypical tines. Measure all NT tines, which must be at least $\frac{8}{16}$ inch (1.3 cm) long or more and no wider at the base than they are long. (Figure 2, NT1 and NT2) All tines that do not grow forward or backward are NT, and all tines that grow significantly higher or lower on the main beam than normal are NT. By definition, any tines beyond 2 per side are NT, and any tines off the burrs are NT. Some roe heads have so much mass that their lower main beams fuse and tines can become massive and not very long. (Figure 1) This can make it hard to determine the main beam; if all tines are measured correctly, there will be no difference in total score as there is no span measurement for European roe deer. However, the correct procedure on profound non-typical heads is to measure the longest antler from the burr as the main beam. For typical roe heads, non-typical tines do not count toward the score; however, the non-typical tines must be recorded; they are not deducted from the typical score.

6. Circumference. Because many large European roe deer have significant pearling immediately above the burr up to the first tine, which hinders measurements, RW does not take a circumference measurement of the main beam, only a burr measurement. Measure the circumference of both burrs in one measurement. (Figures 2 and 4) Do not measure any extra tines or growths emanating from the burrs. Bridge the tape from one burr to the next; do not press the tape into the space between the burrs.

We have found that a homemade U-shaped template cut from hard but flexible plastic, like a ring binder divider, really helps. Cut it with a slot of about 1 inch wide and make it 8 inches long. (Figure 5) Insert it under the burrs along the pedicles. Now the tape can be looped around both burrs and does not jump over

or under the burrs as easily. (Figures 2 and 4) Tines/antler growth that are over $\frac{4}{16}$ inch or 6mm coming off the burr cannot be added to the burr circumference measurement. Should you encounter a tine or protrusion, first take a measurement with calipers from one side of the base of the tine to the other and mark both with a pencil. Note the width of the calipers and then measure the burr with a steel tape from one mark to the other. Add the two values together for the burr circumference. (Figure 4)

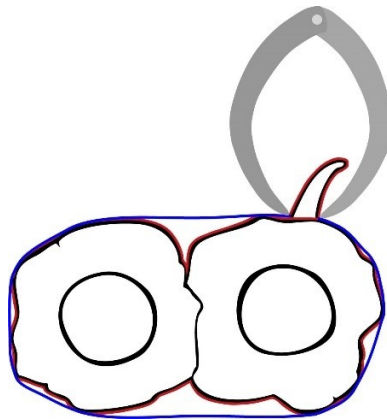


Figure 4

For European roe deer, both burrs are measured at once in an oval, even if the two burrs are not fused. Do not measure any tines on the burr. Note the red line: It follows the contour of the burrs and goes around a tine. This is wrong. See the blue line, which spans over the gaps on the burr and does not take the tine into account. This is correct way to measure the burr.

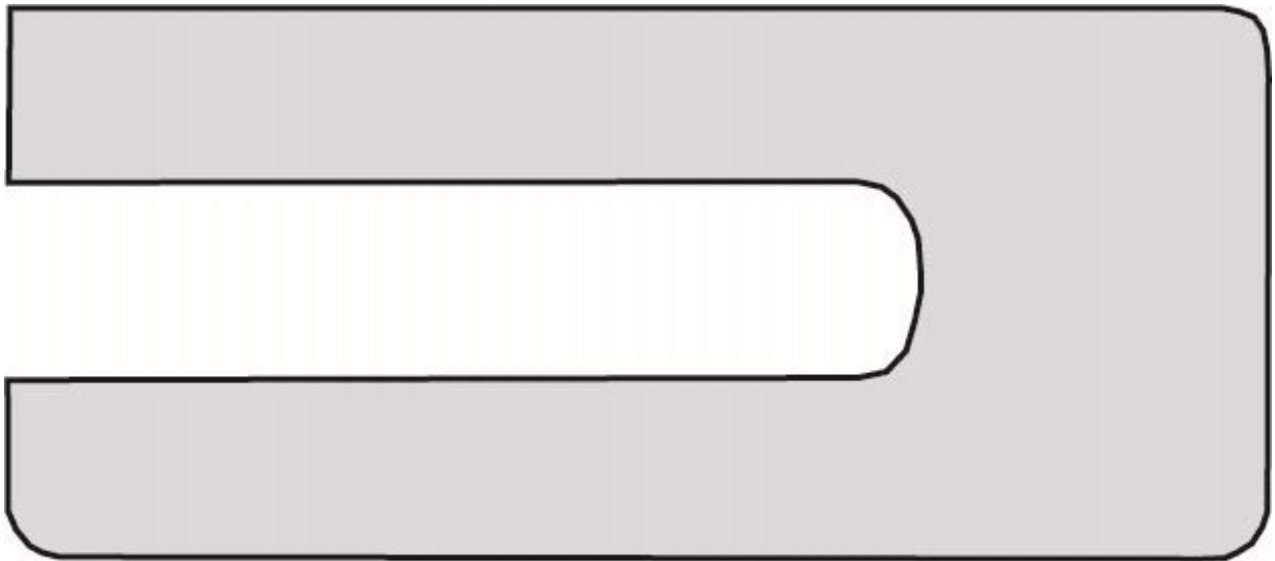


Figure 5

7. Count. Count only valid tines. For typical points, count the main beam tips plus all valid typical tines. The total number of typical points will always include the main beam tips. Separately, count all valid NT tines, which do not include the main beam tips.

8. Weight/Cut. The following is not required but will be published if provided. Weigh the cleaned and boiled skull and antlers. Record the weight of the antlers and skull after they have been completely cleaned

and dried. This should happen no sooner than one week after the skull was boiled and cleaned and has dried in natural circumstances. Note on the comment section of the Method Form if the skull is uncut, has been cut through the center of the eye socket, or is a skull cap cut. Weigh to the nearest ounce (25 metric grams).

9. CIC Points. (Supplemental) RW accepts CIC measurements in a partnership with the Hungarian-based conservation organization for European roe deer (no other roe deer). In order to get the trophy entered in RWRBG, it must be measured by an official CIC measurer of good standing. CIC-entered trophies will be listed in its own tables. Animals entered under the CIC system may also be entered under the Rowland Ward system if a second entry fee is paid.

Note. To measure a European roe deer, take the circumference of the two burrs, multiply by 2, and place in A on Method Form 1-g. Subtotal the left and right for the main beams and typical tines lengths, add, and place the total in B. Add together A + B and enter in C; this is the score for a typical roe deer. Subtotal the left and right NT tines, add them, and place in D. If the total of the nontypical tines (D) is 3% or more of the total typical tines (C), the trophy will have to meet the NT minimum score for European roe deer to qualify for RWRBG. For the score of a NT roe deer, add the sums of the typical and nontypical tines, C + D, and place in E.

Method 1-h Deer without Crowning: Barasingha/Swamp, Eld's, Huemul, Marsh, Schomburgk's, Taruca, and White-Lipped Deer

Ranked on the Sum of All Typical Tines, Main Beams, Circumferences, and Span. There Are No NT Tines.

General remarks. This is a very varied group of deer that hail from Asia and South America; however, they have several things in common. For one, none forms a crown. For another, their antlers are relatively simple compared to the most complex antler structures in the deer world. Finally, unlike the 3x3 and 4x4 configurations of Method 1-f, the total number of tines is not consistent. It is true that huemul/taruca often have 2x2 frames and that the white-lipped deer frequently sports a 5x5 frame, but significant numbers of the population have different configurations when mature. The span is measured for these deer, not the spread.

1. Identify and measure tines. Because some deer in this method have brow tines that start right above the burr and others have brow tines that emanate from the main beam well above the burr, attention must be paid to how to measure the brow tine. In the case of marsh deer and white-lipped deer, the brow tine may start well above the burr. When this occurs, the brow tine is measured like any other tine. If the brow tine starts immediately above the burr, draw a baseline with the help of a cable or tape—see GDI—on the outside of the rack along the main beam axis, starting at the burr and ending above the brow tine. (Figure 8, T1) Start the brow measurement at the top of the tine and where the antler curves gradually, allow the tape to come to the outside center of the tine and proceed to the center point of the baseline. After the brow tine, draw a baseline for all other tines with a pencil (Figure 2), even if they appear to be slightly less than 1 inch (so you will not miss a potential valid point). Next place the tape hook on the top of the tine, keeping the tape tight along the tine axis to the center of the baseline. Measure all tines after the brow tine on the longest side, which is normally the outside. (Figure 2, T1, T2, T3, etc.) There are no NT tines in this method.

2. Main beam. A cable is preferred for this measurement. The main beam is measured from the lower edge of the burr to the beam tip. (*Look at the drawings in this section to see what is considered the main beam on a species-by-species basis.*) Start on the center outside of the antlers. Do not press the cable/tape into the edge where the antler meets the burr. On more complex heads, first tape off all tines and lay out a line of measurement with a pencil on the outside center of the main beam.

3. Circumference. Use a steel tape, not a cable, and maintain a tight tape in a continuous loop. For the burr (C), go over the top of normal (less than $\frac{2}{8}$ inch or 6mm) protrusions or pearling. Do not press the tape into indentations. Projections growing from the burr that are $\frac{2}{8}$ inch or 6mm long or longer must not be included in the measurement; see GDI. For the circumference of the main beam, measure the smallest place between the brow and the next major tine. Keep the tape tight around the antler and go up and down the axis of the main beam till you find the smallest place. (Figures 1 and 2, C1). The T2 may be missing on huemuls or tarucas, and, if so, the C1 circumference is taken halfway between the main beam tip and the center of the main beam where the T1 branches off; see GD No 21. Locate the center of the baseline of the T1 tine—which was already drawn for measuring that tine—and extend this line across the main beam at a 90-degree angle to the main beam axis. Measure from this line along the centerline of the main beam to the main beam tip, and then divide by two.

4. Span. Use only a carpenter's folding ruler with an extension to measure the span; do not use a cable or a tape. The span can only be measured after the main beam has been identified. The span must be taken on the inside center of the main beam from the left to the inside of center of the main beam on the right, not from the edges; the span is never taken off a tine. Hold the ruler exactly at a 90-degree angle to the

centerline of the skull and parallel to an imaginary line drawn through the eye sockets. Some main beams do not line up when seen from the side, thus not allowing a measurement that is both at 90 degrees to the centerline of the skull and parallel to an imaginary line drawn through the eye sockets. In such cases, a rigid ruler must be placed along the inner edge of one main beam so that the measurement can be made correctly. In rare cases, a deer can have an excessive span; the span cannot be more than the length of the longest main beam plus 5%.

5. Spread. To measure the spread, one can either use a carpenter’s folding ruler or a combination of a tape and carpenter’s triangles. With a folding ruler, take a measurement from the farthest tine on the left side to the farthest tine on the right side and measure at an exact 90-degree angle to the centerline of the skull. With a tape, lay the rack on a smooth, level floor and then place two large carpenter’s triangles—an L-shaped device made of hard plastic or metal that can stand up straight—on both ends of the farthest sideways extension of the antlers. If the rack has uneven main beams, shim the antlers up with pieces of wood so that the skull does not cant to either the left or the right when viewed straight in front. Even though spread is not part of the score, measuring it is not an option; it must be done, for it allows recordkeeping to judge if the span was measured correctly.

6. Count. Count all valid tines plus main beam tips.

Note. The score is determined by the sum of all typical tines, main beams, circumferences, and span. There are no NT tines.

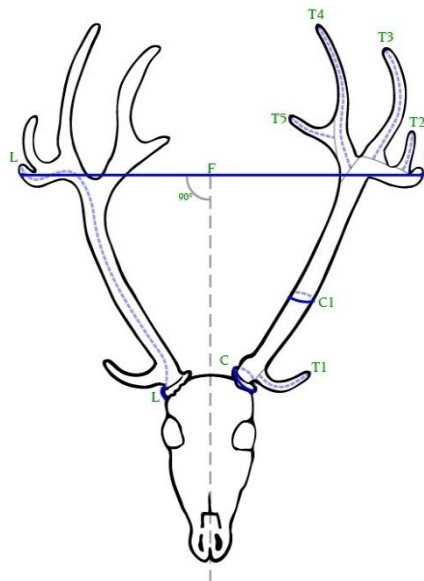


Figure 1

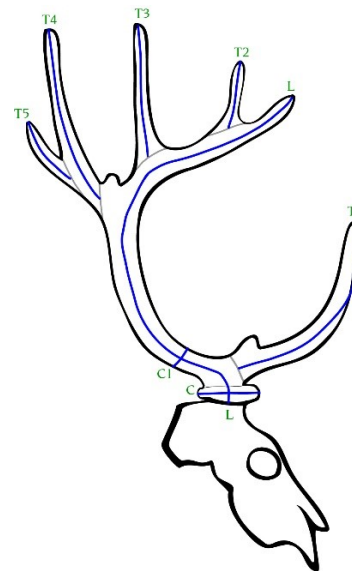


Figure 2

Figures 1 and 2 show all elements that need to be measured for the deer that fall under Method 1-h. (1) Main Beam (L). (2) Length of all tines, T1, T2, T3, T4, etc. Note that there are no NT tines under method 1-h. (3) Circumferences of burr (C) and main beam (C1). (4) Span (F), which is taken from the inside of the main beams.

Below are line drawings showing a regular configuration for each species with specific instructions on how to identify the main beam, which is needed to measure the span correctly. Under this method, all tines are measured, and there are no NT tines.

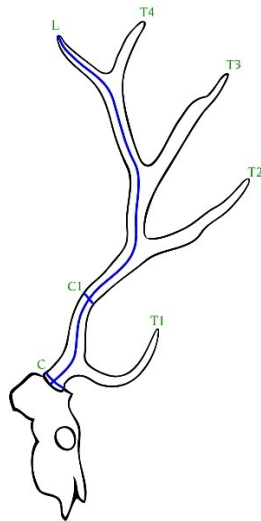


Figure 3 White-lipped deer

The main beam is that antler that points the farthest backward. Mature stags are most often 5x5, but 6x6 or even more are known. Crowning does not occur. The main beam is indicated by the blue line.

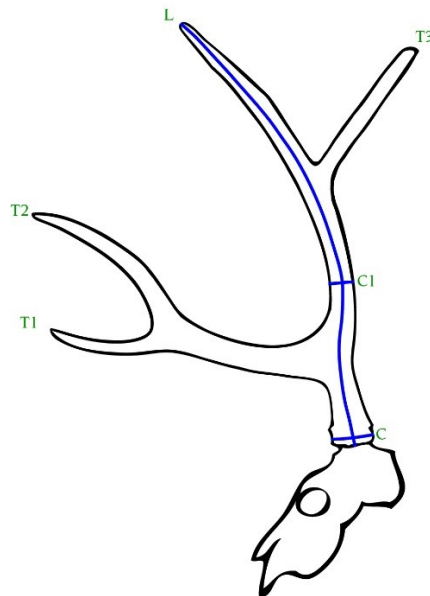


Figure 4 Marsh deer

After the burr, a major tine branches forward from the main beam; the main beam continues on the back section and is that part of the antler that projects highest. Most mature bucks feature a 4x4 or 5x5 rack, but heads of up to 7 or 8 points per side have been recorded. The main beam is indicated by the blue line.

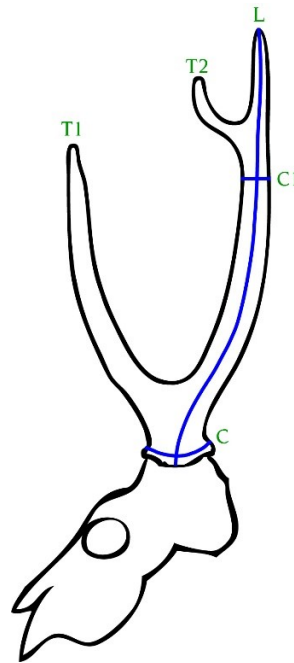


Figure 5 Huemul and Taruca

The main beam on these deer is the rearmost antler that points upward and reaches the farthest from the skull. Typical heads are 2x2 and 3x3. After the burr, a tine branches forward in a U-shaped manner with the front tine normally not as long as the rear main beam. Some heads have a third tine emanating from the top half of the main beam. The main beam is indicated by the blue line. Since 2x2 frames on these deer are not uncommon, the C1 measurement cannot be taken on the smallest place between the T1 and T2 if the T2 is absent. If missing, the C1 circumference is taken halfway between the main beam tip and the center of the main beam where the T1 branches off; see GDI.

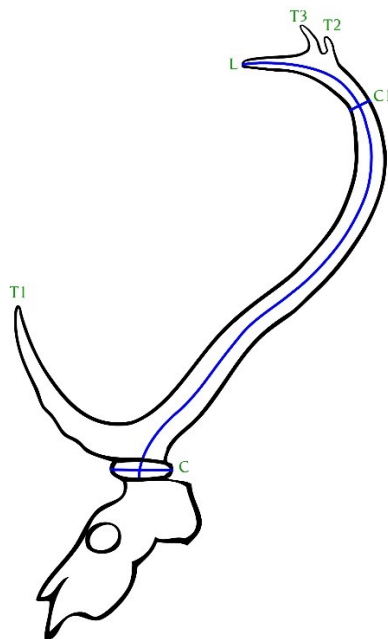


Figure 6 Eld's deer

After the brow tine, the main beam initially curves upward, backward, and then gradually forward to form a C-shape; the beam tip is the part of the antler that points the most forward but not the highest. The main beam is indicated by the blue line.

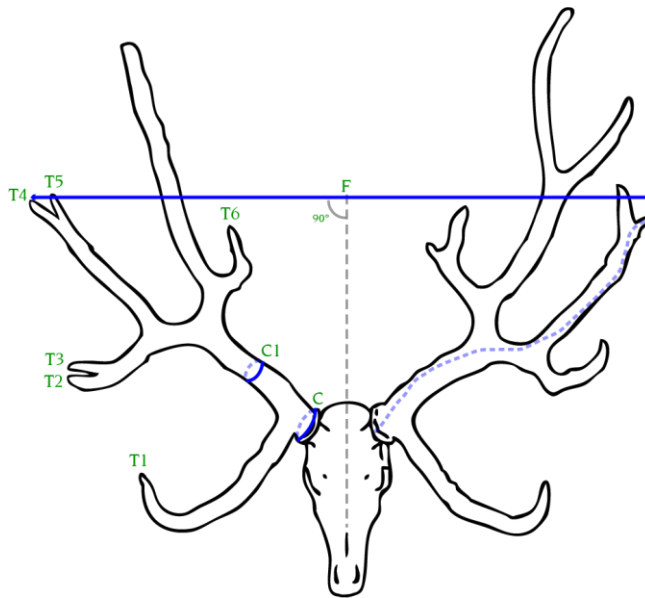


Figure 6 Schomburgk's deer

This interesting deer is now, sadly, thought to be extinct. In case you are asked to measure a museum specimen, we include instructions here. The left and right main beams end on the tines that create the widest span measurement. *This must be determined before measuring any tines.* Normally these are on the utmost left and right of the antler configuration. The span is nearly always taken on the inside of the main beam tips of this species. As the racks have a great many tines be sure to mark each time measured with a piece of tape to avoid duplication. Depicted above is an exceptional specimen. Known heads are from 5x5 up to 7x7 or more. The main beam is indicated by the blue dotted line.

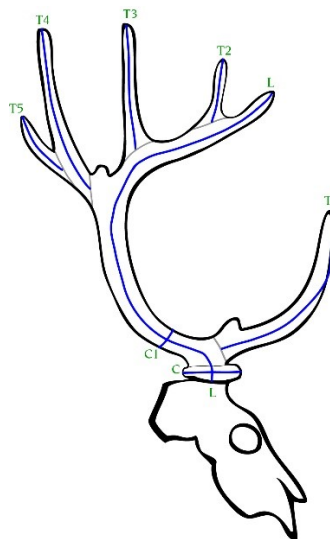


Figure 8 Barasingha or swamp deer

After the brow tines, the main beam initially curves backward and then gradually forward to form a C-shape; the beam tip is the part of the antler that points the highest and most forward. The main beam is indicated by the blue line.

Method 1-i Pere David Deer

Ranked on the Sum of the Lengths of the Main Beams, Three Longest Tines, the Number of Valid Tines, the Circumferences of the Burrs, and the Value of the Spread.

General remarks: The Pere David deer originated in China but was extirpated from its native habitat during the Boxer Rebellion (1899–1901). Fortunately, between 1894 and 1903, the Duke of Bedford gathered all live specimens in Europe, eighteen in total, to form a viable herd. From this nucleus, animals were transplanted throughout the world, and now they can again be found in their native China as well. The antler configuration of a PD deer seen from the front appears to be one of a Y turned partially sideways with the longer rear-arm going backward and the shorter front arm having a smaller Y stacked on top of it. Sometimes either side of the second Y has another set of even smaller Ys on top of (both) of its arms. Because of its very complex antlers, the PD deer has its own unique measurement method that allows it to be measured in the simplest way possible while still giving full credit for its many features. Because of the complex antler structure, it can be very hard to determine the main beam and, therefore, measure the inside span. For this reason, RW measures the outside spread of all PD deer so that there can be no confusion.

1. Identify and Measure the Main Beam. Because the main beam is hard to identify and, if done wrong, will confuse the measurement of the tines (see below), the main beam is measured first. The main beam starts at the burr and is the part of the antler that extends farthest upward after the first “Y” fork. As it goes upward, it tends to go forward most often. However, on some heads, the main beam can point inward and on other heads it will point outward. (Figures 1 and 2) When in doubt, measure the part of the antlers that is the highest and the most forward. Measure the main beam on the center of the outside curve from the lowest edge of the burr to the tip. (Figures 1 and 2, L) The tape must not be pressed into the groove above the burr.

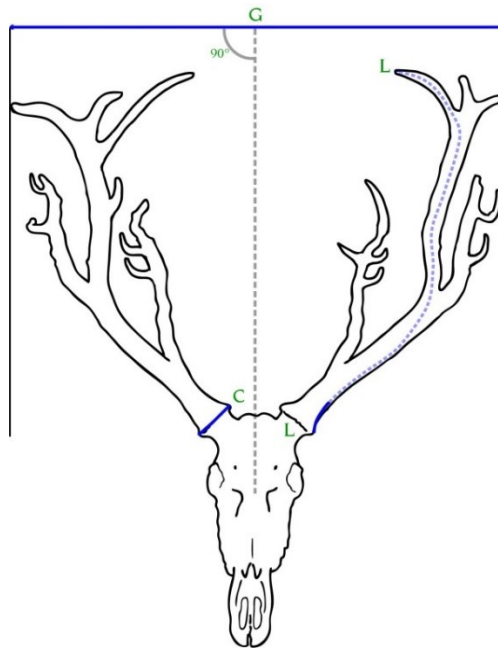


Figure 1

2. Tines. Measure the length of only the three longest tines besides the main beam. (Figure 2, T1, T2, and T3) Almost always, one of these three will be the tine that points rearward on the first “Y.” (Figure 2, T1) The second longest tine (Figure 2, T2) typically branches rearward from the main beam on the second “Y,” and the third longest tine normally occurs on the main beam above the second “Y” junction. (Figure 2, T3) Remember, configurations with this deer vary widely and the description above is generally true but not always. When measuring tines, do not include any part of the main beam antler. Measure each tine from the point to the baseline. Do not measure any other tines for length.

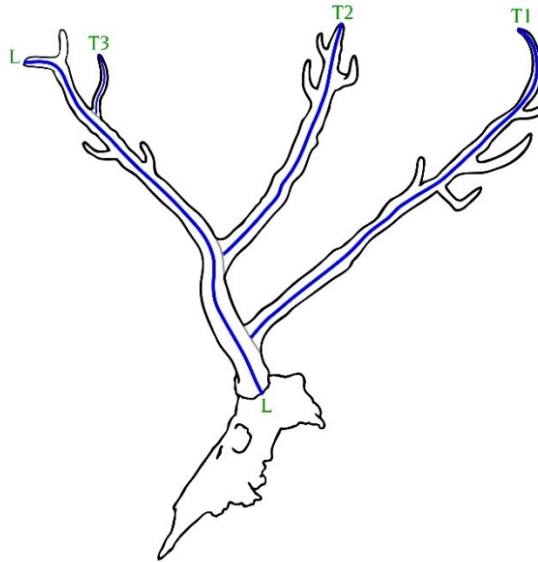


Figure 2

3. Count. Count the number of points of 1 inch (2.5 cm) or more in length. This includes all points, including the main beam tip and the three longest tines already measured above. Please remember that tines must be 1 inch or more and cannot be any wider along the baseline than they are long to be valid tines. Any tines that are not obviously over one inch and that have a base of less than one inch will need to be measured. This is to make sure that only valid tines are added to the count on the Method Form.

4. Circumference. Only the burr is measured under Method 1-i. Use a steel tape, not a cable, and maintain a tight tape in a continuous loop. For the burr, go over the top of normal (less than $\frac{2}{8}$ inch or 6mm) protrusions or pearling. Do not press the tape into indentations. Projections growing from the burr that are $\frac{2}{8}$ inch or 6mm long or longer must not be included in the measurement; see GDI.

5. Spread. To measure the spread, one can either use a carpenter’s folding ruler or a tape and carpenter’s triangles. With a folding ruler, take a measurement from the farthest tine on the left side to the farthest tine on the right side and measure at an exact 90-degree angle to the centerline of the skull. With a tape, lay the rack on a smooth, level surface and then place two large carpenter’s triangles on both ends of the farthest sideways extension of the antlers. If the rack is uneven, shim the antlers up with pieces of wood so that an imaginary line drawn through the center of the eye sockets is parallel to the level surface. Make sure that both triangles are exactly at a 90-degree angle to the center of the skull axis line. Mark with a pencil where the carpenter’s square touches the floor (both sides), push the antlers and triangles away, and measure the distance between the two marks.

Method 1-j Muntjac, Brocket, and Pudu

Ranked by Adding the Length of the Main Beams, Typical Tines, and Circumference of the Burr. Span and NT Tines are listed as additional information.

General remarks: These are among the smallest antlered deer in the world and carry relatively simple antlers. The muntjac, the only deer in this group with a typical configuration of 2x2, is found throughout the Indian subcontinent as far east as Borneo and the eastern Indonesian archipelago. One subspecies has been introduced in Europe. Brockets range from Mexico to Argentina and pudus are localized in the Andes, occurring intermittently from Colombia to Chile.

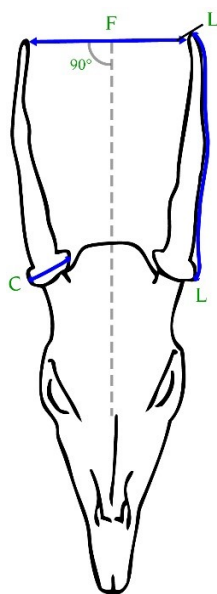


Figure 1 brocket

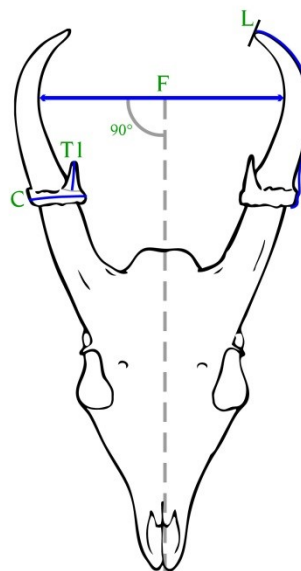


Figure 2 muntjac

Unlike most other deer species, muntjac, brocket, and pudu deer are measured to the nearest $\frac{1}{16}$ of an inch. Any tine of $\frac{8}{16}$ inch or longer that is not wider than $\frac{8}{16}$ inch (1.3 cm) at the base is a valid tine in this group. The muntjac is the only deer in this category with any typical tines besides the main beam.

1. Identify typical tines. The typical muntjac has a 2x2 frame with a brow tine and a main beam; all the other deer in this category have a 1x1 frame. Nontypical points may occur in all species. While the span is measured for the deer in Method 1-j, it is not included in the total.

For the muntjac, the length of the brow tine must be at least $\frac{8}{16}$ inch (1.3 cm) in length to be measured.

The brocket and pudu, in typical configuration, have only a spike (main beam) and no branches; any additional valid points are NT for these two deer.

2. Main beam. Measure the main antler on the outside center from the lowest edge of the burr to the tip. (L) The tape must not be pressed into the groove above the burr. The burrs on muntjacs are small and those of the brocket are not much bigger. (Figures 1 and 2) However, pudus have a proportionally large

burr that looks like a crown at the base of the antler. Be sure not to press the tape in toward the main beam once it clears the burr. (Figure 3)

3. Typical Tines. All deer for this method have one typical antler (main beam) per side, with the exception of the muntjac, which has a pair of brow tines. Only tines that are found on a typical 1x1 or 2x2 frame of the species may be measured. For pudu and brocket, measure the main beam; for muntjac, measure the two brow tines as well. A tine must be at least $\frac{8}{16}$ inch (1.3 cm) in length to be measured. The deer in this method have no other typical points.

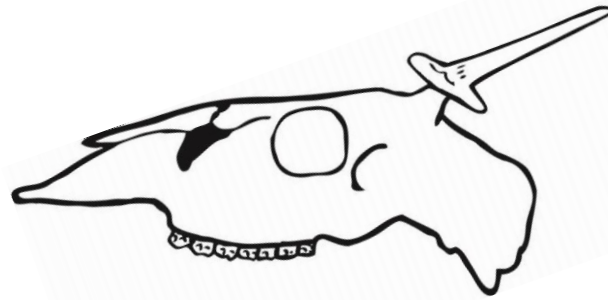


Figure 3 Pudu

The pudu is the smallest horned deer on Earth. Note the very large burrs, which are quite thin and protrude outward from the base of the main beam.

4. Nontypical Tines. Measure all NT tines, which must be at least $\frac{8}{16}$ inch (1.3 cm) long or more and no wider at the base than they are long. NT tines do not count toward the score; however, the nontypical tines must be recorded; they are not deducted from the typical score and are published as additional information.

5. Circumference. Measure the circumference (C) of the burr. To get an accurate measurement of the circumference, we prefer the use of a $\frac{1}{4}$ -inch tape without a hook. If one is lacking, take a hooked steel tape and start at the 10-inch mark and then deduct 10 from the measurement. An extra pair of hands is advantageous for taking circumference measurements on these small deer, especially the pudu, whose burrs are very small and thin but can protrude quite far from the main beams. A tape tends to slide over or under the burrs when looped around the perimeter.

6. Span. Measure the widest distance between the main antlers at a 90-degree angle to the long axis of the skull. (F) With the muntjac, the widest span measurement will almost always lie well below the curved tips. With the brocket and the pudu, the span will almost always be on the inside of the main beam near the tips. Even though span does not part of the score measuring it is not an option, it must be done.

7. Count. Count only valid tines; for pudu and brocket there can only be 1 typical point per side, for muntjac the maximum is 2 per side. Separately, count all valid NT tines; these do not include the main beam tips.

Method 2 Caribou and Reindeer

Ranked on Cumulative Score.

General remarks: Caribou and reindeer are the same species (*Rangifer tarandus*), with a number of varieties found in the Arctic and subarctic regions of the world. Antler variation is largely regional, but body size tends to vary even within the same population. The largest-bodied caribou are the mountain caribou of the Canadian West, while the largest antlers are grown in the Alaska and Yukon region. It should be noted that some caribou grow gigantic antler structures and appear to never shed the antlers and velvet. Such animals, sometimes referred to as stags, are not eligible for entry in RW.

Caribou are among the most complicated antlered game in the world to measure together with Pere David and non-typical mule and white-tailed deer. The Rowland Ward method measures what are traditionally considered the most desirable features in a caribou/reindeer while also keeping the measuring of these antlers from being overly complex.

The measuring elements of a caribou are (1) main beam length, (2) height of the brow palm, also called the shovel, (3) length of the bez (pronounced “bay”) tine, (4) circumferences of the main beam and top palm, (5) total number of tines over 0.5 inch, (6) length of the two longest tines from the top palm, and (7) span. (Figure 1)

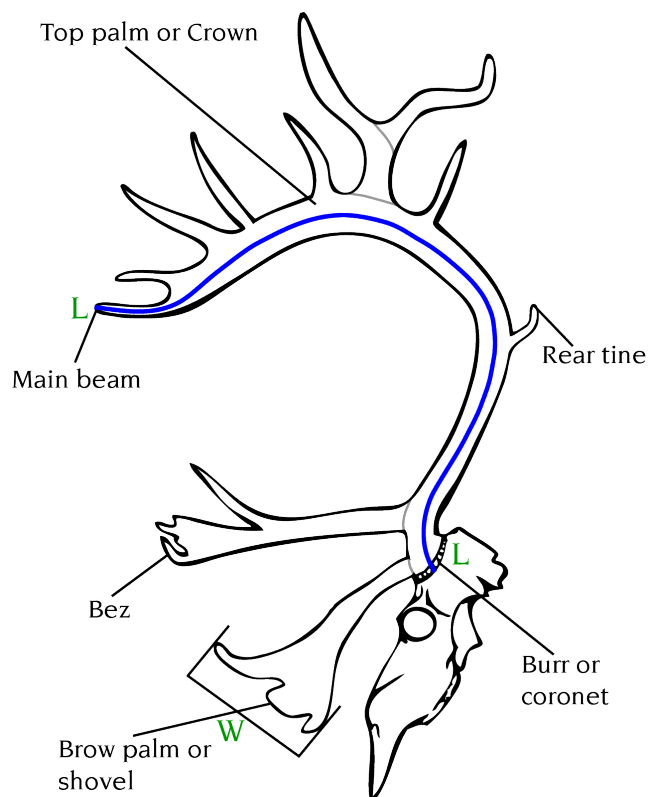


Figure 1

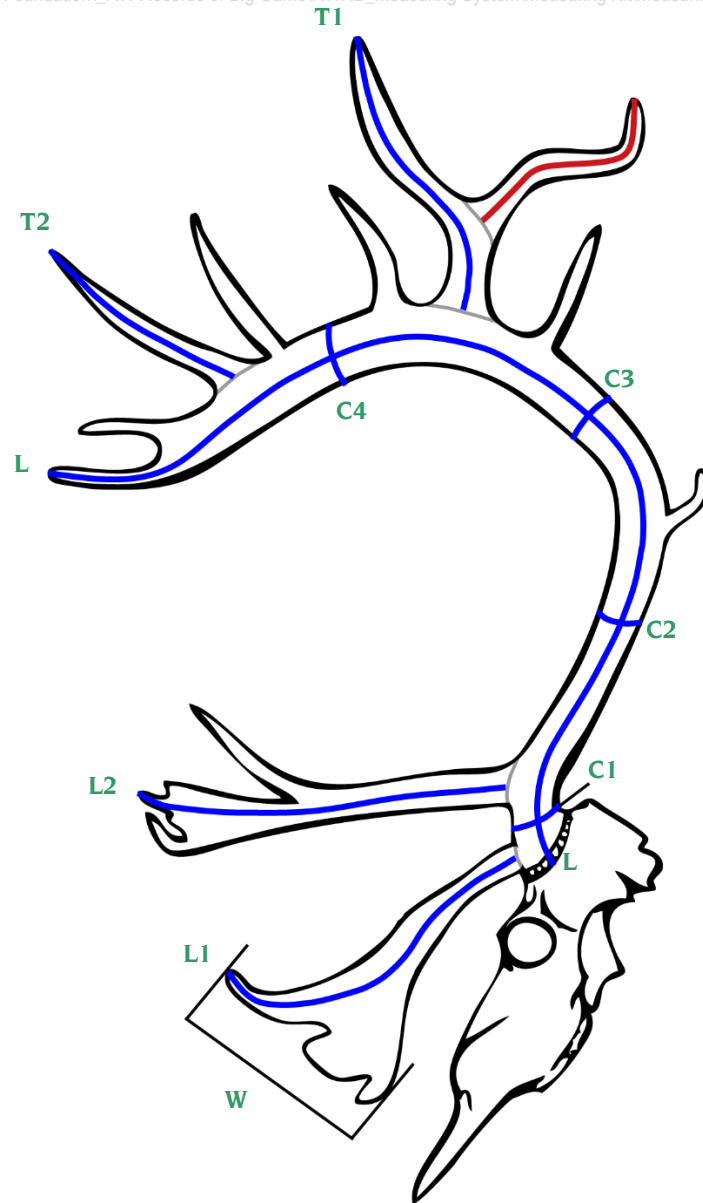


Figure 2

1. Length of the main beam. (For the main beam length measurement, a cable is better than a tape as the tape will likely need to be pivoted several times as it advances.) Start at the outside of the antler in the center between the eye socket and the ear canal on the lower edge of the burr (coronet). Do not press the cable into the L-shape groove found immediately above the burr where the antler beam starts. The tine pointing farthest forward on the top palm is the end of the main beam (Figure 2, L). On rare occasions this may be a tine going upward or backward. The main beam ending cannot be a tine from a tine (see the red line off T1 in Figure 2). The cable must follow the center line of the main beam until it reaches the top palm, where it must stay in the center of the palm (pre-mark the center points with a pencil and masking tape on the main beam and palm).

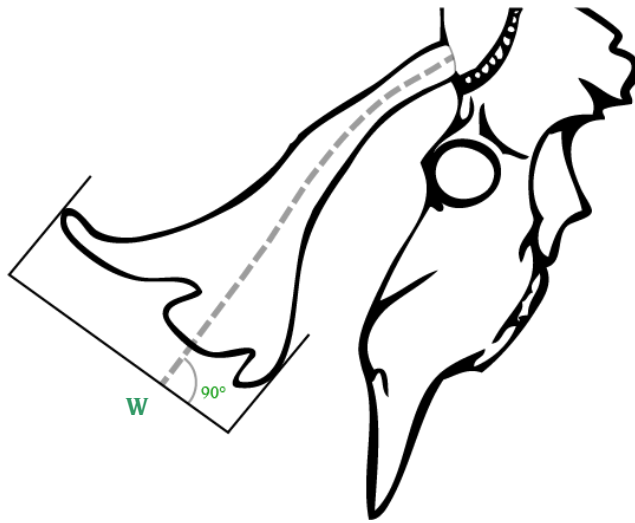


Figure 3

2. Length of the shovel and the bez. Measure to the farthest points from the main beam (Figure 2, L1, L2). Mark both off from the main beam like a tine from any deer (see GDI) and measure on the outside curves of the bez and shovel. Note that both the shovel and the bez can curve inward or outward.

3. Circumference. Take all measurements at a 90-degree angle to the axis of the main beam (Figure 2). Measure the circumference at the smallest place between the brow (shovel) and the bez (C1). (If there is no brow, measure C1 between the burr and the bez.) Measure the smallest circumference between the bez and the rear tine (C2). Measure the smallest circumference between the rear tine and the palm (C3). (The C2 and C3 measurements are made even if this rear tine does not measure 0.5 inch, 1.3cm.) If there is no rear tine, C2 and C3 fall in the same place.

4. Circumference of the upper palm (C4). Find the widest area on the upper palm between two valid upwards directing tines of at least 0.5 inch in length that originate directly off the upper palm. Do not measure at a point where a tine comes off another tine. (See tine marked in red on Figure 2 that branches from the T1; this is not a tine off the palm and the C4 measurement cannot be taken where the T1 and the marked in red tine meet.) Once you have determined the widest area between two valid tines that come directly off the palm measure at the smallest place between these two tines. With complex antlers several measurements normally need to be taken in order to determine the largest C4 measurement (Figure 2, C4). Note that this measurement must be taken at a 90-degree angle to the axis of the palm. The C4 measurement cannot be enlarged by any tines growing off the sides or bottom of the palm/main beam.

5. Length of two longest tines on palm. Measure the two longest tines on the palm above the rear tine. Neither one of these two tines can be the tine that was already measured as the end of the main beam under No. 1. Neither of these tines can come from another tine (Figure 2, T1 and T2). Note the tine marked with a red line off T1; it cannot be measured as one of the two longest tines in the palm. Mark both T1 and T2 off from the palm like a tine from any deer (see GDI).

6. Height of the brow (or shovel). Measure at a 90-degree angle to the center line of the shovel (Figure 3, W). This measurement should be taken with a set of calipers. This height measurement must be taken at a 90-degree angle to the center line of the brow to avoid excessive brow scores. If the shovel is not palmated and is just a spike, enter a value of "1" for its score as long as it is at least one inch in length and is not wider at the base than it is long.

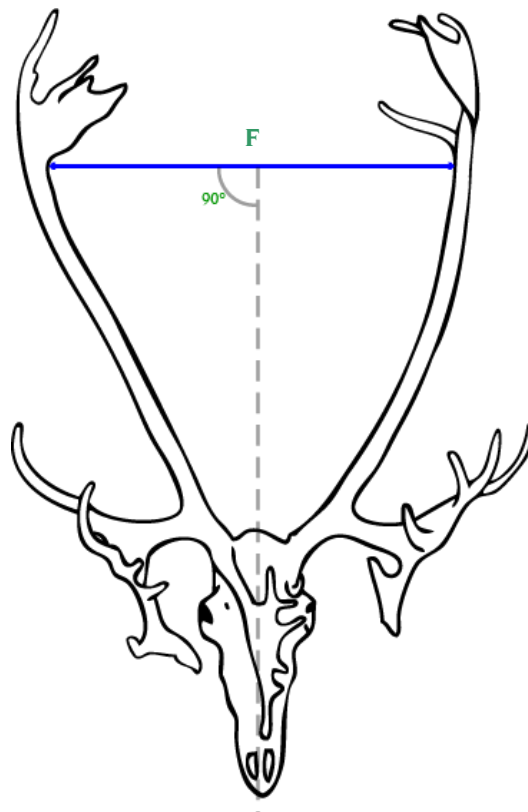


Figure 4

7. Count. Count the total number of valid tines of 0.5 inch (or 1.3 cm) or more in length on each side, including the time that is the end of the main beam. In order for a tine to be valid it must be (a) at least 0.5 inch long, (b) have a base that is equal to or less than the length of the tine. All tines are counted and RW does not differentiate between typical and non-typical tines. Pay special attention to the tines on the shovel (brow) and the bez; many of these can be “knuckled” or “knobbed” and the measurer needs to make sure they are (a) 0.5 inch long and (b) have a base less than or equal to the length of the tine.

8. Span. Measure the widest inside span of the antler main beams at 90-degree angle to the long axis of the skull (Figure 4, F). Use a carpenter’s extension ruler for this measurement.

Method 3 European and Persian Fallow Deer

Ranked on a Cumulative Score of the Lengths (L) and Circumferences of the Main Beams (C1), the Heights (H) and Widths (W) the Palms, Inside Span (F), and the Number of Tines.

General remarks: All large, mature fallow-deer bucks have palmation or a tendency to form such. This is a prized quality for hunters. On very rare occasions a (partial) double palm may occur in some individuals. As noted in General Instructions, all out-of-the-ordinary trophies should be noted on the entry form and be well documented.

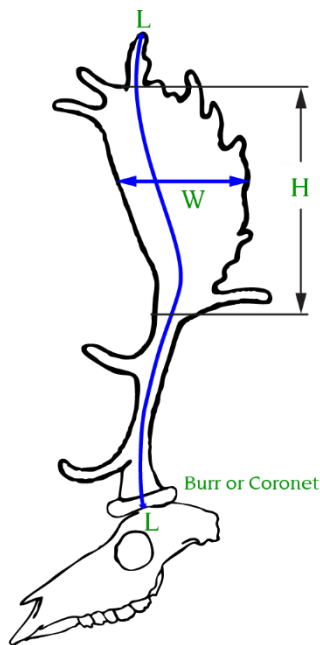


Figure 1

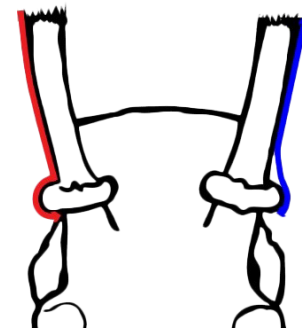


Figure 2

1. Length of the Main Beam. Measure the length of each antler on the outside curve from the lower edge of the burr (coronet) to the tip of the main antler. (Figure 1, L) Start to measure on the side of the burr at the lower edge, on the point that lies between the eye socket and the ear canal. In some cases a burr will hardly be any more in circumference than the main beam; in others it protrudes significantly like the top part of a cork of a champagne bottle. If the burr protrudes outward from the main beam, the tape measure must not be pressed into the 90-degree corner where the burr meets the beam; rather the tape measure must span this distance by forming an air gap. (Figure 2. The red line is incorrect; the blue line is correct.)

Follow the natural curve on the center of the beam first and then stay on the center of the palm. (Figure 1) The center of the beam/palm can be found by measuring the width two or three times from top to bottom and marking the center with a pencil. The tip is the tine that protrudes farthest and, thus, creates the highest score. (Figure 1, L) In many cases that tine is the foremost point on the top of the palmation, but sometimes the tip can be a tine toward the front or rear. Only when the tape nears the top of the palm should you divert from the centerline of the palm; at that point, go to the center of the longest tine and follow it to the end.

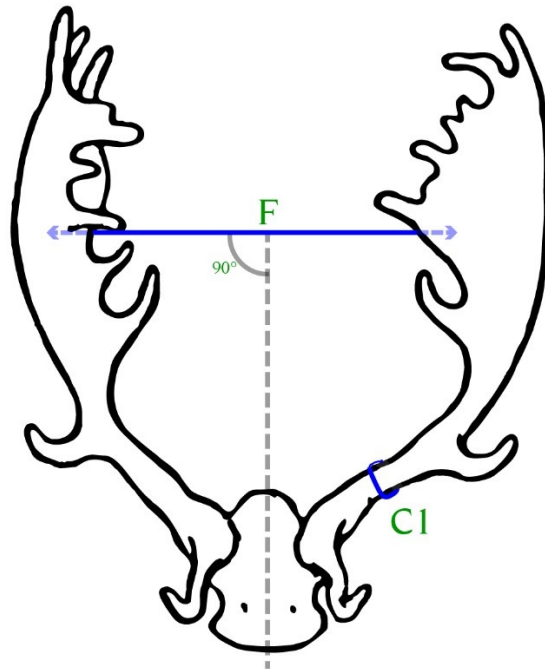


Figure 3

2. Circumference. Measure the circumference of each antler at the smallest point between the brow tine and the second tine. (Figure 3, C1) This can be anywhere between these two tines. In some cases, a fallow buck may have additional antler growths or protuberances (tines) in this area and several measurements will have to be taken to find the smallest circumference.

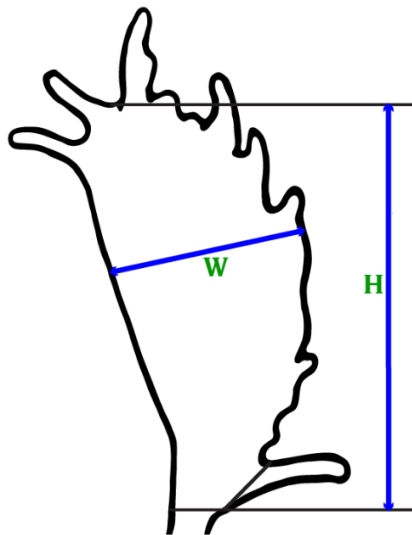


Figure 4

3. Height. Measure the height of each palm on the outside of the antler from the point where the tine backwards grows to the farthest indentation between the tines on the top of the palm. (Figure 1, H) The lower point of this measurement should be taken where the base line of the lowest tine on the back of the palm ends. Note in Figure 4 where the tine has been marked off by a line. See GDI on how to draw a base line.

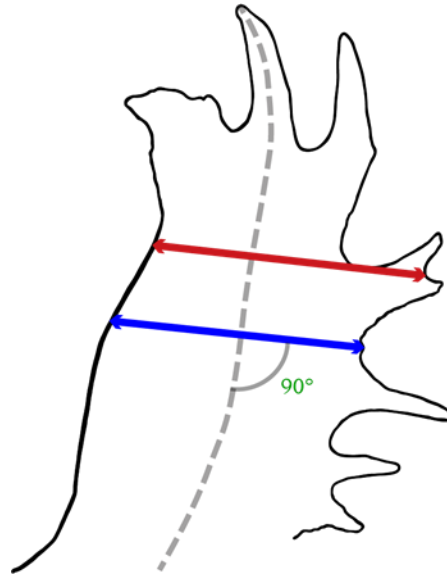


Figure 5

4. Width of Palm. Measure the width of each palm on the outside of the antler at the widest place between two valid tines; the measurement must be taken at a 90-degree angle to the axis of the palm. In this case the greatest score is to be sought, so again several measurements must be taken. Be careful: Do not measure between two tines that have a common base and remember that this measurement must be made between two valid tines, see GDI for what is a valid tine. See red line (wrong) and blue line (correct) in Figure 5.

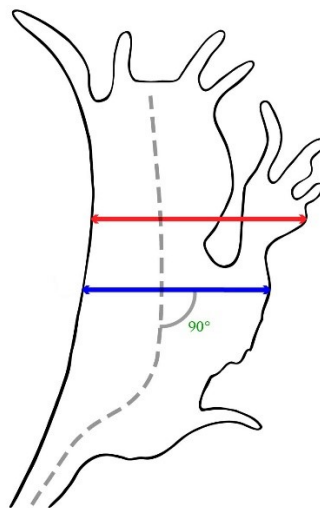


Figure 6

Some fallow deer have very deep “splits” between two tines in the palmated area that, in fact, may make it seem as though the buck has two palms. A measurement of palm width must always be over antler material and must never span any air gaps. A “bridge” found between such tines cannot be spanned to count toward the total width of the palm. See red line (wrong) and blue line (correct) in Figure 6.

5. Count the Number of Tines. Count all tines of 0.5 inch (1.3 cm) or more in length, including the tip of the main antler. To count as a point, a tine must have a length that is equal to or greater than its base.

6. Inside Span. Measure the widest inside span of the palms at a 90-degree angle to the long axis of the skull. It can be taken anywhere as long as it does not start or end on a tine; i.e. it must start and end on the palmated antler. Remember also that the measurement must not only be taken at a 90-degree angle to the long axis of the skull but also parallel to a line drawn through the left and right eye sockets of the skull. In other words, the span cannot be taken by starting on the rear end of the left palm and ending on the front edge of the right palm. (Figure 1, F)

7. CIC Points. (Supplemental) RW accepts CIC measurements in a partnership with the Hungarian based conservation organization for European Fallow deer from Europe (not for introduced fallow deer outside of Europe). In order to get the trophy entered in RWRBG it must be measured by an official CIC measurer of good standing. CIC entered trophies will be listed in its own tables. Animals entered under the CIC system may also be entered under the Rowland Ward system if a second entry fee is paid.

Method 4-a Palmated Moose, Giant Deer (Irish Elk)

Ranked on Cumulative Score.

General remarks: There probably is no perfect method for measuring any palmated deer with a tape. To truly measure all mass, a combination of weight and/or volume might be best, but this is impractical and has no historical precedent for large deer. The most sought-after attributes in a moose are (1) spread, (2) palmation, and (3) a multitude of tines. The RW system emphasizes these three attributes. All tines are counted and RW does not differentiate between typical and non-typical tines. To keep the process of measuring a moose as simple as possible and yet give full credit to the number of tines found on a head, RW counts all valid tines of one inch or more but it does not measure the length of every tine, which would be a Sisyphean task that would ultimately add nothing to the overall assessment of the trophy.

When measuring a moose, pay close attention to making sure that a right angle is used in obtaining the spread measurement. Also watch to make sure a tine is at least 1 inch in length and the base or width of that tine is 1 inch or less. Many moose have “knuckles” or “knobs” along the outer edges of the palm, especially the top parts; do not measure tines that do not qualify as tines—some, for example, can have a length of up to 2 inches but a base of 2.5 to 3 inches, and thus do not qualify.

In very rare cases, moose may display a double palm and/or brow palm. In such cases only the width and length of the largest of the two palms can be measured, not both. All tines can be counted in such cases. Rarely, moose may have an entirely separate third antler. In such cases only the largest two antlers on the left and right side of the skull can be measured.

The preferred method of measuring a moose is after the skull and horns have been cleaned and dried. Measuring a mounted head is far more difficult because it is large and unwieldy.

All moose should be measured upside down so that the measurer looks at the palate of the moose while measuring.

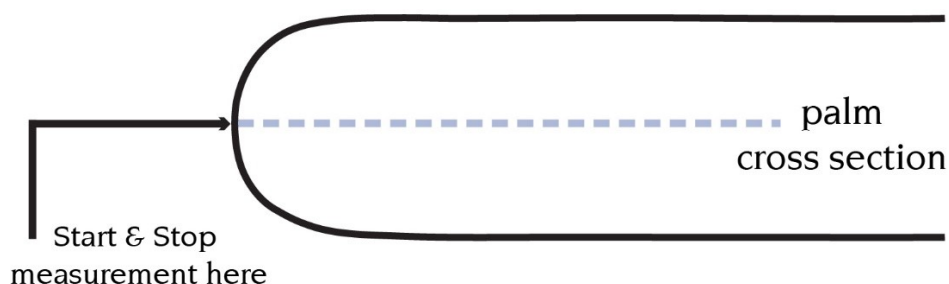


Figure 1

When measuring the length and width of the palm, the measurement must start and stop at the edge of the palm at the halfway point between the top and the bottom.

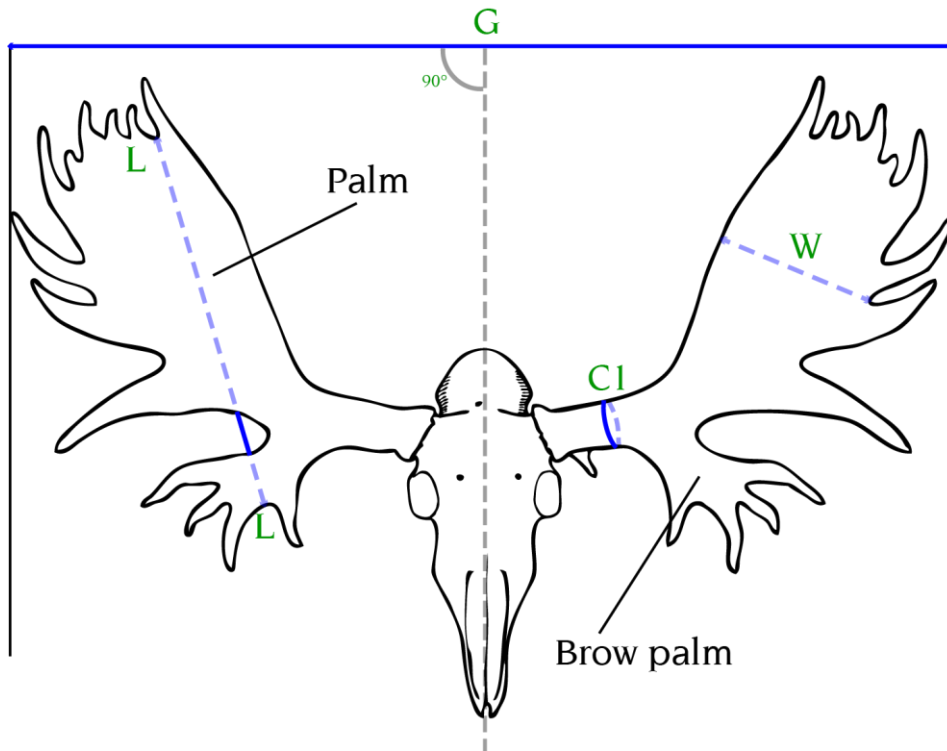


Figure 2 (front view)

1. Palm Length. Turn the head over and mark points off with paper masking tape and a pencil. Measure the length of each palm along the outer curve (underside) from the highest point on the upper edge to the lowest point on the lower edge (Figure 2 and 3: L). Note that the tape may not bridge an air gap on the inside edge of the palm. In those cases where the brow palm forms a “peninsula” as it does with many North American moose (less often in Asian varieties) measure over an air bridge between the palm and the brow palm. (Figure 2, L) Start the palm measurement between two tines or knobs (they do not have to be valid tines) at the top end of the palm and measure the palm as close to parallel as possible to the inner edge of the palm. End the measurement on the front end of the brow palm between two tines. Start and end the measurement on the edge halfway between the top and bottom of the palm. (Figure 1) Keep the tape in contact with the underside of the palms at all times. Should you encounter protrusions or tines that will significantly expand the palm measurement, stop the tape at the base of such a tine/protrusion and continue on the other side. Take a linear measurement with calipers from one side of the base of the tine to the other and add this to the total palm length so that the final measurement will be as though the tine were absent.

2. Circumference. Measure the circumference of each main antler beam at the smallest point between the burr (coronet) and the palm. (Figure 2, C1) In some cases there may be “pearling” growth formations and even small tines; avoid these and be sure to find the smallest circumference. Take this measurement at a 90-degree angle to the antler beam.

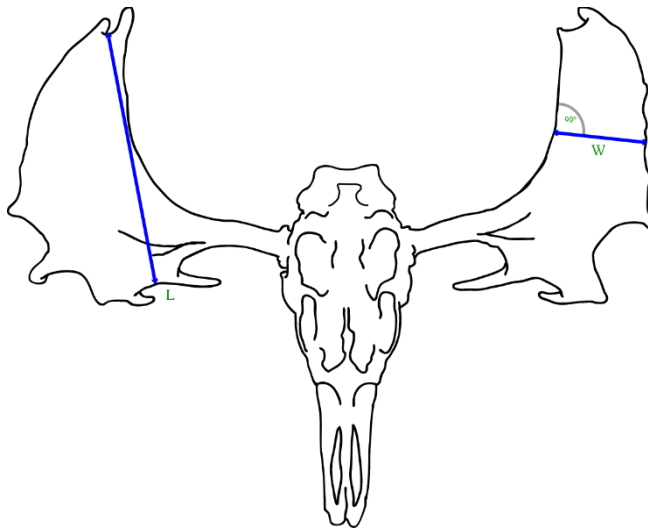


Figure 3
(View from underneath)

1. Palm Width. Measure the width of each palm along the underside at the widest place. (Figures 2 and 3, W). Start the palm width measurement between two tines or knobs (they do not have to be valid tines) at the outside of the palm and measure the width at a 90-degree angle to the axis of the inner edge of the palm. Start and end the measurement on the edge halfway between the top and bottom of the palm. (Figure 1)

2. Count. Count the number of tines 1 inch (2.5 cm) or more in length. In order for a tine to be a valid tine that can be counted, it must be (a) at least 1 inch long, and (b) have a base that is equal to or less than the length of the tine, see GDI. All tines are counted and RW does not differentiate between typical and non-typical tines. Pay special attention to the tines on the top of the palm; many of these can be “knuckled” or “knobbed;” make sure they are (a) at least 1 inch long and (b) have a base equal to or less than the length of the tine.

3. Spread. Measure the greatest spread of the antlers in a straight line at a 90-degree angle to the axis of the skull (Figure 2, G). The easiest way is to lay the antlers upside-down on a smooth, flat surface such as a concrete floor, and then place two triangle squares (a triangle-shaped device made of hard plastic or metal with wide rims that can stand up straight) on both ends of the antlers. Make sure that both triangles are in alignment and at a 90-degree angle to the axis of the skull. Mark with a pencil where the triangle squares reach the concrete floor (both sides), push the antlers and triangles away, and measure the distance between the two marks. Do not measure from a wall above the antlers and skull to a single triangle square because an air measurement may lead to a tape measure sagging, and this will increase the score.

4. Weight/Cut. (Supplemental) Weigh the boiled, cleaned, and completely dry rack with the complete skull, without lower jaw. An effort should be made to weigh an exceptional head as the heft can be amazing, in some cases in excess of 40 kilos (100 lbs.). This is not part of the total score but is a very interesting supplemental measurement. This should happen no sooner than one week after the skull was boiled and cleaned and has dried in natural circumstances. Note on the comment section of the method form if the skull is uncut, has been cut through the center of the eye socket, or is a skull cap cut. Weigh to the nearest quarter pound (250 metric grams).

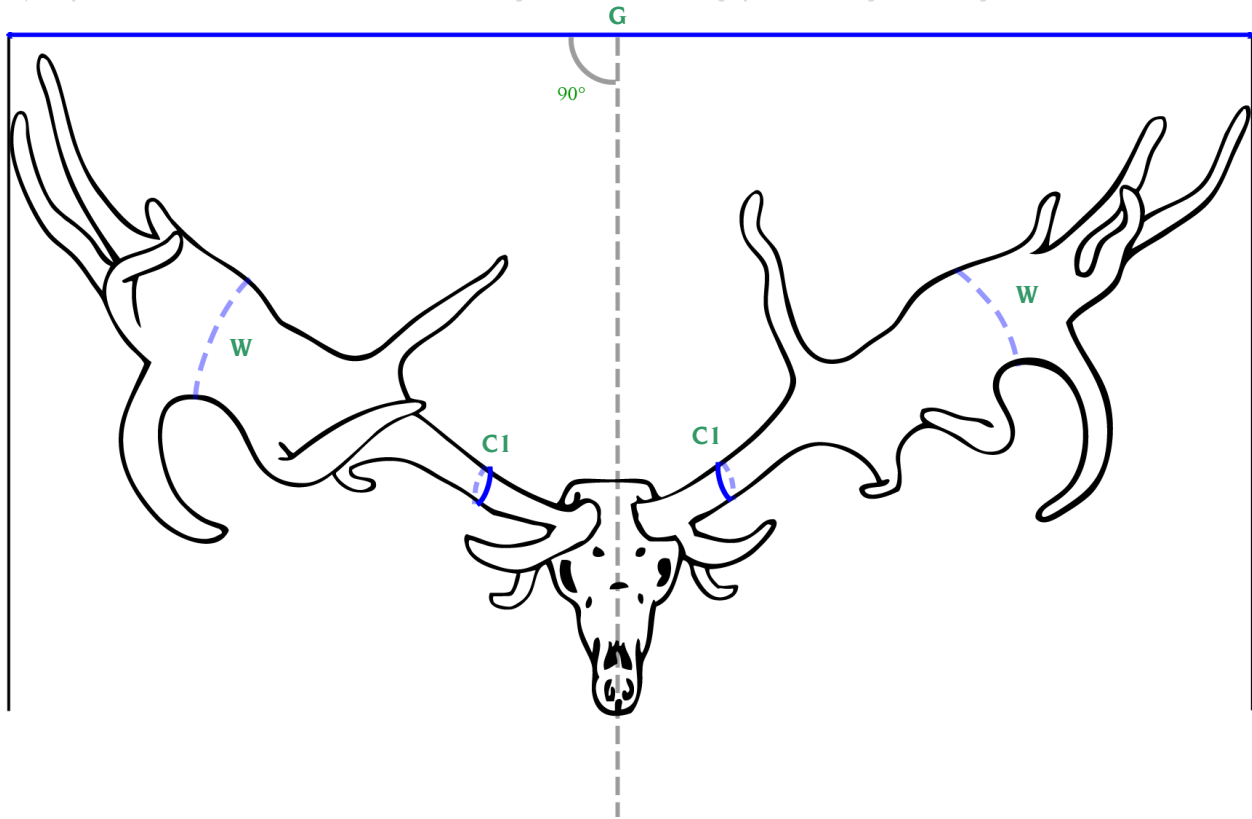


Figure 3

Irish Elk or Giant Deer

These were the largest deer ever known and had gigantic proportions. The No. 1 head in Rowland Ward measures a remarkable 168 inches of outside spread (14 feet or 4.26 meters). Because the palms on an Irish elk tend to spread outward rather than backward (as with a moose) and because Irish elk almost never have a brow palm, RW measures only the palm width and not the palm length of this animal. (Figure 3, W) All other measurements should be taken as listed under method 4-a: greatest spread (G), circumference (C1), and counting all tines over 1 inch in length. If possible, get a weight, but take no risks that may break a set of antlers.

Method 4-b Unpalmated (Cervine) Moose

Ranked on Cumulative Score.

Note: This method is optional only for the following moose categories: European moose and Amur moose. *No other moose are eligible.* Animals may be measured by either method 4-a or 4-b, but not by both.

Cervine moose are deer that grow a set of round antlers at a near 90-degree angle from the skull with no or almost no palmation. Many male moose from Europe and Western Russia are cervine, but some mature specimens farther east from Siberia are too, and occasionally young animals from any population can be. In case a cervine moose displays some palmation on its antlers, the hunter may choose to enter such an animal in either category but no animal may be entered in both categories.

All moose should be measured upside down so that the measurer looks at the palate of the moose while measuring.

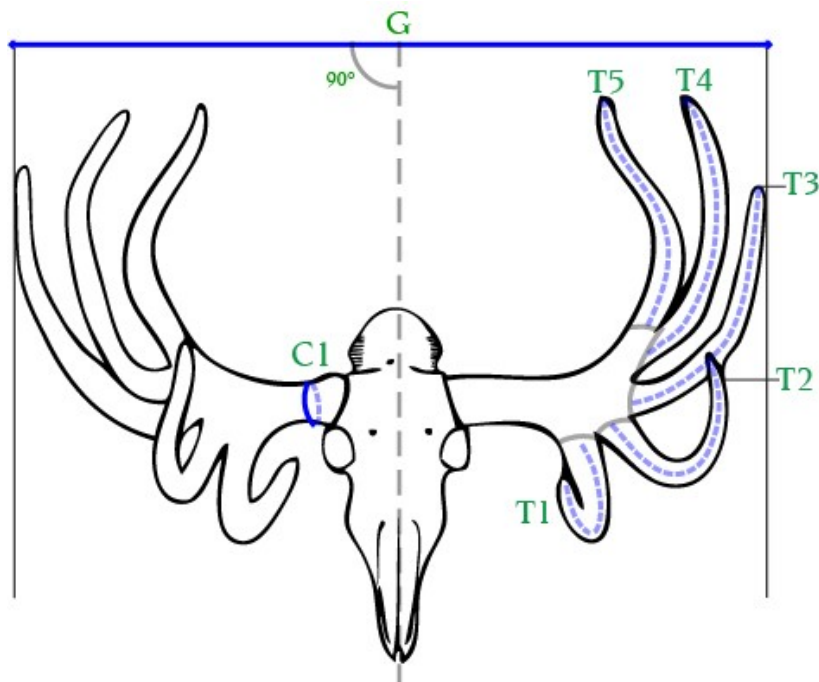


Figure 1.

1. Circumference. Measure the circumference of each main antler beam at the smallest point between the burr (coronet) and the first tine. (Figure 1, C1) In some cases there may be “pearling” growth formations and even small tines; avoid these and be sure to find the smallest circumference. Take this measurement at a 90-degree angle to the antler beam.

2. Tines. All measurements are taken from the underside of the antlers. (Figure 1) Mark the base line of all tines clearly with a pencil where the main beam stops and the tine starts (see GDI on how to measure a tine). Start the measurement on the tine end and stop in the center of the base line. Measure the length of

each tine over 1 inch with as long as the base is no wider than its length. (T1, T2, T3, etc.) and stay in the center of the tines. Do not measure any palm formations that may be present. Under this method, no measurements of palmated antler material are taken.

3. Count. Count the number of tines 1 inch (or 2.5 cm) or more in length. In order for a tine to be a valid tine it must be (a) at least 1 inch long, and (b) have a base that is equal to or less than the length of the tine. All tines are counted and RW does not differentiate between typical and non-typical tines.

4. Spread. Measure the greatest spread of the antlers in a straight line at a 90-degree angle to the axis of the skull (Figure 1, G). The easiest way is to lay the antlers upside down on a smooth, flat surface such as a concrete floor and then place two triangle squares (a triangle-shaped device made of hard plastic or metal with wide rims that can stand up straight) on both ends of the antlers. Make sure that both triangles are in alignment and at a 90-degree angle to the axis of the skull. Mark with a pencil where the triangle squares reaches the concrete floor (both sides), push the antlers and triangles away, and measure the distance between the two marks. Do not measure from a wall above the antlers and skull to a single triangle square because an air measurement may lead to a tape measure sagging, and this will increase the score.

Method 5 All Pigs and Hippopotami

Ranked on the Length of the Longest Tusk.

General remarks: Note that the tusk must be removed from the jaw before being measured. (Figure 1) In most cases, this can be done easily once the skull has been boiled and cleaned. Note all tusks should be measured in $\frac{1}{16}$ of an inch. In rare cases, pigs and hippos may have multiple incisors growing from the same cavity in the jaw; if this occurs, only the longest tusk is to be measured. In all cases, the longest tusks will be those of the lower jaw. The babirusa, giant forest hog, and warthog are the exceptions.

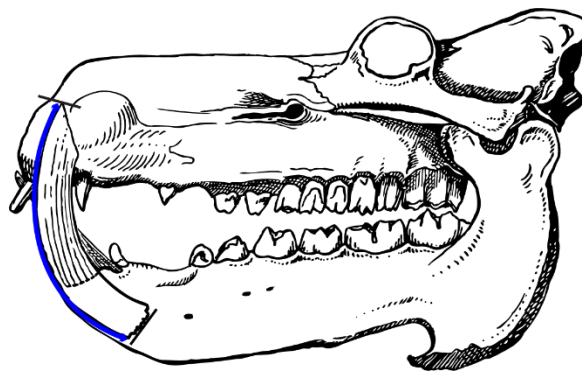


Figure 1

In the typical category, Rowland Ward will only accept swine and hippos that have all their upper and lower incisors in their natural places; all tusks and jaws must be uninjured and must show normal wear and positioning in the jaws. An injured tusk or missing tusk can make the opposite tooth grow to extraordinary lengths in swine and hippos because there is nothing to check its growth. If there is anything that enhances the natural normal length of a tusk, this must be noted on the submission form.

If the injury is natural, the animal will fall in the non-typical category, which has a separate minimum. Note non-typical categories are only created if there are enough entries to support a non-typical category—hippo is a good example. If there are not sufficient entries, the animals will be listed in one table.

Any manipulation by humans to increase the growth of teeth will disqualify the animal from the record book. Since these cases are very hard to judge once the teeth have been removed from the skull and have been cleaned, the editors advise all hunters to submit very carefully detailed information on any injured or non-injured pig or hippo that has a very large score. Photos must be submitted, and without them the editors will assign the trophy to whichever category (typical or non-typical) seems the most appropriate. The editors will reject the entry if the situation is unclear. Note that Rowland Ward will contact the people involved in the hunt in order to make a fair judgment on the eligibility of the submission; consequently, an email address and a phone number for the guide should be included on the submission form in case a tusk of large length is submitted. All decisions made by RW will be final, and it is up to the hunter and the guide to prove the eligibility of a naturally injured animal that is to be listed in the non-typical category.

In case of babirusa pigs, all four tusks shall be measured. (Figure 5)

1. Length. Measure the length of the two longest tusks on the outside curve from the base to the tip. (Figure 2, L). Start the measurement at the base in line with the furthest projection of the tusk's ending;

this is determined by drawing an imaginary line at a 90 degree angle to the axis of the tusk along the tip of the furthest projection. (Figure 4) Many tusks are very worn off (or broken) if this is so they must be carded off. The tape must not bend around to reach the tip. (Figure 3) (See “carding off” in General Instructions.)

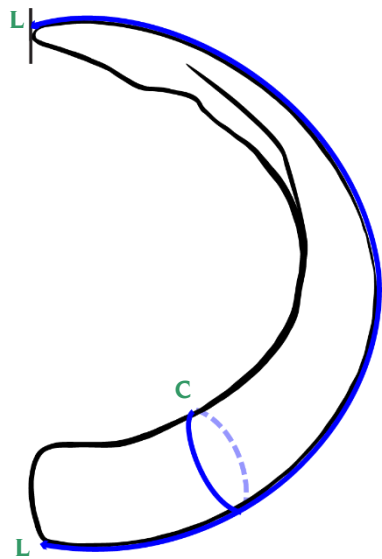


Figure 2

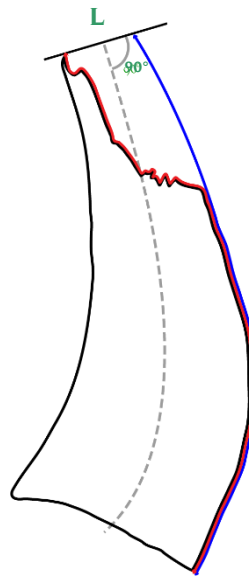


Figure 3

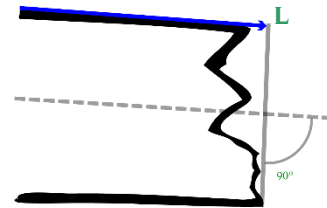


Figure 4

2. Circumference. Measure the circumference of each of the longest tusks at its largest point and at a right angle (90 degree) to the axis of the tusk. (Figure 2, C) Typically this is somewhere between the gumline and the halfway point on the tooth. If there are any grooves in the teeth, the tape measure must span the grooves; the tape measure must not be pressed into any depressions.

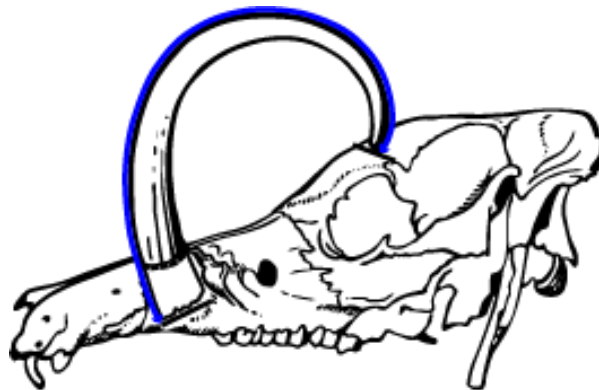


Figure 5 Babirusa (For clarity, only one of four tusks is shown)

Method 6 Walrus, Water Deer, and Musk Deer

Ranked on the Length of the Longest Tusk.

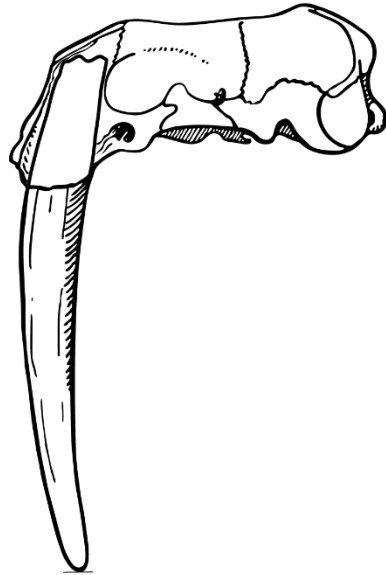


Figure 1

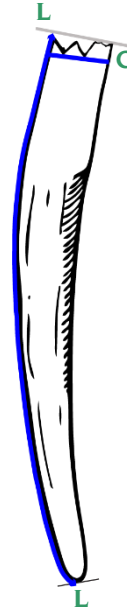


Figure 2

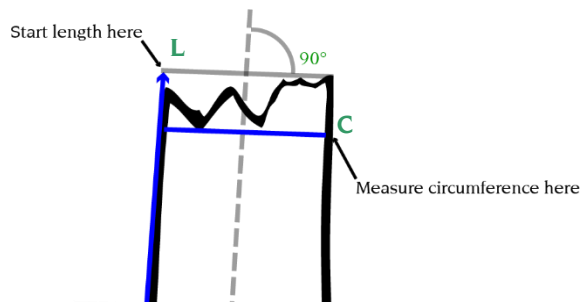


Figure 3

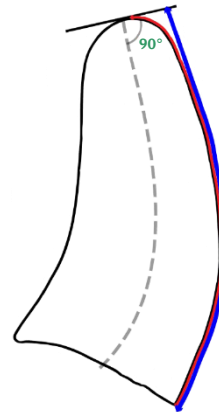


Figure 4

General remarks: Traditionally, walrus trophies have been measured by length and circumferences, and RW did so as early as 1898. If measuring methods could be reset, it might be more equitable to measure the tusk by weight as is done for elephants. That way it would take into account the nerve hollow and the density of the ivory, something length and circumferences cannot do. However, historical records cannot be converted, so we will continue to rank on the measurements of length and circumference.

Mounts of walruses hide a significant part of the tusks. Early mounts tended to incorporate the skull; Figure 1 illustrates how far a tusk can rest inside a skull. Tusks must be removed in order to measure them. Unfortunately, this sometimes means the mount must be damaged to do so. If the tusks cannot be removed, only the visible part of the tusks should be measured. This **MUST** be noted on the entry form in the remarks section. Two further observations for such cases: (1) The circumference measurement must

be taken at the mounted lip, so be sure to do so at a 90-degree angle to the axis of the tusk, and (2) many walrus mounts have their tusks “extended” so that they are not placed as deeply in the skull as was the case naturally. While obviously the entire length cannot be measured, the “lost” part inside the mounted head is often not nearly as great as imagined.

RW measurers also must keep in mind that remarkably natural-looking artificial tusks have been produced. These can look so real that when mounted they can be very difficult to detect as artificial. When in doubt, examine the upper edge of the tusks (where the nerve hollow is) because the artificial material will be easily recognizable. Note that this applies only to loose tusks. When in doubt, use a heated sharp metal pin to see if it will penetrate the tusk; if so, it is made of a form of plastic. Only do this with permission of the owner. It goes without saying that artificial tusks cannot be measured no matter how faithful their measurements are purported to be to the original set.

1. Length. Measure the length of the upper tusks on the front (longest) curve. (Figure 2, L) Walrus tusks do not end in a 90-degree cut like on a metal pipe but rather have jagged edges very much like elephant and hippo ivory. For the purposes of the length measurement, a line should be drawn that is at a strict 90-degree angle to the axis of the tusk along the highest point of any ending on the tusk. (Figure 3) From this line one must measure the length to the tip. Many walrus’s tusks are very worn off (or sometimes broken) if this is so they must be carded off (Figure 4)

2. Circumference. Measure the circumference of the tusks at the base at a 90-degree angle to the axis of the tusk. The tape may not bridge any air gaps over the jagged end of the tusk. If there are any grooves in the teeth, the tape measure must span the grooves; the tape measure must not be pressed into any depressions. (Figure 3)

In the case of water and musk deer, (Figure 5) the circumference of the tusks will be below 1 inch (2.5 cm). They are so small that they cannot effectively be measured by a steel tape because the metal will not easily make a small enough circle. When forced, it will damage the tape and may render an inaccurate result. Here the “One Inch Rule” applies: Any circumference of 1 inches or less can be taken with a cloth, polyester, or vinyl tape measure. This rule applies ONLY for circumferences of 1 inches or less not for length measurements. Nowhere else may a soft tape measure be used under the RW system.

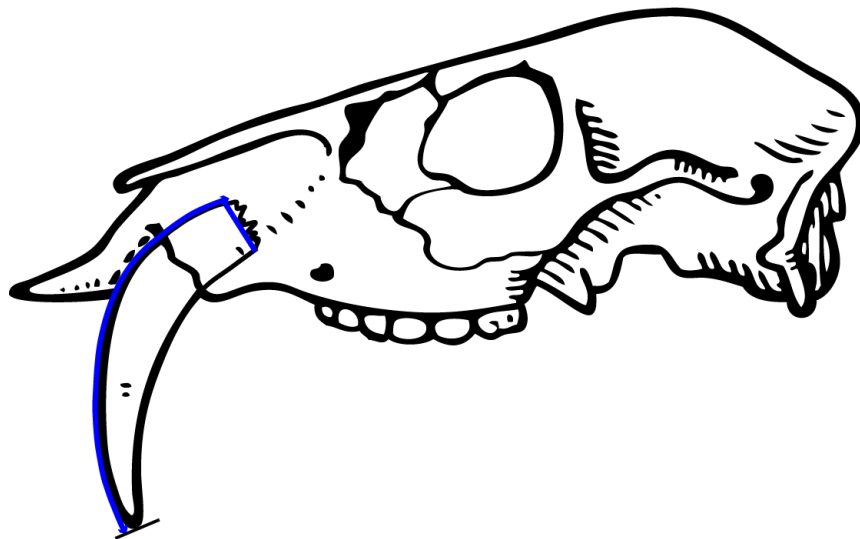


Figure 5

Method 7 All African and Asian Antelopes and Gazelles with Simple, Nonspiraled Horns including, Blackbuck and Addax. Turs, Audad, Bharal and all Wild Goats Except Markhor.

Ranked on the Length of the Longest Horn.

General remarks: Because Method 7 encompasses the greatest number of species of any Rowland Ward method, the detailed measurement descriptions are necessarily longer than the other methods. For ease of use, we have divided the animals to be measured using Method 7 into sections that correspond to the various classes of animals. Make sure to use the correct graphics and correct text for each animal group, for these will display subtle differences in the measuring process. Method 7 is broken down in three subcategories:

Method 7-a Addax, Blackbucks, Damaliscs; Duikers; Dwarf Antelopes; Gazelles; Hartebeests; Impalas; Kobs; Lechwes; Oryxes; Reedbucks; Rhebok; Roans; Sables; Waterbucks. (Note: African spiral-horned antelopes, are measured under Method 8 and wildebeests under Methods 13-a or 13-b.) All antelopes listed above are recorded to the nearest $\frac{1}{8}$ of an inch except duikers; dwarf antelopes and Vaal rhebok are recorded to the nearest $\frac{1}{16}$.

Method 7-b Chamois; Chiltan Wild Goat (sometimes called markhor); Goral; Ibex (True and Spanish); Pasang/Bezoar/Sindh; Rocky Mountain Goat; Serow; Tahr; Western and Central Turs.

Method 7-c Aoudad; Bharal (Blue Sheep); Eastern Tur

Method 7-a Antelopes of Africa and Asia including blackbuck and addax. (For the African Spiral Horned antelope see Method 8.)

Ranked on the Length of the Longest Horn.

General remarks: In all cases, the grain of the horn should be followed from base to the tip. Not following the grain will lead to mismeasurements (this does not apply to addax and blackbuck). Use a pencil and or masking tape to mark the line of the grain at intervals along the axis of a curving horn. This will aid in producing an accurate measurement. A steel cable can be used on curving and curling horns as steel tape, depending on the horns being measured, can be much harder to keep on the horn while also following the grain of the twisting horns. Even with two people doing the measuring, it is hard to keep the tape measure from shifting and buckling while following the contour of the horn. Do guard against pressing the tape or steel cable into the depressions of the horns. Specific sections are devoted to the various classes of antelope, see below.

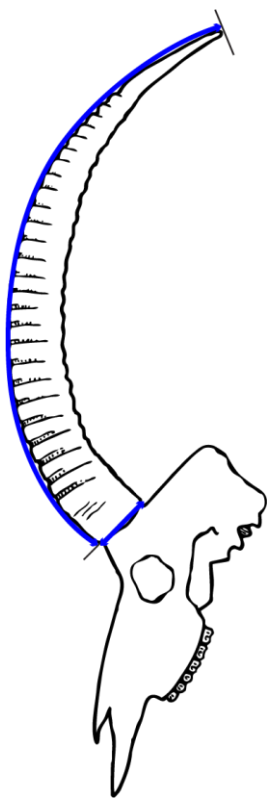


Figure 1 Roan

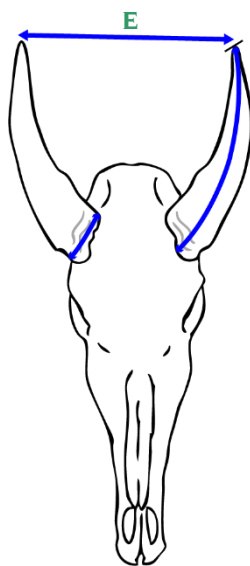


Figure 2 Nilgai

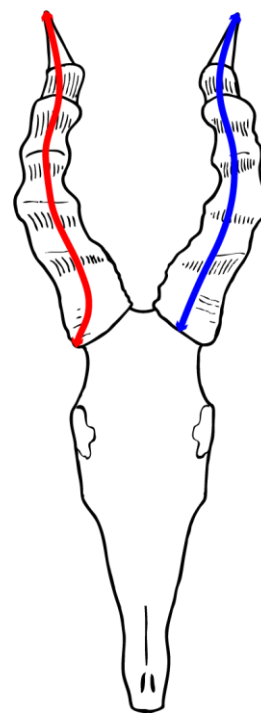


Figure 3 Hartebeest

1. Length. Measure the length of each horn on the front curve, in the center of the horn, from the lowest edge of the base to the tip. (Figure 1, 2, 3) If the tip is broken and the tape does not come to the end of the horn before the break starts, the broken or worn end must be carded off. (See carding off in General Instructions.)

In order to cover the great many varieties of horn configurations under this method, we have divided 7-a into sections in order to make clear the differences and to point out the possible mistakes that can happen for each group. Please read through all of them before measuring because some animals fall into more than one group.

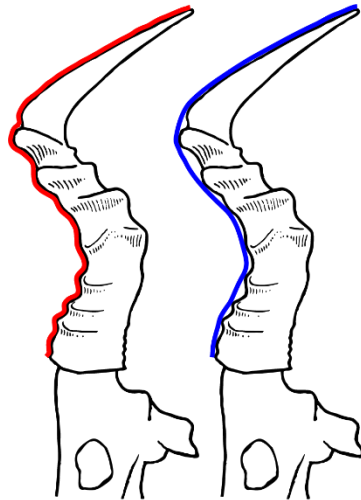


Figure 4 Hartebeest

Horns with knobs or ribs such as hartebeests and Grant’s gazelles: Some antelopes and gazelles have relatively smooth horns, but others are deeply ribbed or have knobs; these include Grant’s gazelles, sables, and hartebeests. The tape measure/cable must go from the top of one rib/knob to the next and must not be pushed into a “valley.” (Figure 4) Start at the base of the horn at the front and end the measurement at the tip. The blue line in Figure 4 shows the correct way to span the knobs, and the red line demonstrates the incorrect way to measure the length of a horn. Follow the grain and use a steel cable for horns that turn and curve.

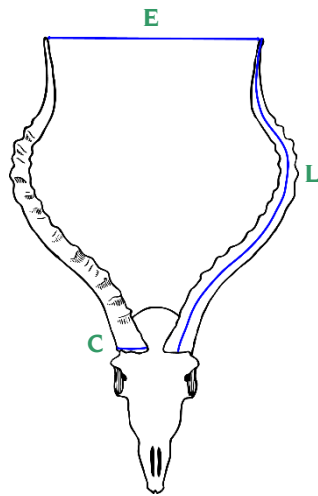


Figure 5 Impala

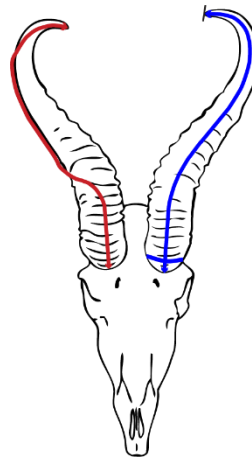


Figure 6 Springbuck

Antelope with bell-shape or curving and turning horns such as springboks, impalas, etc.: Care must be taken to keep with the grain of the horn on springboks, Soemmerring’s gazelles, some reedbucks, and kobs that have outwardly curving horns or bell-shape horns. When you start at the front center of the horn and then gradually follow the horn, it is easy to slowly slide off to the outer curve of the horn rather than staying on the front. If you do so, you will no longer be following the grain. This is the wrong way to score the trophy. (Figure 6) This common mistake in measuring, especially for springboks, mistakenly increases the score. Do not do this. The blue line shows the correct way of following the grain, and the red line demonstrates the incorrect way. Use a cable for measuring the length of horns of this group.

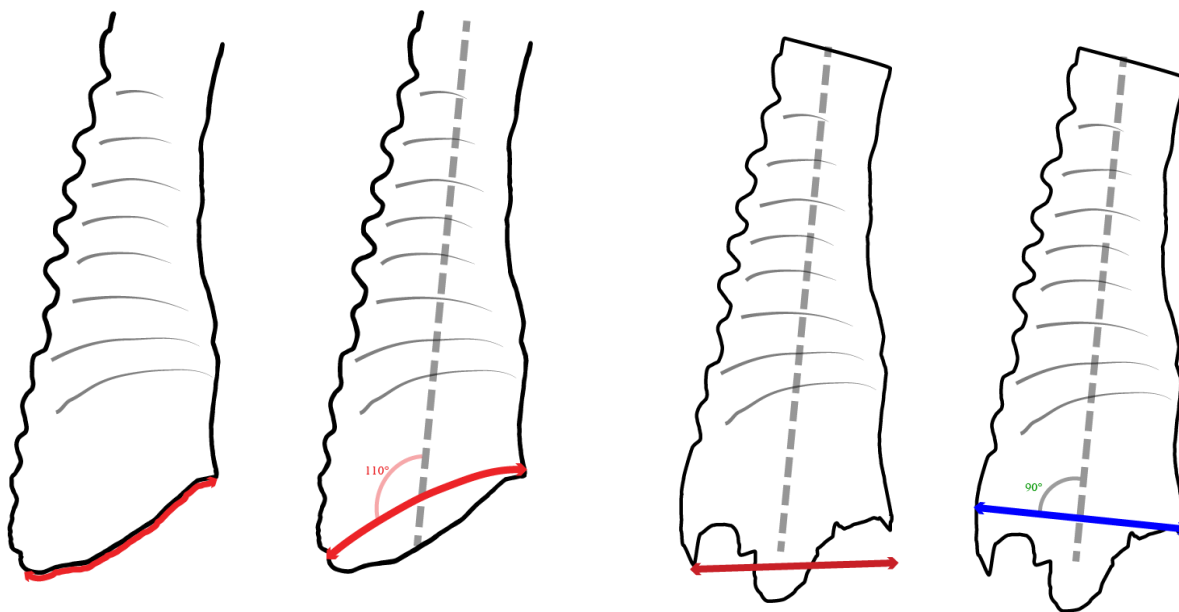


Figure 7

Figure 8

2. Circumference. Measure the circumference of the base of each horn in a continuous loop at a 90-degree angle to the axis of the horn. Note that all bases of category 7-a animals must be measured as close as possible to the horn base at a 90-degree angle to the axis of the horn. This remains true even through, in rare cases, animals such as duikers may, in fact, have a larger circumference farther up the horn. (Figures 7 and 8)

Most horns at the base will not resemble a piece of water pipe that has been cut off at a 90-degree angle. To measure the circumference of your trophy, find the lowest point where the tape measure can circumscribe the horn without it stretching over any “air gaps” as it goes around. In other words the very bottom (base) of the horn will have indentations and scallops (Figure 8) but the tape must at all times stay above these. In some cases the horns may have valleys or deep grooves roughly along the axis of the horn that will extend to the base of the horn. The tape measure must not be pressed into these grooves or valleys but must span from one high point to the next. Circumferences must always be measured in a continuous loop and at a 90-degree angle to the axis of the horn. (Figure 8) Do not “follow the border” by measuring along the very bottom edge of the base of a horn and do not weave the tape up and down. (Figures 7 and 8) The tape measure must circumscribe a continuous and even circle. Only steel tapes may be used for circumference measurements. Unusually swollen, diseased, or malformed horns must be noted on the entry form.

If a head is mounted, do not measure any taxidermist materials; likewise, do not measure over hair or in places where you are not sure that horn exists. Guard against built-up bases; some heads have had their bases extended by 1 to 2 inches. Such materials must not be measured. Using a sharp, pointed small knife, probe the material at a point where the small puncture is less likely to be seen. If the substance can be penetrated, it is very likely manmade, taxidermist material; if you are unable to make a small puncture, it is very likely horn. If a clearly defined border between taxidermy materials on the bases and actual natural horn growth cannot be established such a head CAN NOT BE MEASURED. In case a horn tip has been enhanced the head cannot be measured under any circumstances because it is impossible to discern where actual horn stops and artificial materials start on tips. Do not measure soft, “green” material. On all animals, only hard, “mature” horn may be measured. Keep this in mind: If the material won’t last when exposed to normal boiling and cleaning, it should not be measured.

3. Tip to Tip. Measure the tip-to-tip value in a straight line from the center of the left horn tip to the center of the right horn tip. This is a required measurement. Figures 2 and 9.

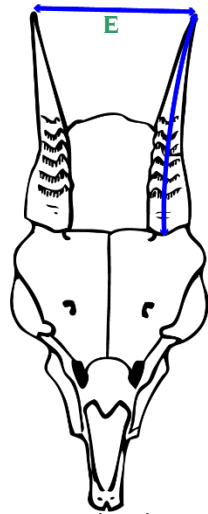


Figure 9 Dik-Dik

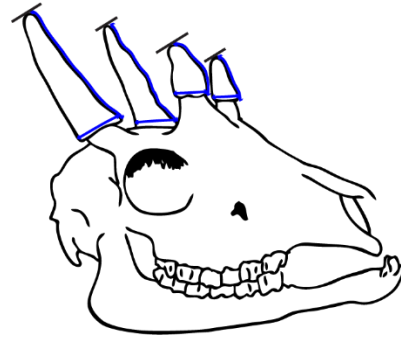


Figure 10 Four-Horned Antelope

Measure Duikers, Dwarf Antelopes, and Vaal Rheboks in $\frac{1}{16}$ of an inch: All animals in Method 7 are measured to the nearest $\frac{1}{8}$ of an inch; however, all duikers, dwarf antelopes (beira, dik-dik, grysbok, steenbok, klipspringer, oribi, Bates’s pygmy antelope, suni, and royal antelope) and Vaal rheboks are recorded in fractions of $\frac{1}{16}$ of an inch.

Measuring the circumference for duikers, dwarf antelopes, and Vaal rheboks: Note that all bases under 7-a must be measured as close as possible to the horn base at a 90-degree angle to the axis of the horn even though, in unusual cases, duikers may in fact have a larger circumference farther up the horn from the bases. In some cases these small antelopes may have circumference of below 1 inch (2.5 cm) and they cannot be effectively measured by a $\frac{1}{4}$ -inch steel tape because the metal will not make a small enough circle easily, and when forced it will damage the tape and render an inaccurate result. Here the “One Inch Rule” applies: Any circumference of 1 inches or less can be taken with a cloth, polyester, or vinyl tape measure. This rule applies ONLY for circumferences of 1 inches or less not for length measurements. Nowhere else may a soft tape measure be used under the RW system.

Four-Horned Antelopes or Chousinghas

In the case of the chousingha or four-horned antelope, measurements should be recorded as follows: length and circumferences of all four horns. Four-horned antelopes are ranked on their longest horn, which is normally one of the rear-most horns.

1. Length. Measure the length of the each horn on the front curve (in the center of the horn) from the lowest edge of the base to the tip. (Figure 10, A–B)

2. Circumference. Measure the circumference of the base of each horn at a 90-degree angle to the axis of the horn. (Figure 10)

3. Tip to Tip. Measure the tip-to-tip value in a straight line from the center of the top left horn tip to the center of the top right horn tip for both sets of horns. This is a required measurement.

Reedbucks

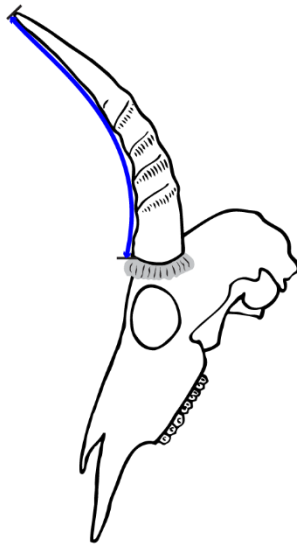


Figure 11 Reedbuck

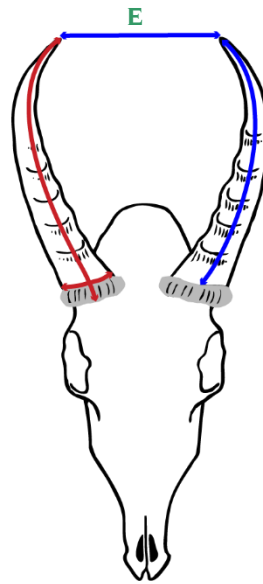


Figure 12 Reedbuck

All species of reedbucks, but especially the common reedbuck, form a pulpy section at the base of the horn. This soft material can easily be penetrated with the point of a knife. This is horn in formation but not hard horn, and it must not be measured. Probe the horn for soft material with a knife point; the demarcation between soft and hard horn will be the point where you start your measurement. (Figures 11 and 12) Most of the soft, green material will be removed during the cleaning process, but sometimes a leather like residue will remain. This should not be measured, so be careful where you place the tape measure at the start. A reedbuck is best measured after cleaning but before mounting as the exact base of the horn will be much more easily discerned. With mounted reedbuck heads, you will often find the taxidermist has used materials to build up an artificial pulpy section—this artificial material must not be measured. With a mounted head, remember that just because the material feels hard to the touch, this does not mean it is horn. Probe with a knife point to find out where to start the measurement of the horn length.

1. Length. Measure the length of each horn on the front curve (in the center of the horn) from the lowest edge of the base to the tip. Do not measure the “green” or soft horn that forms a pulpy section at the base of the horn. (Figures 11 and 12) With reedbucks the horns curve up and forward and with some varieties they also curve inward; with such heads it is easy to slowly slide off to the outer curve of the horn rather than staying on the front. Make sure to stay in the center front of the horn.

2. Circumference. No circumferences are measured for reedbucks.

3. Tip to Tip. Measure the tip-to-tip value in a straight line from the center of the left horn tip to the center of the right horn tip. This is a required measurement. Figure 12.

Addax and Blackbuck.

The addax and blackbuck need specific instructions; they do not have a horn ridge like the African spiral horned antelope (kudu, nyala, eland, bongo etc.) and are very hard to measure “around the spiral”; this is especially true for the blackbuck because the spiraling of the horns is not smooth and flowing and in addition the grain of the horns starts and stops and does not follow a consistent flowing pattern. The addax is similar although the grain of the horn is somewhat more flowing. We have found that with both antelope measuring them “around the spiral” is near impossible to do in a consistent manner because of the lack of a ridge; each time a tape is wound around the horns of these two animals it does not do so on exactly the same place when measured a second time. Different measures measuring the same animal will not be able to repeat the results with any kind of accuracy.

For measuring the horn lengths of the Addax and Blackbuck ONLY use a STEEL CABLE, not a tape.

1. Length. Measure the length of each horn on the front (on the top, center of the horns). Start at the base, hook the small lip on the cable on top of the horn at the base, stay on the center front of the horn to the tip. Follow the up and down contours of the horn, like a roller coaster, but stay on the front of the horn, with the cable touching the horn at all times. *Do not let the cable slide towards the side of the horns, and do not follow the spiral of the horn by twisting the cable around the horns.* (Figure 13)

2. Circumference. Measure the circumference of the base of each horn at a 90-degree angle to the axis of the horn near the base with a ringed tape. (Figure 13)

3. Tip to Tip. Measure the tip-to-tip value in a straight line from the center of the left horn tip to the center of the right horn tip. This is a required measurement. (Figure 13)

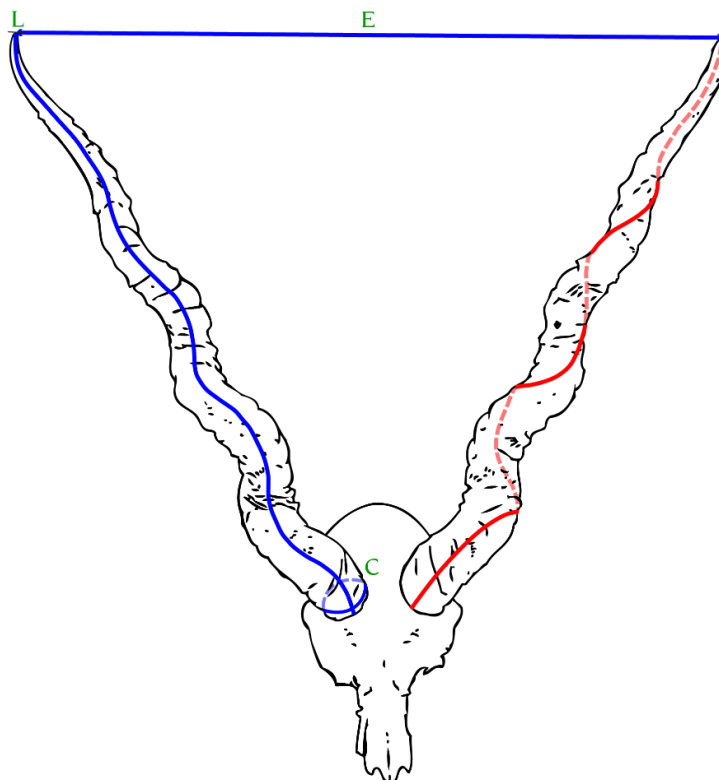


Figure 13 Blackbuck

Method 7-b Chamois; Chiltan Wild Goat (sometimes called Markhor); Goral; Ibex (True and Spanish); Pasang/Bezoar/Sindh; Rocky Mountain Goat; Serow; Tahr; Western and Central Turs

Ranked on the Length of the Longest Horn.

This subsection of Method 7 contains mostly rather straightforward-to-measure animals such as chamois, goral, tahr, and more. While none should be overly complex to measure, close attention needs to be paid to animals with curving horns such as the Spanish ibex, central turs, and some bezoars.

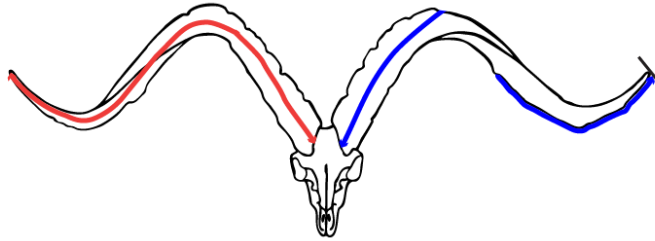


Figure 1 Bezoar with Extreme Spread

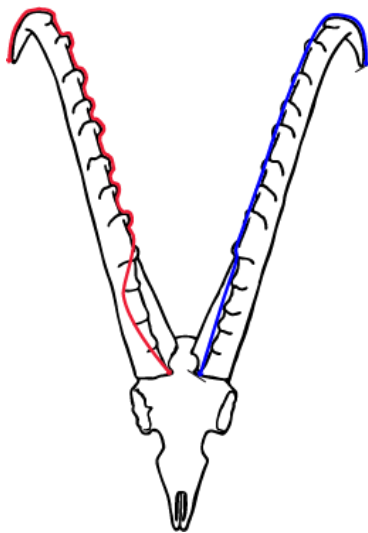


Figure 3

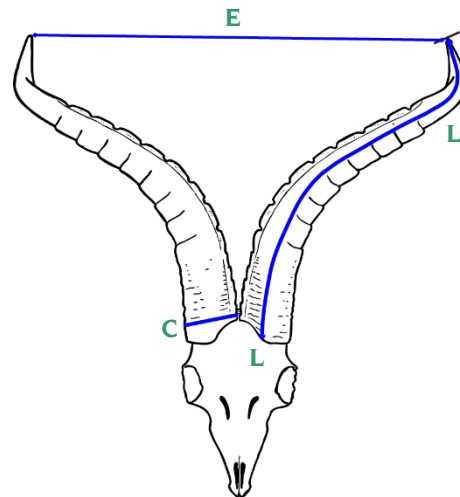


Figure 4

1. Length. Measure the center of the front horn from the lowest edge of the base to the tip. Follow the grain. (Figures 1 thru 7)

To measure the length of the horn, follow the grain of the horn. If the horn curves or twists, keep following the same grain where you started; see red and blue lines on. (Figure 1,3 and 4) Some ibex have relatively smooth horns, but many more are deeply knobbed. In all cases, care must be taken not only to follow the grain but also to “span the knobs” from one high point to the next with a steel tape measure. Make sure not to press the tape measure down in between the ribs. (Figures 2 and 5)

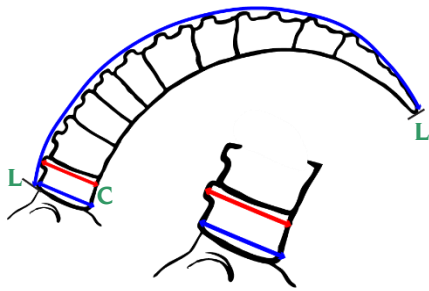


Figure 5

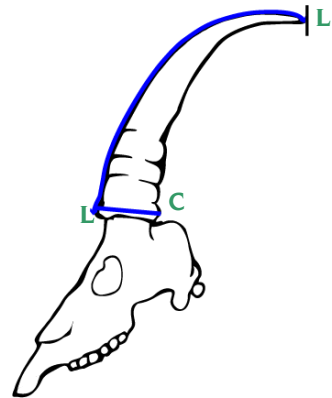


Figure 6

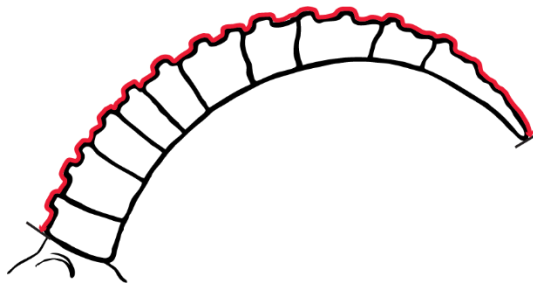


Figure 2

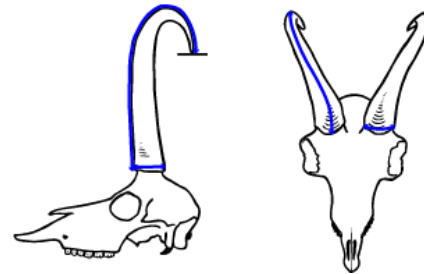


Figure 7

2. Circumference. Measure the circumference of the base of each horn at a 90-degree angle to the axis of the horn. (Figures 4, 5, 6, 7)

To measure the circumference, keep in mind that chamois and ibex may, in some cases, have larger circumferences farther up the horn from the bases. True ibexes (*Capra ibex*) can have a knob right at the base of the horn on one or both horns. Sometimes this knob may be right above the base. (Nubian and certain Asian ibex varieties exhibit this characteristic.) In that case, the base measurement should still be taken as close the baseline as possible and at a 90-degree angle to the axis of the horn.

3. Tip to Tip. Measure the tip-to-tip value in a straight line from the center of the left horn tip to the center of the right horn tip. This is a required measurement to check for abnormal horn configurations. Figure 4.

Growth Rings: Count the number rings on both horns. (Supplemental)

Method 7-c Barbary sheep (Aoudad), Blue Sheep and Dagestan or Eastern Tur

Ranked on the Length of the Longest Horn.

General Remarks: Barbary sheep, Blue Sheep and Dagestan Tur have curved and/or cylindrical horns. (For Western or Kuban tur and tur from the Central Caucasus, see 7-b.) The frontal surface of their horns tends to be somewhat rounded where they meet the forehead. However, each has a different starting point for the length, see below.

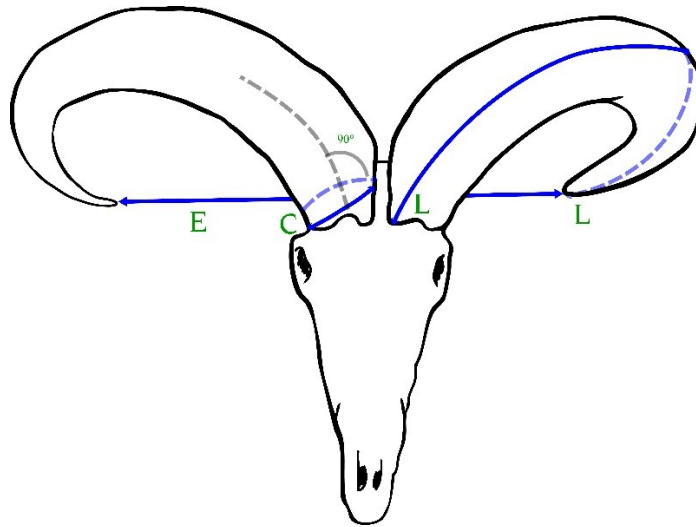


Figure 1, Barbary sheep

1. Length. (Barbary sheep) Most aoudads have a lower point on the front of the horn, normally off-center towards the middle of the skull; this is the starting point of the length measurement. With an aoudad the arc of the length measurement will more or less form a half-moon shape. (Figure 1) Some heads curve inwards in the final half of the length while others curve downwards. Keep the tape on the center of the horn and it will either start pointing downwards or curve outwards and then inwards depending on the horn configuration. Stay on the center outside of the horn, and keep going following the grain in a straight line to the horn tip. If the tip is broken, card off. (See General Instructions.)

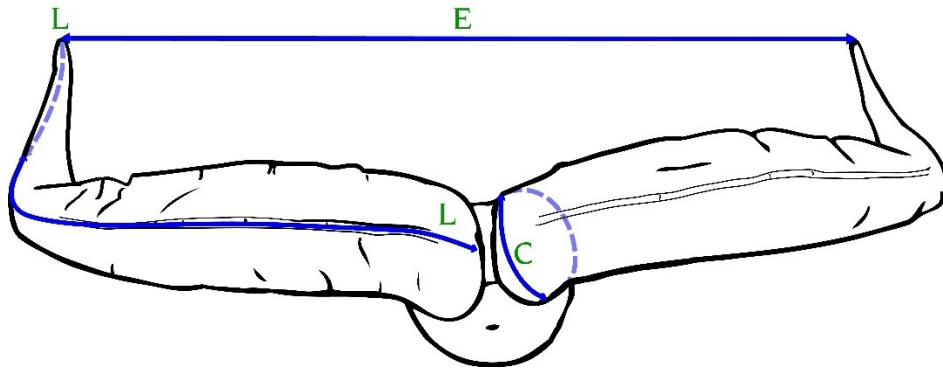


Figure 2, blue sheep

Length. (blue sheep) Blue sheep have a ridge on the center of the horn that starts about in the middle between the horns (not in front) where they meet in the center by the skull. Hook the tape lip under the horn right on the ridge and stay on the ridge till the tape reaches the outside of the horn and from there go in a straight line to the horn tip. (Figure 2) If the tip is broken, card off. (See General Instructions.) Some blue sheep tend to have one distinct ridge that is more or less on the center of the horns starting about in the middle where they meet and then a more rounded, less pronounced ridge, behind the first ridge towards the back of the skull. In all cases use the top most first ridge when standing in front of the skull facing the horns. With some blue sheep the horn tips may point somewhat upward. To measure the length of the horn of such an animal start the tape on the ridge, as described above, and stay on it as it goes to the outside; keep the tape on the ridge for as long as it is distinct and once the ridge stops follow the grain to the horn tip. In other cases the ridge will lead to the outside of the horn and then curve somewhat under the horn towards the tip, if so keep following the ridge till it is gone and then go straight to the tip. For such an animal it is a must to mark the way points with paper masking tape or a pencil before starting to measure.

Length. (Dagestan Tur) First the starting point on the horn base for the length measurement needs to be established. Do this by laying the tape measure end on the center of the eye socket; now find the shortest distance from the center of the eye socket to the edge of the horn base on the opposite side of the skull, mark it with a pencil and start the length measurement here. (Figure 3) Do not measure from the lowest point of the horn near the eye socket on the same side of the skull, and do not measure from the back side of the horn (towards the back of the skull). (Figure 3, red lines). Keep following the grain of the horn, initially the tape will be on the center front and then gradually arrive on the center outside of the horn, from here you go in a straight line to the horn tip. If the tip is broken, card off. (See General Instructions.)

With most Dagestan or Eastern turs the arc of the length measurement will more or less form a half-moon shape. However, with a truly magnificent trophy, the horn tips will point upward. To measure the length of the horn of such a tur, start the tape on the center front of the horn in line with the shortest distance to the eye socket on the opposite side of the skull, curve over the horn, arrive on the outside, go under the horn, and eventually point the tape upwards. For such an animal it is a must to mark the way points with paper masking tape or a pencil before starting to measure. (Figure 3)

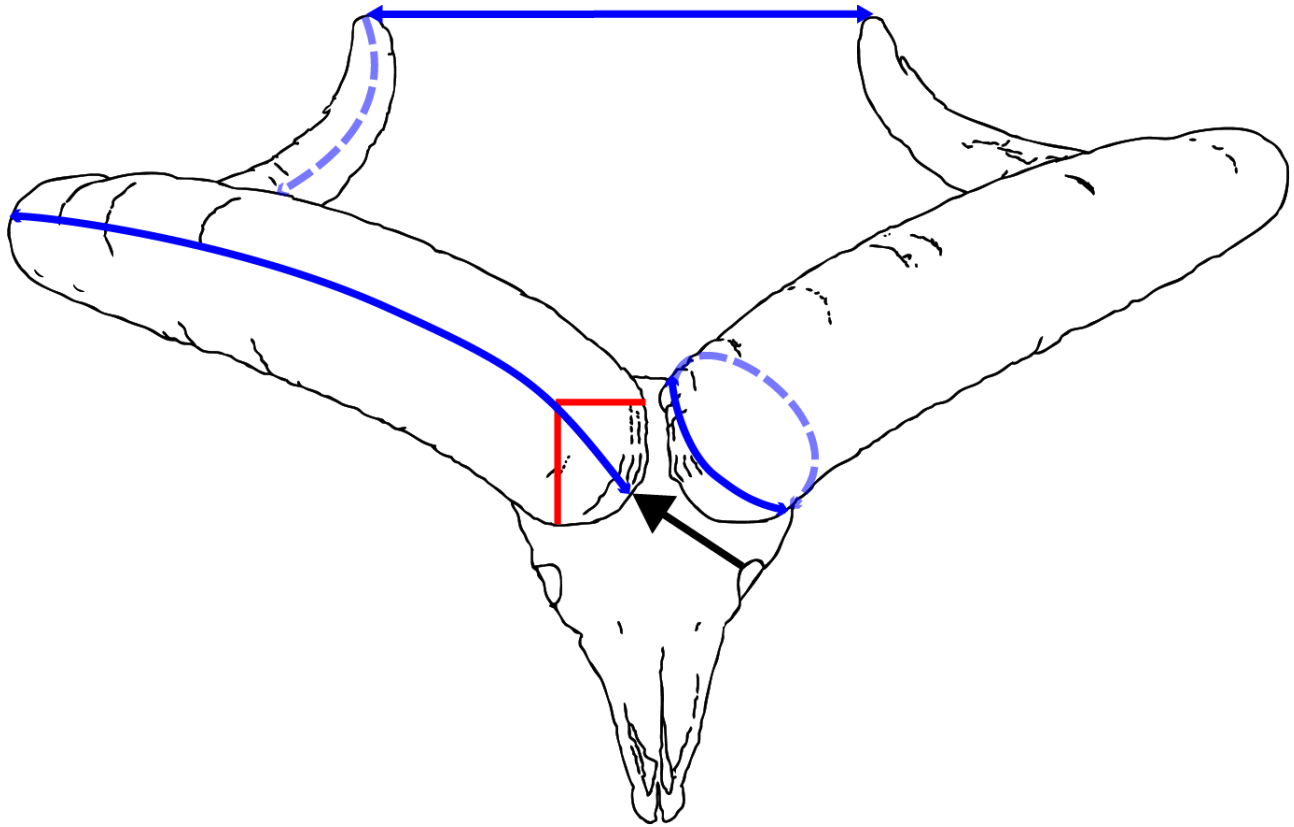


Figure 3, Dagestan Tur

2. Circumference. Measure the base of each horn. (Figure 3) The tape must form a continuous loop and be at a 90-degree angle to axis to the horn. Do not measure anything but horn material—no hair, taxidermist filler, etc.—and do not press the tape into depressions. In most cases with a barbary sheep (Figure 1) this will mean the tape will be a distance away from the furthest edges/lobes of the horn base in order to keep a 90-degree angle to the axis of the horn; typically the tape will be closer to the base edges with the blue sheep and the Dagestan tur. (Figures 2 and 3)

3. Tip to Tip. Measure the tip-to-tip value in a straight line from the center of the left horn tip to the center of the right horn tip. This is a required measurement to check for abnormal horn configurations. (E) This is a required measurement. (Figure 3)

4. Growth Rings. Count the rings on both horns. (Supplemental)

Method 8 African Spiral-Horned Antelopes (Giant and Common Eland; Bongo; Mountain and Southern Nyala; Sitatunga; Bushbuck; Greater and Lesser Kudu.)

Ranked on the Length of the Longest Horn.

General remarks: With all true spiral-horned antelopes, the measurement starts on the front keel and follows the horn around to the tip. (Figure 1) In most cases the keel completely disappears before the tip is reached; when that happens, a straight line must be followed to the tip. With some species there will be little of a keel at the base of the horn—bongos and bushbucks come to mind. In such cases start the measurement on the front of the horn (at the lowest part) and follow the grain. With true spiral horns, only a tape measure is allowed—not a cable—because cables tend to roll off the keel. In case of a poorly defined keel, take a pencil and first mark the horn with way points to lay out the path you will use in measuring the horn. Sometimes the grain will barely be discernable at certain points because of wear, but if you look carefully, the grain will appear again above or below such points.

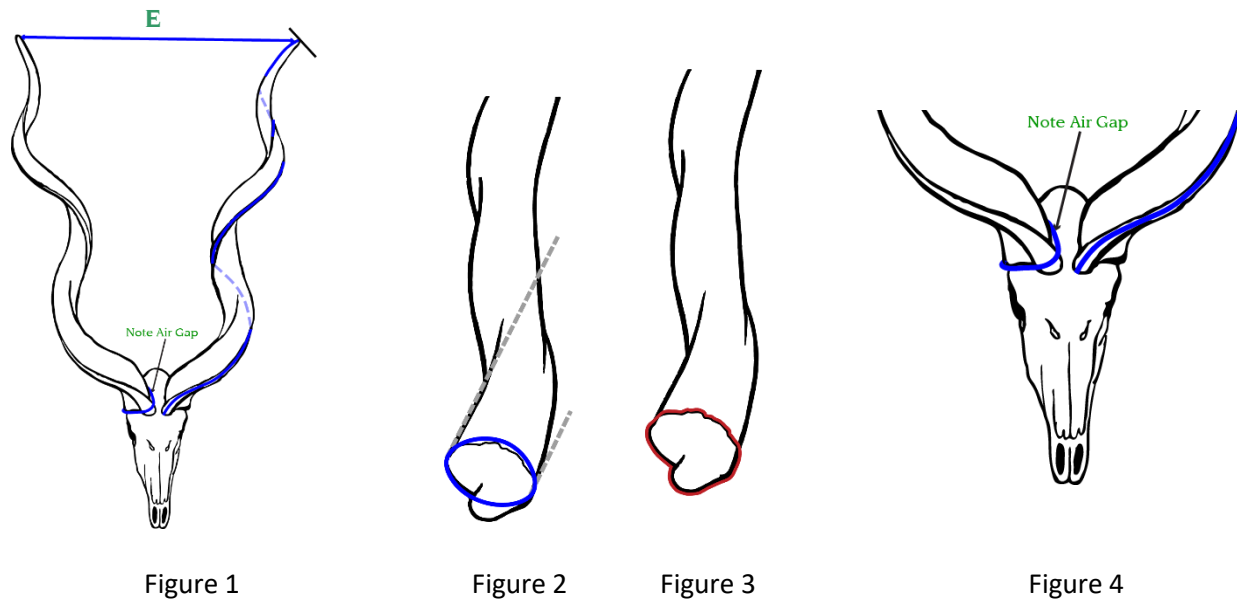


Figure 1

Figure 2

Figure 3

Figure 4

1. Length. Measure the length of each horn around the spiral, keeping the tape measure on top of the spiral ridge. Start at the base, find the lowest point of the front ridge, and proceed to the tip. (Figure 1 and 4). Where the ridge ends near the tip, proceed in a straight line to the tip and do not continue to spiral.

2. Circumference. Measure the circumference at a 90-degree angle to the axis of the horn. (Figures 2 and 4) Do not weave the tape along the edge of the base. (Figure 3) In other words the very bottom (base) of the horn will have indentations and scallops (Figure 3) but the tape must at all times stay above these (Figure 2).

Elands and greater kudus especially have hard-to-measure bases because of deep grooves; these run roughly parallel to the spiral ridges and are quite pronounced at the lower part of the horns near the base. (Figure 4, Note “Air Gap”) Care must be taken to ensure a continuous loop at a 90-degree angle to the axis to the horn, and to not depress the tape into valleys or deep grooves. The tape will not touch horn at all times; instead, it must span from one high point to the next. There will be “air bridges” created by the tape while measuring. Remember the tape must be directly over horn material at all times, not hide or skull. It is an advantage to have two people to measure the bases of the more challenging spiral horns. If possible,

remove the horns from the skull and place the horns at such an angle so that the tape measure can be held with the greatest accuracy and at a 90-degree angle to the axis of the horn.

The temptation is to follow the uneven edges along the very edge of the horn base and press the tape into valleys. This is wrong. The result will be a very much higher score for the circumference. (Figure 3) Do not follow the uneven edge of the horn, but instead form a tight circle at a 90-degree angle to the axis to the horn. Find the lowest point where the tape measure can encircle the horn and measure there. (Figures 2 and 4)

3. Tip to Tip. Measure the tip-to-tip value in a straight line from the center of the left horn tip to the center of the right horn tip. This is a required measurement, Figure 1.

Method 9 Pronghorn Antelope

Ranked on the Total of All Measurements.

A pronghorn is unique for two reasons: It is the only horned animal in the world that sheds its horns and it is the only horned animal that has branches (the prongs). The pronghorn has its own method under the RW system. The minor challenges with measuring a pronghorn are establishing the base, where to start measuring the length of the horn, and measuring the prong. Unlike most other horned animals, the pronghorns tend to have pretty uneven horn bases that are either lobbed and or even sometimes jagged. Please be sure to read the instructions on how to measure them as it is different from most other methods.

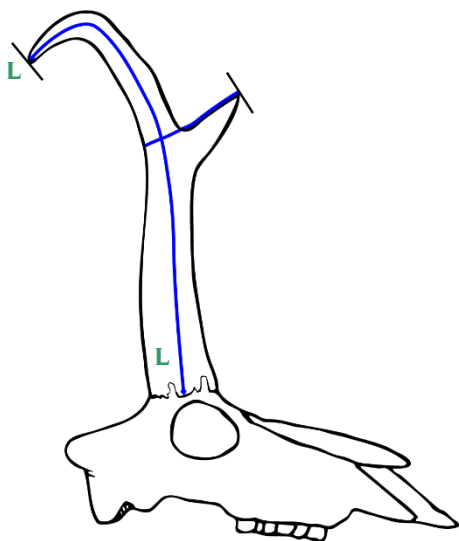


Figure 1

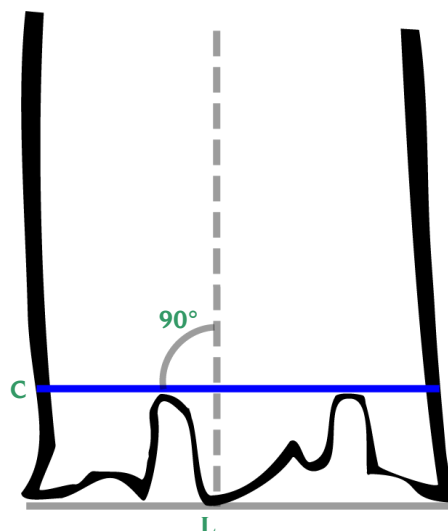


Figure 2

1. Length. Measure the length of each horn along the outside surface of the horn starting on the center of the horn. (Figure 1) To find the starting point of the length measurement, draw a line at 90-degree angle to the axis of the horn where it touches the lowest point. (Figure 2 and 3) (This also ensures the longest length measurement.) Follow the grain of the horn along the center of the outer edge to the horn tip. The tips often curve down, but they may do so either backward toward the tail, inward toward the base of the horn, or even forward. In some unusual cases the tips point partially upward. In all cases follow the grain of the horn. Carding off may be needed. (See General Instructions.)

Horns may develop small “pebbles,” bubbles, or points on the horn. It is not a problem should the line of the length measurement go over these as long as the length measurement is not enlarged in a great manner. Do not push the tape in before and after such a protrusion to increase the length measurement. If these protrusions are $\frac{3}{8}$ (1 cm) or larger, as may rarely happen, use a caliper to measure its base along the line of the length measurement and then stop the length measurement where the caliper measurement started and start the length measurement again where the second caliper leg stopped. Add the caliper measurement to the length measurement. Careful marking with a pencil and some masking tape is needed to do this accurately; write up all measurements and then add them together. Note such protrusions in the comment section. In very rare cases prongs may have from “points” than horn tip and a prong. In such cases this point is not measured but must be noted on the measurement form.

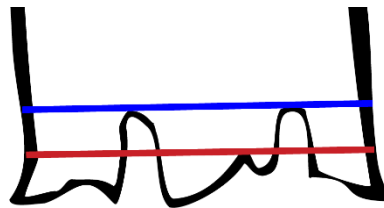


Figure 3

2. Circumference. Measure the circumference of the base of each horn at a right angle to the axis of the horn. (Figure 2) Find the lowest point where a circle can be made at a 90-degree angle to the axis of the horn. Make sure that the tape touches the horn at all times along the entire measurement. Do not allow the tape to bridge over air gaps at the uneven end of the horn. See red (wrong way to measure) and blue (right way to measure) lines. (Figure 3) It should be noted that the bases of a pronghorn can be inflated by soaking them in liquid for a prolonged period; also, the use of bonding substances when mounting the head can increase the bases. If a measurer notices excessive (swollen) bases on a mounted head, he should note it in the comments section and submit photos to the editors. Attempts to artificially inflate the bases will lead to disqualification of the entry.

3. Prong Length. Measure the prong by starting at the very point of the prong, following the upper edge of the prong until you reach the horn itself, and then go in a straight line to the center point of the back end of the horn. (Figures 4 and 5) See the detailed drawing of the top view of where to stop the tape at the back end of the horn. (Figure 5)

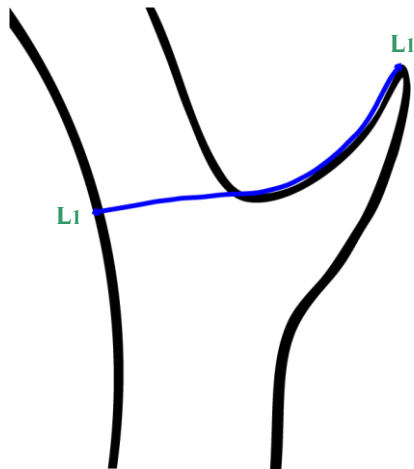


Figure 4

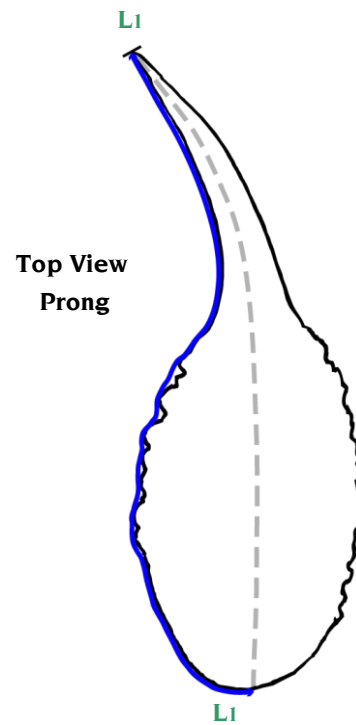


Figure 5

If the prong is broken off, card off; do not start along a jagged, broken edge of a remnant prong point. In rare cases, a prong can form a partial break from the horn, much like a heavy branch of a tree slowly starts tearing off from the main trunk but has not yet separated. Such cracks must be spanned with the tape when measuring the prong, but then it must be measured separately and deducted from the total length of that prong.

Method 10 European, American, and Asian Wild Cattle and Takin. American bison, European Bison or Wisent, Water Buffalo, Tamarau, Anoa, Gaur, Gayal, Banteng, Kouprey, Saola, Yak, and Takin.

Ranked on the Sum of Both Horn Lengths and Circumferences Plus Greatest Spread. (Exceptions Are Anoa and Saola: Spread Is Recorded but Not Used in Final Score.)

Note the following have a separate subsection after general remarks and instructions: (a) Bison, wisent, gaur, and gayal; (b) Anoa and saola; (c) Kouprey; (d) Banteng; (e) Water buffalo and tamarau; (f) Takin. Do not measure these animals without reading their specific instructions.

General remarks: RW has measured the length of the horns and circumferences of the wild cattle outside Africa since before WW I; it has also recorded the spread of the horns, which hunters find an important factor with most bovine species, especially with the larger Asian wild cattle. Under the old ranking tables the heads with the single longest horn or greatest spread were listed first. This has been changed by using all data; circumferences, spread, and horn lengths now form a cumulative point system.

Measure only horn, not green horn that will boil away (and should have during the cleaning process) and do not measure artificial taxidermy materials such as bonding. Guard against inflated base measurements on two counts (a) horns may have been placed on the mount with bonding materials and it can be hard to see where horn stops and the artificial materials start, and (b) be sure to measure bases at a 90-degree angle to the axis of the horns (takin being the exception). This entire category of animals is best measured after the skull and horns have been cleaned and before the head is mounted.

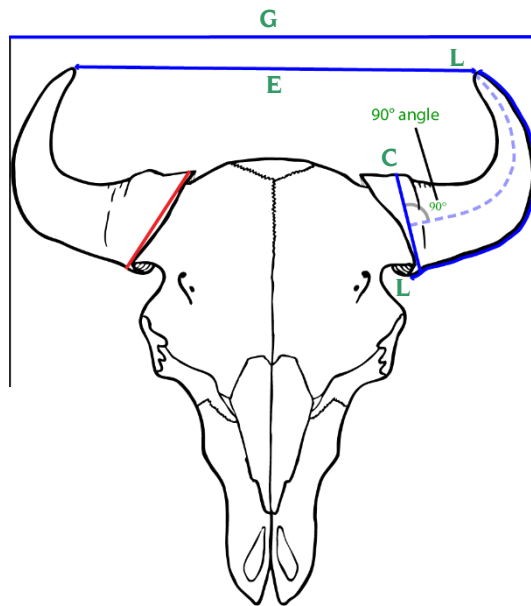


Figure 1

1. Length

Measure the length of each horn from the base to the tip. With bison, wisent, yak, gaur, gayal, and banteng, start on the outside curve at the lowest part of the horn base on the center of the horn, which is often, but not always, near the eye socket. (Figure 1, L-L) For the length measurement of the other bovines in this category, see below. Measure toward the point by staying on the center of the outside curve; card off the point if broken or severely worn. (See general instructions). The tape may not bend over to reach the tip.

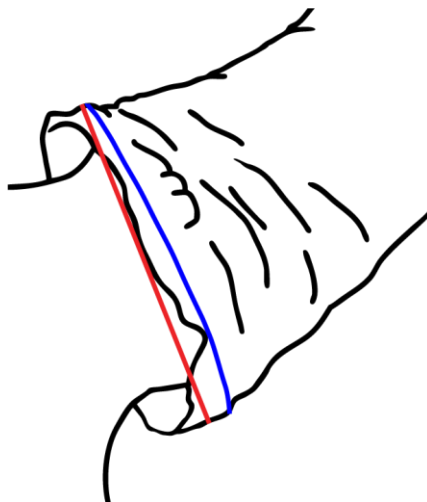


Figure 2

2. Circumference

Measure the circumference of each horn at the base (Figure 1 & 2). This must be done at a 90-degree angle to the axis of the horns. The exception to the 90-degree rule is the takin; please see its specific instructions. The tape should touch horn material at all times.

3. Spread

Measure the greatest outside spread (Figure 1, G). Establish the outer limits of the horns using two right-angle forms. Measure the greatest spread in a straight line and at a right angle to the axis of the skull. The easiest way to measure the spread is to lay the horns and skull on a smooth, flat surface such as a clean concrete floor and then place two large carpenter's triangles (an L-shaped device made of hard plastic or metal that can stand up straight) on both ends of the horns, making sure that both triangles are at a 90-degree angle to the axis of the skull. It is now easy to get a measurement; mark with a pencil where the carpenter's square reaches the concrete floor (both sides), push the horns and triangles away, and measure the distance between the two marks. Do not measure from a wall above the horns and skull to a single carpenter's triangle because an air measurement may lead to a tape measure sagging, and this will increase the score.

4. Tip to Tip. Measure the tip-to-tip value in a straight line from the center of the left horn tip to the center of the right horn tip. This is a required measurement to check for abnormal horn configurations. Figures 1, 4 and 6.

Specific instructions for sub-categories

The non-African wild cattle of the world can be divided into sub-categories. The following are notes on how to measure each one of them.

Bison, Wisent, Gaur, and Gayal

All four bovines in this category have short- to medium-length horns that curve steeply upward. Measuring horn length is not hard (see above), but the bases present a challenge because of the steep incline that many in this class display at the top of the base as it nears the skull. (Figure 1, C) First, establish a center-line axis of the horn, marking these points with masking tape on which you place pencil marks, and then mark, again with tape, the lowest and highest points of the base measurement at a 90-degree angle from the horn axis. Keeping the tape at a 90-degree angle is a challenge because it has a tendency to slide over the slope of the top of the base near the skull. It is better to have an extra set of hands to help you hold the tape at the right angle/pre-marked pencil points on the tape. Note the red line on the base right horn, this is wrong way to measure. (Figure 1)

Anoas (both varieties) and Saola

The horns of the anoa are more similar to the horns of a very large and long blue bull (nilgai) than to those of other wild cattle. The horns of a saola are longer yet and resemble those of an oryx to some degree. Both species have much straighter horns than any other bovid; nonetheless, these animals are classified as wild cattle. Start the length measurements on the center front and end at the tip, card off if needed (see general instructions). The circumference is normally not hard to measure on these animals; be sure to keep the tape at a 90-degree angle to the axis of the horn and ensure the tape is over horn material at all times.

Kouprey and Yak

The kouprey and the yak have horn configurations that are somewhat similar. Both have horns that go outward from the skull, then curve up and inward and finally curve backward and/or upward. (Considerable individual variations have been observed.) Start to measure the horn length at the center lower part of the outside edge near the eye socket, following the grain to the top. Before measuring the length of either of these two bovines lay out a path with pieces of masking tape at pivot points to make sure you follow the grain, then apply the steel tape; start at the base by hooking the tape at the base edge. Some old kouprey bulls, albeit not all, display horn fraying toward the tips. In the very rare event you are asked to measure such a kouprey (the animal is extinct now) measure the horn length starting at the base following the grain toward the top and stop where the fraying starts and continue where the fraying stops, mark the stop and start points with masking tape. Measure the width of the frayed section with calipers and add the three measurements together for the horn length. The horns of wild yaks show more curving inward and backward than any other bovine, but this is far less so in domesticated yaks. The circumference on either yak or kouprey is not hard to measure; be sure to keep the tape at a 90-degree angle to the axis of the horn and ensure the tape is over horn material at all times.

Banteng

Most banteng from Australia that are hunted today have two horns with no boss. The length is measured by starting on the center lower part of the outside of the horn to the tip, similar to bison, wisent, gaur, etc. The circumference is normally not hard to measure on these animals; be sure to keep the tape at a 90-degree angle to the axis of the horn and ensure the tape is over horn material at all times.

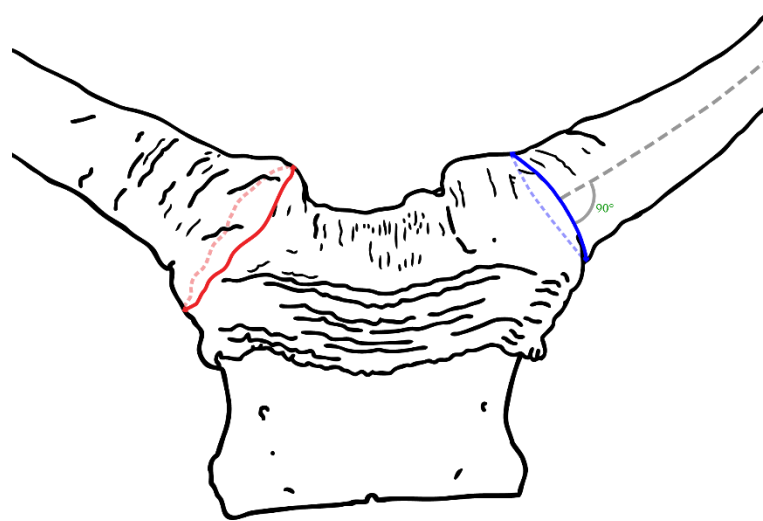


Figure 3

Banteng are found throughout Southeast Asia, but hunting for them in their native habitat is currently not possible. Historical records clearly show that older bulls can form bosses that fuse between the horns *in some individuals*. This is the only wild bovid, other than African buffalo, that can form a boss across the forehead. Currently banteng can only be hunted in the Coburg Peninsula of Australia and the genetics of this population seem to be such that few males form a boss, but it can happen. Should a measurer encounter a banteng with a boss, either partially or completely across the forehead, the circumferences of the horns may be taken anywhere on the joined boss/base area (Figure 3) as long as (a) it is taken at a 90-degree axis to the center line of the horn, (b) the tape is in contact with horn material and no air gaps are bridged, (c) no bone material is measured, and (d) the tape forms a two-dimensional circular loop (length and width but no depth) and is not three dimensional in shape. Mark the points on the horns where you intend to take the circumference measurements with masking tape and a pencil mark first. The lowest point of this circumference circle (nearest the eye socket) is that starting point for the length measurement. Because there is no base to hook the tape on it is easier to measure the length of the horn from the tip to the base point marked with tape. Before you measure the length measurement lay out a few way points with masking tape (and mark with a pencil) along the grain of the horn.

Water Buffalo and Tamarau

The length measurement on a water buffalo needs to be taken in a completely different way from the other bovines. Also, the bases of the horns need attention.

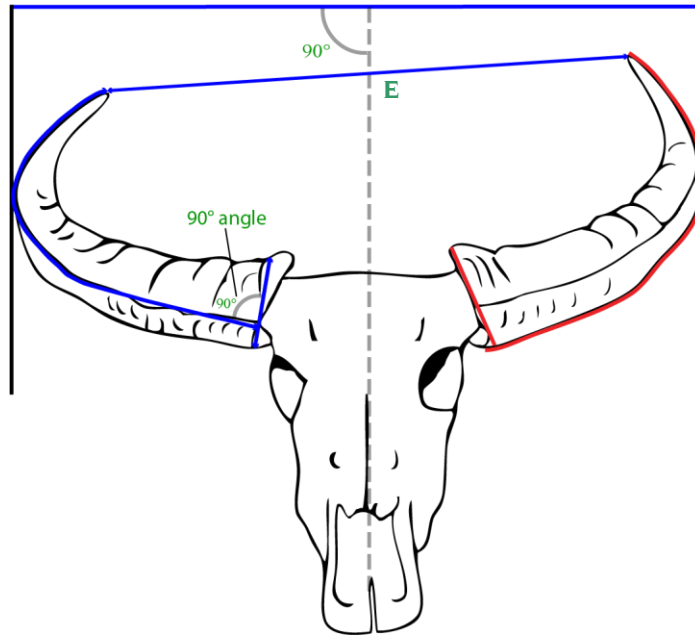


Figure 4

The horn lengths for the water buffalo and tamarau (which are very closely related) are not hard to measure, but one must NOT start underneath the horn. A dissected water buffalo horn looks like a wedge from a piece of a round cake. Measure the length of the horn along the front upper ridge to the edge (Figure 4). Card off at the tip if need be, but note that the base may not be carded off for the starting point of the horn length measurement; the tape must start at the upper corner being hooked on the lip (even though the horn will very likely extend farther toward the center of the skull higher up).

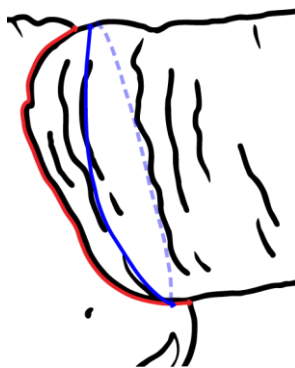


Figure 5.

The bases of the water buffalo/tamarau are often very lobed and uneven. The base measurement should NOT be taken following the edge of the horn. Instead, the tape must form a continuous loop away from the uneven edges, the tape being over horn materials at all times, at a 90-degree angle to the center line (axis) of the horn (Figure 4 & 5). Please note that in order to measure the bases correctly, at a 90-degree angle to the axis of the horns, the measurement must be taken at a significant distance from the furthest horn endings near the skull in most water buffalo heads. DO NOT take a measurement at a different angle and do not follow the contours of the horn endings.

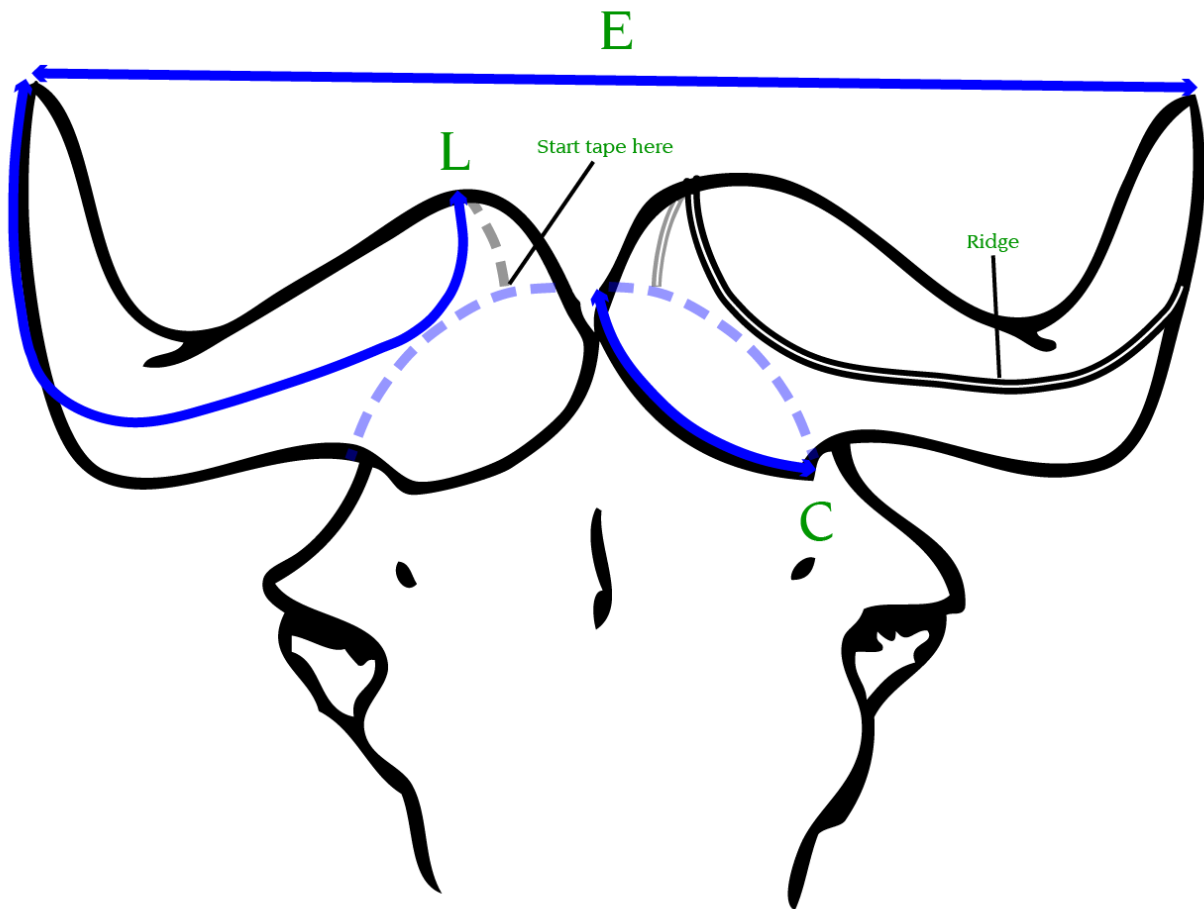


Figure 6.

Takin

The takin is best measured before the trophy is mounted.

For the length measurement start at the *back of the horn* near the neck where the ridge of the horn commences. Hook the tape under the horn on the ridge, and follow the ridge to the front and then outward, keep the tape on top of the ridge. As you go further outward the ridge will disappear, continue straight outward till you get to the outside of the horn, and from there follow the grain of the horn straight up toward the tip in a straight line. If the horn is broken or broomed, card off. (See general instructions.)

Note that the horn bases of a takin are not round like that of a wildebeest. Do not measure the bases higher up on the horn because with some individuals the horns bulge and enlarge one to two inches above the base. Because the horns of a takin bend shortly after rising from the bases taking a circumference at a 90-degree to the axis of the horn is difficult. Thus, the circumference should be taken parallel to the baseline of the horns but do NOT follow the base line edges, instead form one continuous circle around the horn. This will mean the base edges will be at varying distance from the tape.

See pictures below of measuring a takin specimen.



(1) Start length of horn measurement on the ridge on the back of the horn.



(2) Keep tape on ridge and move the tape to the front and then outward till on the outside of the horn.



(3) Once on the outside of the horn point tape straight upward to the tip.



(4) Measuring the base. Tape must form an even circle and not follow contours of base edge

Method 11 Muskox

Ranked on the Sum of Measurements 1 and 2.

1. Length. Measure the length of each horn from the center of the boss to the tip, following along the center of the horn surface (L). (Figures 1 and 2) Start on the boss side in the narrow valley between the two bosses use a hooked $\frac{1}{4}$ -inch wide steel tape. Hook the steel tape around the edge of the horn and then the tape will then go almost straight up and make a turn to arrive at the top of the boss. From there, measure toward the tip while keeping the tape in the center. Marking the center of the horns with a pencil or paper masking tape first is a good way to keep right in the center. As the tape advances toward the point, it may, in fact, start back toward the boss as the horn hooks up and inward. Stay on the center of the horn. If the horn tip is broken or worn, card off. (See General instructions.)

2. Width of Boss. Using a caliper, measure each boss at its greatest width. Make sure your measurement is parallel to the center of the skull. (Figure 1) Do not measure "green" or "soft" boss material. Make sure the caliper is tight along the horn but not so tight that that it snaps inward once it is removed from the horn but not too loose around the horn either. It must touch horn when being removed from the skull so that the space can be measured with an inch tape.

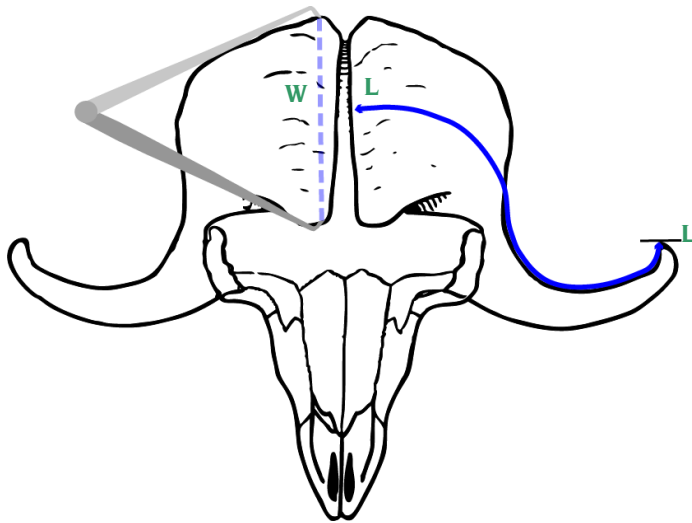


Figure 1

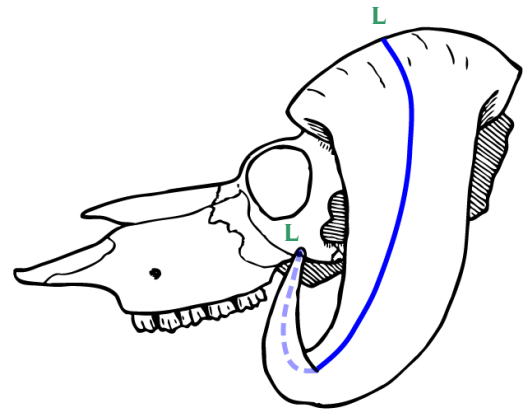


Figure 2

Method 12 African Buffaloes

Method 12-a Cape, Nile, and Central African Buffaloes

Ranked on the Sum of the Measurements of the Widest Spread and the Width of Bosses.

General remarks: The three largest varieties of African buffaloes that fall under this method all have spread and boss development as their most desirable attributes. Rowland Ward emphasizes this.

The preferred time to measure a buffalo is after it has been cleaned and dried but before it is mounted because it is much easier then to see where actual horn starts and soft materials stops. (Soft material must not be measured and should have been removed during the cleaning process.) Measuring a mounted head is also acceptable but more difficult for a couple of reasons. First of all, it is large and unwieldy, and, second, sometimes the bosses have been reconstructed by a taxidermist. Another consideration is that greatest spread is much harder to measure on a mounted head.

If the boss(es) of a buffalo have been enhanced or accentuated or otherwise been altered by taxidermist materials, the head CAN NO LONGER BE MEASURED under the RW system. Practical experience has shown that it is impossible to know where the actual horn starts and human-applied taxidermy materials end as actual horn may or may not be underneath artificial material. Note that manmade materials covering part of the actual horn may be very difficult to see unless exposed to direct sunlight or a strong flashlight. Do not assume that because you only have a skull and horns that the bosses have not been augmented; some such heads are. When in doubt about a head being enhanced, do not measure it. Take photos of the bosses and send them to our offices. We will contact the hunter and request field photos and make a determination about the bosses. Only three measurements of a buffalo are needed, and none is particularly hard to obtain. Close attention must be paid, however, to making sure that a correct angle of measurement is used in obtaining the spread and boss measurements.

1. Greatest Spread. Establish the outer limits of the horns using two right-angle forms. Measure the greatest spread in a straight line and at a right angle to the axis of the horns. (Figure 1)

The easiest way to measure the spread is to lay the buffalo horns and skull on a smooth, flat surface such as a clean, smooth concrete floor and then place two large carpenter's triangles (an L-shaped device made of hard plastic or metal that can stand up straight) on both ends of the horns. Make sure that both triangles are at a 90-degree angle to the axis of the skull. It is now easy to get a measurement. Mark with a pencil where the carpenter's square reaches the concrete floor (both sides), push the horns and triangles away and measure the distance between the two marks. Do not measure from a wall above the horns and skull to a single carpenter's triangle because an air measurement may lead to a tape measure sagging, and this will increase the score. In extraordinary cases, a buffalo may have genital injury (or is a hermaphrodite), and in such cases malformed horns may occur and the spread measurement can be very large. Such animals must be noted in the comment section on the entry form. Such animals normally have very undeveloped bosses.

2. Width of Boss. Using a tape, measure the boss of each horn at its greatest width; this measurement must be taken parallel to the axis of the skull. (Figure 1) DO NOT measure "green" or "soft" boss material.

Start the tape at the back of the boss by hooking it under the horn lip, then curve the tape over the boss, at its widest point, to the front. The tape must be parallel to the centerline of the skull. (Figure 1) Do not press the tape into any depressions; span it over low points. Do not measure green horn or skull bone. It

may take a few tries to find the widest point. A pair of calipers will normally help you find this point quickly; mark the back and front points with a pencil and then use the tape. (Do not use calipers to measure.)

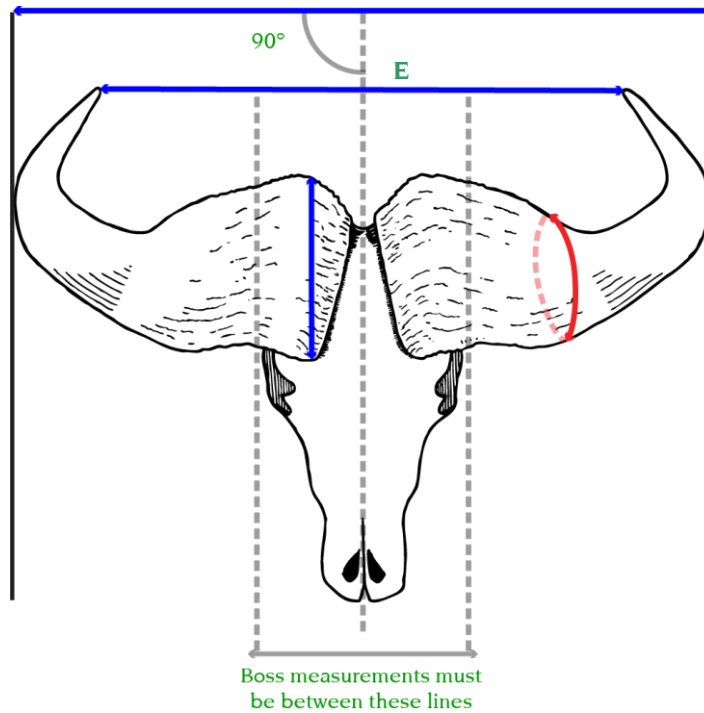


Figure 1 Cape Buffalo. Spread measurement and where to measure bosses.

Some bosses have a very narrow edge and others have a very pronounced “overhang,” so you may have to start the tape at the back of the boss quite low near the brain cavity of the animal. The same situation may occur in the front. Depending on the horn configuration and overhang, it can be possible to roll the tape under the horn at the front of the boss back towards the skull; do not do so. The measurement stops when the tape assumes a straight downward position. In other words, as soon as the horn starts curving inward, stop the width measurement. (Figure 2) Boss measurements may not be taken outside the outer edge of the eye sockets because the horns here begin to form an oval around the bone core of the horn, and if taken in extreme it would lead to a circumference measurement. (Figure 1) Finally, remember to measure exactly parallel to the center line of the skull and NOT at a 90-degree angle to the axis of the horn.

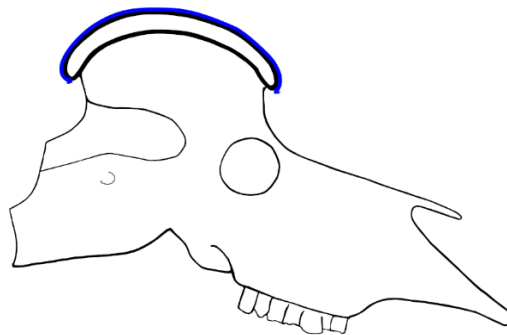


Figure 2 Cape Buffalo. Cross-section of horn & skull, side view. Boss measurement start and stop.

3. Tip to Tip. Measure the tip-to-tip value in a straight line from the center of the left horn tip to the center of the right horn tip. This is a required measurement to check for abnormal horn configurations. Figure 1.

Method 12-b West African Buffaloes and Dwarf Buffaloes

Rank on the Sum of the Length of the Horns and the Width of the Bosses.

General remarks: The dwarf forest buffalo and the West African buffalo have a separate method of measurement from other buffaloes. The spread is seldom very large, especially in the dwarf variety. The length of the quarter-moon-shape horns and the bosses are the most distinguishing features of these smaller bovines. The dividing line between dwarf and West African buffalo is often unclear. The same holds true for the borders of the dwarf buffalo and other buffalo varieties. Because of these factors, all dwarf and West African buffalo submissions must be accompanied with good, clear frontal-face photos.

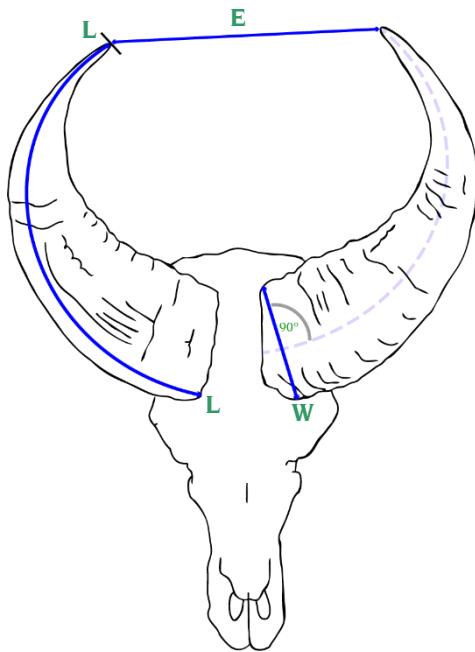


Figure 1

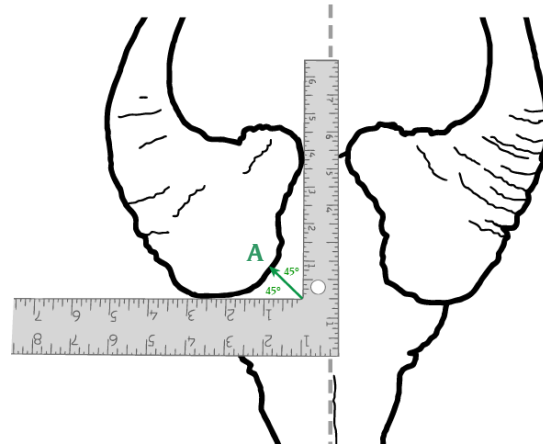


Figure 2

1. Length. Measure the length of each horn on the outside curve. Start in the front and measure along the front edge, keeping to the outside surface and continuing to the tip. (Figure 1) To find the starting point (L), lay the long leg of a carpenter's square against the bottom most part of the boss and place the shorter leg of the square against the inner part of the boss between the horns. Make sure the short leg is exactly parallel to the axis of the skull. (Figure 2) Now divide the 90-degree angle into half (45 degrees) and mark this spot on the edge of the boss. This is the starting point for the length measurement; keep to the outside surface and continue to the tip. (Figure 1)

2. Width of Boss. Using a tape, measure each boss at its greatest width, at a 90-degree angle to the centerline (axis) of the horn, not the skull. (This is different from the method for the three larger buffaloes under Method 12-a.) Do not measure "green" or "soft" boss material. Depending on the horn configuration, it can be possible to take a "circumference" measurement for the width. Only measure the top 50 percent of the horn for the width; as soon as the horn starts curving inward (downward), stop the width measurement. (Figure 3) Do not press the tape into any depressions; span it over uneven points. Do not measure the skull under the boss; measure the horn only. Boss measurements may not be taken outside the outer edge of the eye sockets because the horns here begin to form an oval around the bone core of the horn, and if taken in extreme, it would lead to a circumference measurement.

Often a taxidermist will enhance a soft boss with putty and other materials; this makes a soft boss seem like a hard boss once the head is mounted. If the boss(es) of a buffalo have been enhanced or accentuated or otherwise been altered by taxidermist materials, the head can NO LONGER BE MEASURED under the RW system. Practical experience has shown that it is impossible to know where the actual horn starts and human-applied taxidermy materials ends. Note that manmade materials cover part of the actual horn may be very difficult to see unless exposed to direct sunlight or when viewed with a strong flashlight. When in doubt about a head being enhanced, do not measure it.

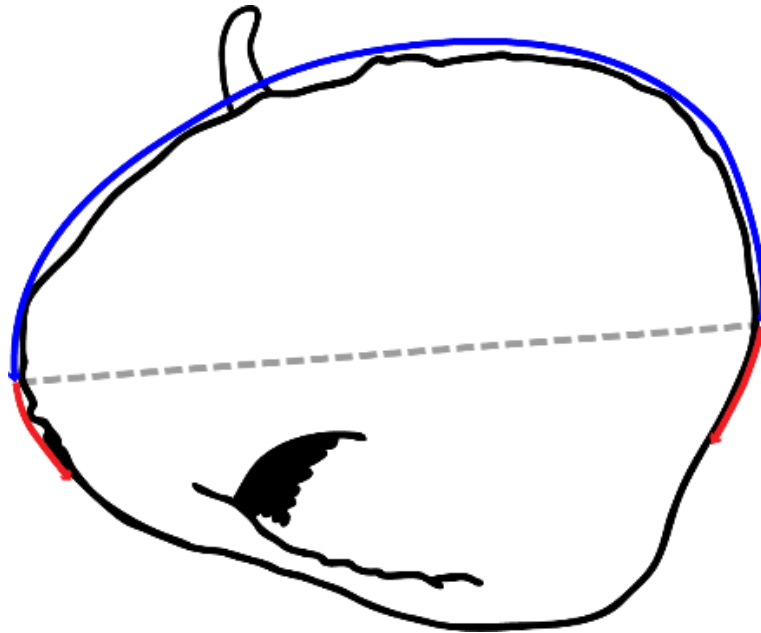


Figure 3

View of a horn removed from the skull looking straight towards the tip.

3. Tip to Tip. Measure the tip-to-tip value in a straight line from the center of the left horn tip to the center of the right horn tip. This is a required measurement to check for abnormal horn configurations. Figure 1.

Method 13 Wildebeests and Gnus

Method 13-a Cookson's, White-Bearded, and Nyasaland Wildebeests; Brindled Gnu

Ranked on the Widest Spread.

General remarks: Rowland Ward used to use the same measurement method for most wildebeests and large buffaloes. These animals have a lot in common, but because a wildebeest has bases of which a circumference can be taken with good accuracy, something that is not possible with a buffalo, the editors decided to create a separate method for recording wildebeests.

1. Greatest Spread. Establish the outer limits of the horns using two right-angle forms. Measure the greatest spread in a straight line and at a right angle to the axis of the skull. (Figure 1, G)

To measure the spread, lay the horns and skull on a smooth, flat surface such as a clean, smooth concrete floor and then place two large carpenter's triangles (an L-shaped device made of hard plastic or metal that can stand up straight) on both ends of the horns making sure that both squares are at a 90-degree angle to the axis of the skull. It is now easy to get a measurement; mark with a pencil where the triangles reach the concrete floor (both sides), push the horns and triangles away, and measure the distance between the two marks. Do not measure from a wall above the horns and skull to a single carpenter's square because an air measurement may lead to a tape measure sagging, and this will increase the score.

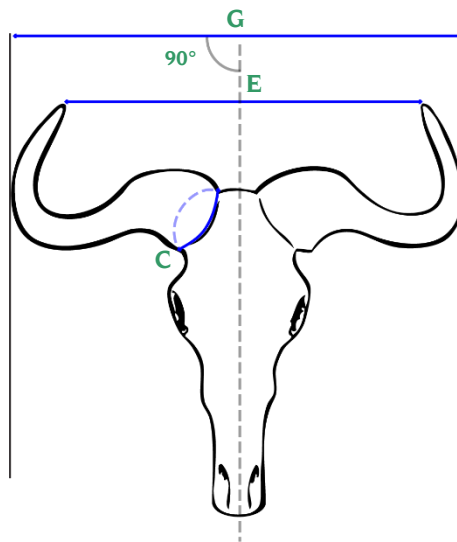


Figure 1 Blue, Cookson's, Nyasaland, or White-bearded Wildebeest

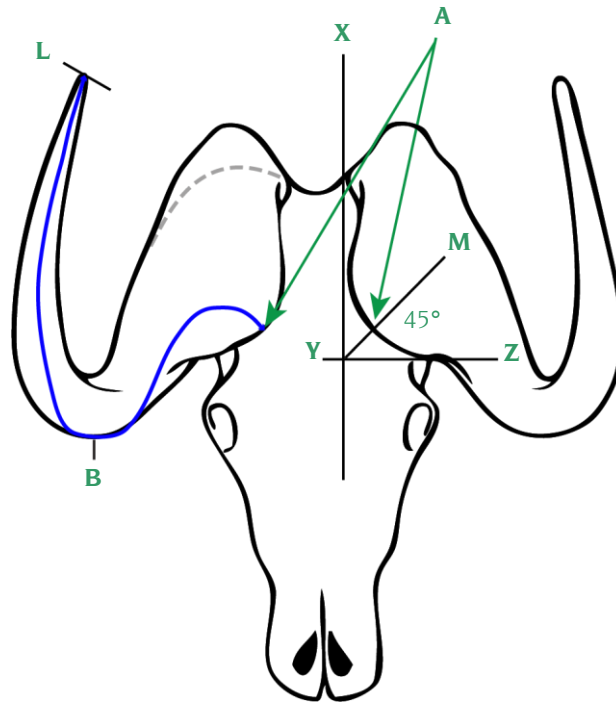
2. Circumference of Base. Measure the circumference of the bases at their widest point. This measurement must be parallel to the horn ends and is not taken at a 90-degree angle to the axis of the horns. Use a tape and keep a tight loop. This is somewhat akin to the measurement of a burr of a large deer but less rough. In general the bases of a wildebeest are quite smooth; nevertheless, do not press the tape into any depressions or cracks.

3. Tip-to-Tip Spread. Measure the spread from the very tip to the other tip. (Figure 1, E) The best tool for this is a wood ruler with a 6-inch slide rule built in. N.B. In order to fall in the typical category, the tip-to-tip measurement must be at least 2 inches less than the greatest spread and both the left and the right tips must be at least 1 inch less than the widest spread on their respective sides. If not, the animal falls into the non-typical category.

Method 13-b White-tailed Gnu / Black Wildebeest

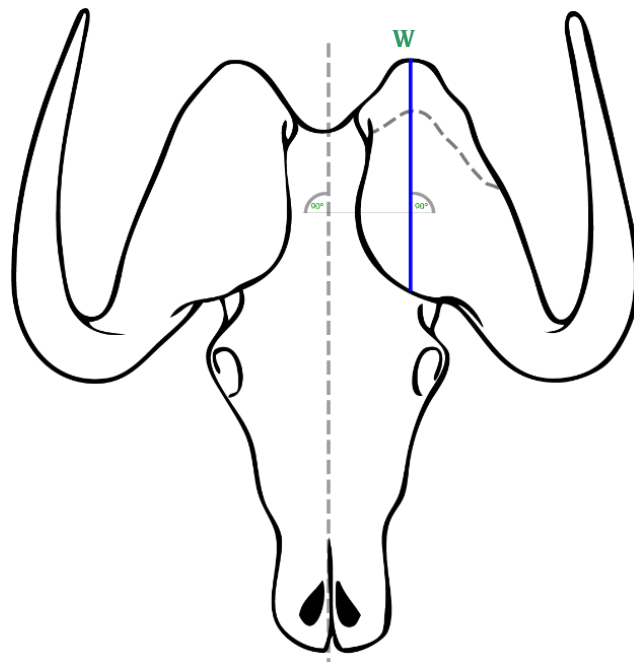
Ranked on the Length of the Longest Horn.

General remarks: This is the only African antelope to have a method of its own under the Rowland Ward system. It is not hard to measure, but establishing the starting point for the horn length takes a bit of work to do accurately.

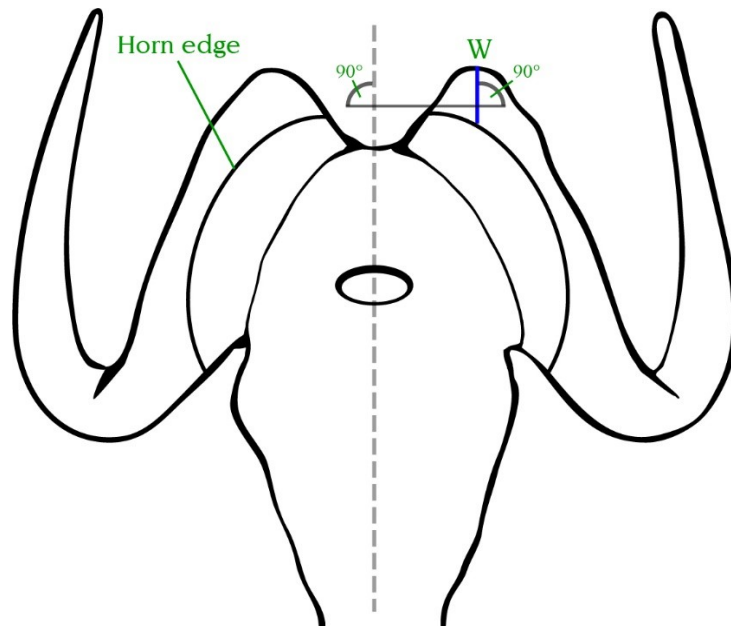


Black Wildebeest Figure 1

1. Length. To determine the starting point, lay a carpenter's square (CS) at a right angle along the boss (Figure 1, XYZ). The line XY is parallel to the centerline of the skull. Line Y-Z is at a 90-degree angle to the axis of the skull and will touch the lowest point of the boss. In order to get an accurate starting point lay the short leg (line Y-Z) of the CS underneath the horn and push the long leg (line X) straight up till it can go no further, this will mean that the CS will cant downward as the shorter leg is pushed further under the horn and this is correct but be sure to keep the axis of the long leg exactly parallel to the center line of the skull. Keep pushing the long leg up till the 90 degree corner of the CS is as close to the boss as is possible while maintaining the long leg's parallel line with the axis of the skull. Now bisect XYZ at a 45-degree angle (M). The point where this line meets the boss (A) is the starting point for measuring the length of each horn. Mark this with a pencil or piece of chalk. Next, mark the lowest point of the horn on the outside of the "elbow" before it curves up (B). For the length measurement a cable is mandatory, do not use a steel tape; it buckles and is very hard to keep on the correct line of measurement. Start at A and follow the grain of the horn over the ridge of the boss down and under to the front of the horn, go over the lowest point at the elbow (B), and then move up the center front to the tip (L). (Figure 1)



Black Wildebeest Figure 2



Black Wildebeest Figure 3 (view from back)

2. Width of Boss. Measure the width of each boss. Find the highest point on top of the boss (Figure 2, W) and mark it with a pencil or chalk. Hook the tape at the horn lip at the bottom of the boss in the front there where the tape will make a straight line to point (W) while the tape is parallel to the center-line of the skull; once you reach the top of the boss (W) take the tape straight down to the edge of the horn in the back (Figure 3), again, all the while keeping the tape parallel to the center-line of the skull. This is NOT a circumference measurement. Do not measure hair or taxidermist materials and start and stop at the edge of the horns, do not measure skull.

Method 14 All True Wild Sheep (*Ovis*)

Ranked on the Sum of Both Horn Lengths and All Circumferences.

General Remarks: This measurement is used only for true sheep—mouflon, urials, argalis, snow sheep, thin horn sheep, and bighorn sheep (*Ovis musimon*, *Ovis orientalis*, *Ovis ammon*, *Ovis nivicola*, *Ovis dalli*, and *Ovis canadensis*). Aoudad (Barbary sheep) and blue sheep are not true sheep and are measured under method 7-c, along with the East Caucasian or Dagestan tur (a wild goat).

Wild sheep are among the most magnificent large fauna of the world. While wildlife-viewing tourists prefer the large cats, the Big Five, and other mega fauna, hunters often consider wild sheep to be the most desirable of all the game animals.

In general sheep are not hard to measure, but close attention must be paid to (a) their bases, (b) the ridges (large argalis and some urials), and (c) the quarter-measurement system. This system requires hunters to measure at the point of the quarters of the longest horn.

1. Length. Measure the length of each horn from the base to the tip (Figure 1, L-L and Figure 2). Many sheep have horns that have a flat frontal surface that extends from the base all the way to the tip. Place the 90-degree hook (found on the end of the steel tape) around the lowest point at the base and then follow the center of the ridge throughout the curve of the horn to the tip. End the measurement to a point that is in line with the end of the tip but do not curve the tape to get to the center of the tip. Card the horn off and measure up to the farthest protruding point of the horn in a straight line. (Figure 3)

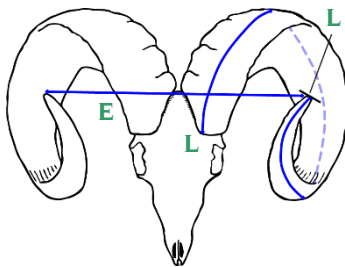


Figure 1

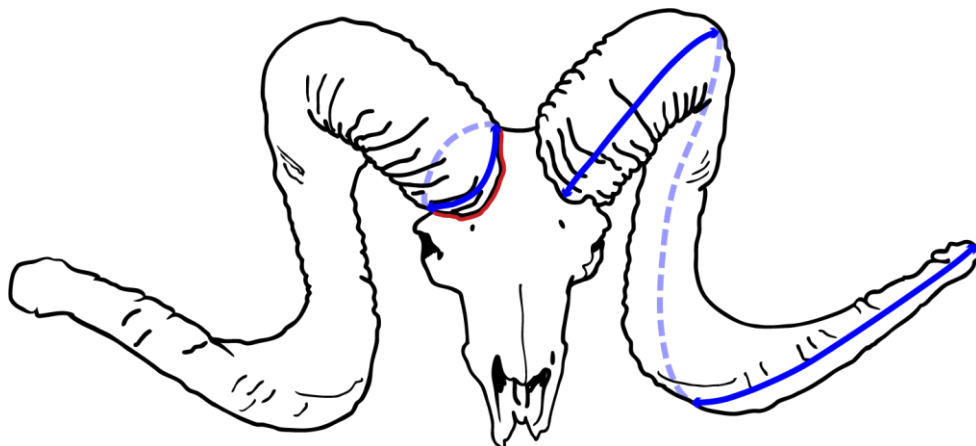


Figure 2

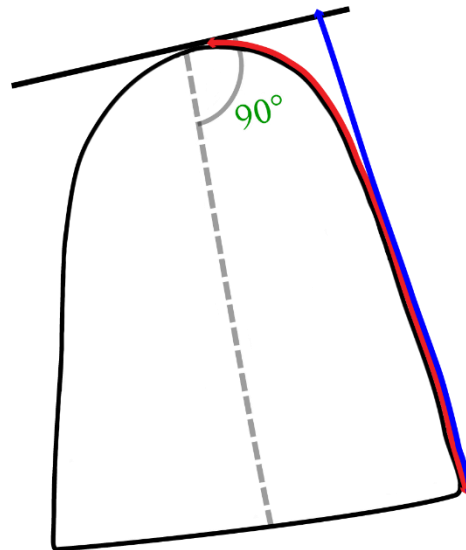


Figure 3

In the case of some argalis and urials, the horns can be more rounded so care must be taken to stay in the center of the horn after you have started from the lowest point on the base. Many sheep, especially North American and the closely related snow sheep, have a protruding point/small ridge at the lower front end of the bases; this is clearly the lowest point. Do not press the tape in any ridges, depressions, or missing chunks of horn to increase the length measurement; all such gaps should be air bridged.

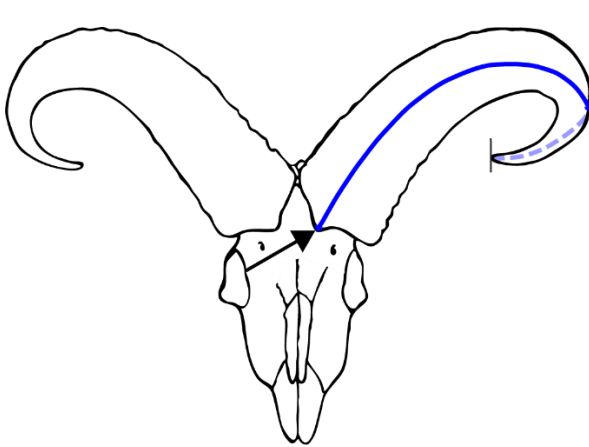


Figure 4

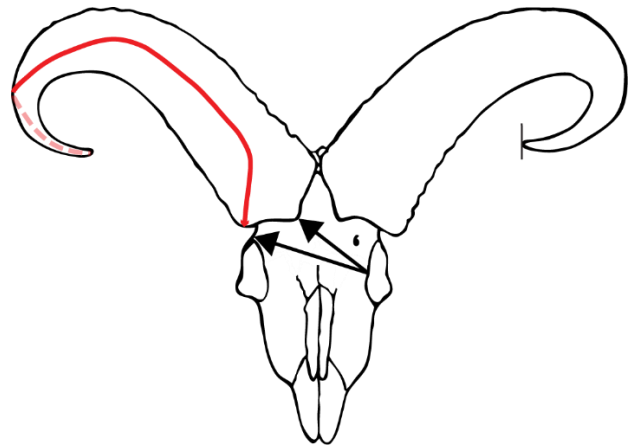


Figure 5

With some mouflon and urials, the horns tend to grow backward to a point above the neck rather than forming a curl forward around the eye. With such convex horns—especially found in Cyprian and Armenian mouflons—the “opposite eye socket” rule should be applied in order to find the starting point. Start the length measurement on the front of the horn at that point where the horn is closest to a straight line drawn from the center of the eye socket on the opposite side of the skull. (Figure 4 & 5) Note the lines in Figure 5 one pointing at the center of the horn and the correct starting point and the other to the outside and the wrong starting point. Figure 4 shows the correct lines. Do not measure from the lowest point of the horn near the eye socket on the side you are measuring. (Figure 5) Keep following the grain till you reach the end.

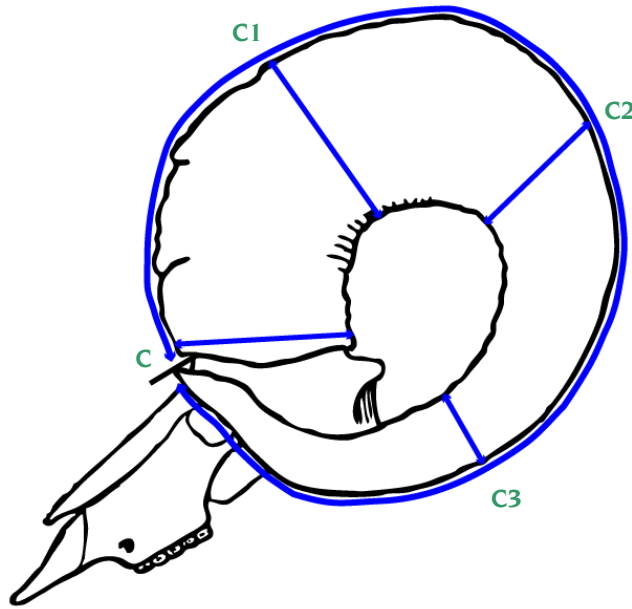


Figure 6

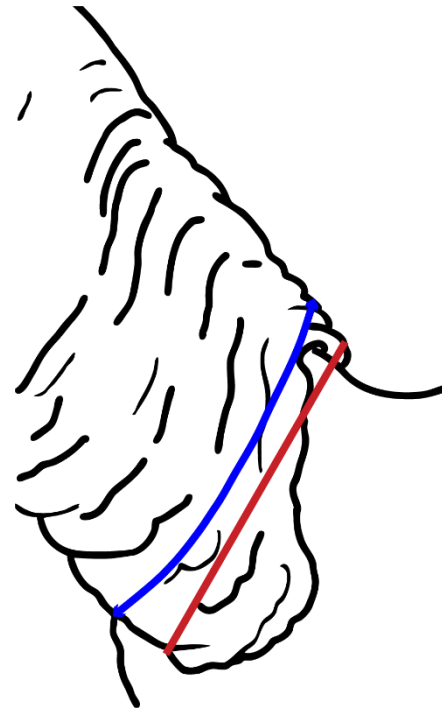


Figure 7 Argali Base

2. Circumference. Take the length of the longest horn and divide it into quarters (25%). (Figure 6) Record the intervals of the longest horn on the score sheet table in the “Quarter Longest Horn” column. Starting at the base and using a pencil (or pieces of masking tape), mark both horns at the same intervals all the way to the 3rd quarter. Measure the circumference of each horn at the base (C), the first quarter (C1), the second quarter (C2), and the third quarter (C3). These measurements are to be made at a 90-degree angle to the axis of the horn including the base (C). Do not use a tape with a 90-degree hook on the end; instead, use a steel tape with a ring on the end because only a tape that will lie flat completely will give an accurate measurement of the circumference. If you have no steel tape without a hook, make a loop on a hooked-steel tape and start at the 10-inch mark and deduct 10 inches from the measurement.

The base measurement is challenging; it must be taken at a 90-degree angle to the axis of the horn, (do not follow the contours of the waving horn edge) the inside of the tape must touch horn material at all times, and no air gaps on the edges of the horn may be bridged. (Figure 6 and 7)

Rarely on the (C2) but more often on the (C3) measurements on some sheep, especially argali, the tape can create an air bridge because the inner horn forms a concave hollow. In such cases let the tape span over the hollow from one ridge to the next. The tape must not be pushed down to the horn to increase the circumference value(s). (Figure 8)

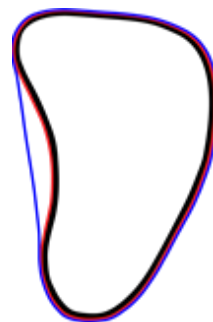


Figure 8 cross section horn at C3

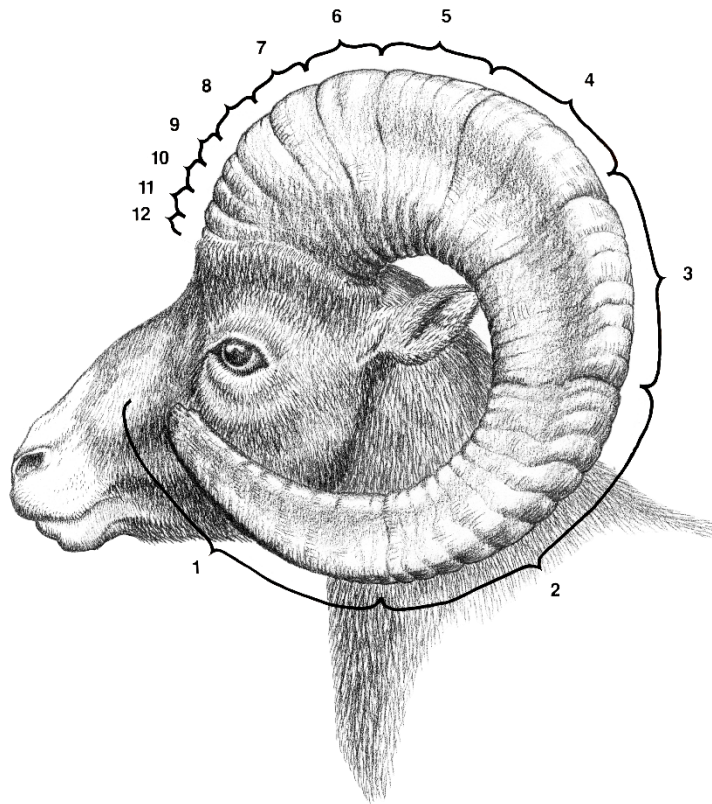


Figure 8 (from *Sheep and Sheep Hunting*, O'Connor, used with permission)

3. Record the Age. This is a supplemental measurement. Carefully count the growth rings of the ram to determine its age. (Figure 8) Do not count rings that do not extend the entire circumference of the horn. Count the rings on both horns so that you can verify you have the right number. It is important to remember that hunting is a conservation tool, and, as such, hunters for mountain game seek to shoot old males.

Counting the rings (annuli) on markhorns, ibexes, true sheep, and many wild goats (*Capra*) is almost always possible. Growth rings are the result of the difference in the sheep's food intake during the winter and spring seasons: Horn growth slows during the winter season when food intake is lower and then accelerates again in the spring. Be careful not to count a ring that does not extend the entire circumference of the horn; these "false start" rings can be caused by better food conditions that occur temporarily late in the winter season. (See Figure 8, in the middle of year 4) Remember that the space between annuli should show a proportional reduction as the sheep grows older. Keeping this in mind will help with identifying true and false annuli. In sheep with heavily broomed horns, the first growth ring may no longer be there because it has been worn off; in that case still count it. This is only very rarely so for ibexes and markhorns. Whenever possible, measurers for the Rowland Ward record book should take the extra effort to determine the age of ibexes, sheep, and goats. These data will be published in *Rowland Ward's Records of Big Game*.

4. Tip to Tip. Measure the tip-to-tip value in a straight line from the center of the left horn tip to the center of the right horn tip. This is a required measurement and valuable as some sheep can display very large measurements tip to tip. (Figure 1)

Method 15 Markhor

Ranked on the Longest Horn.

General remarks: Markhors are one of the world's greatest game animals. Their horns may spiral 60 inches (152 cm) or more in length, and the males in populations in colder climates exhibit long guard hairs in the winter along the front and the side of the bodies. The Suleiman variety has very tightly twisting horns that go up straight from the skull in a "V" shape; their horns resemble the inside of a rifle barrel. The Astor variety may show curls with huge diameters that can be even larger than a kudu's. Markhors have two spiral ridges per horn (back & front) but see below about how to measure.

The Chilton wild goat, sometimes referred to as a "markhor," is measured under Method 7-b. Although some specimens of Chilton wild goats display a certain amount of twisting of the horns, historical records show that not all do and they do not have two spiral ridges like a markhor; therefore, using Method 15 to measure a Chilton wild goat is inappropriate.

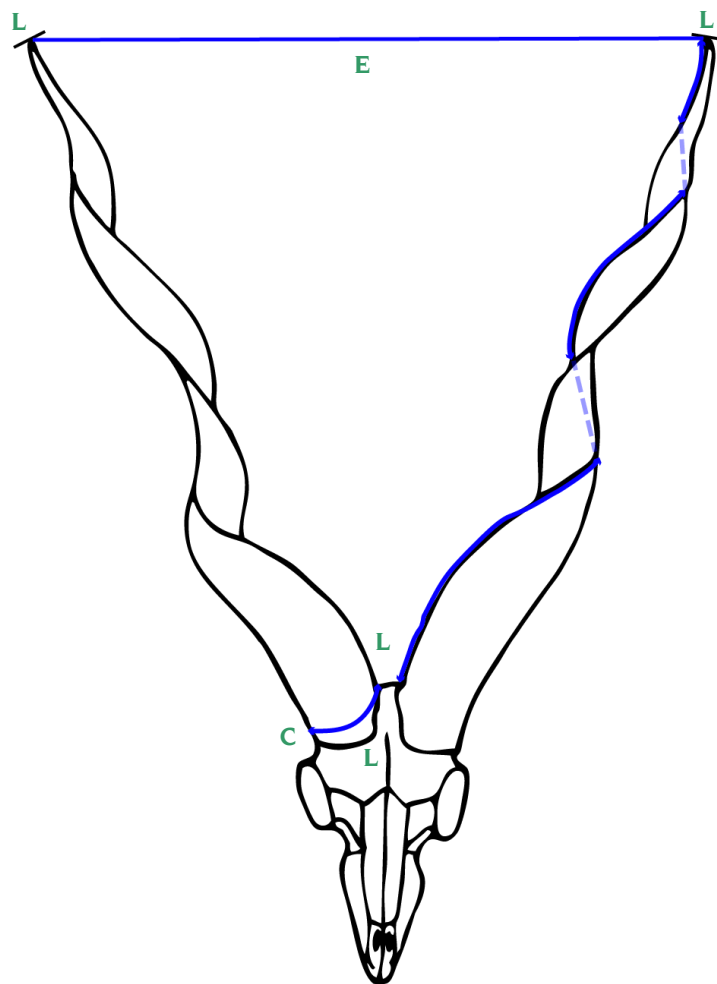


Figure 1 Medium-Curl Markhor

1. Length. Measure each horn around the spiral by keeping the tape on top of the spiral ridge. (Figure 1) Start at the lowest point at the back of the base and proceed to the tip. Where the spiral ridge ends near the tip, proceed in a straight line to the tip and do not continue to spiral. Note; do not start the tape on the front of the horn and then move towards the back ridge, start the tape at the base on the back ridge.

Most markhor horns have two spirals—front and rear—albeit some specimens have only one well-defined rear spiral ridge. As a general rule, the front has a more rounded and somewhat less defined ridge while the rear is more pronounced. Markhors must be measured on the rear ridge, not the front. The editors had occasion to measure 18 markhors of all varieties of horn (from Astor to Suleiman) in a collection in December 2022 and it was found *that in all cases the rear ridge was (much) better defined and always yielded the longer measurement.* This is an update of the rules.

2. Circumference. Measure each horn at the base (C). Measure the circumference of the base of each horn at a 90-degree angle to the axis of the horn. Find the lowest point near the base where the tape encircles horn only and measure; this must be at a 90-degree angle to the axis of the horn. It is an advantage to have two people measure the bases of the more challenging markhors.

Depending on the individual some markhors have hard-to-measure bases. Care must be taken to ensure a continuous loop with the tape so that it is on or above horn material at all times. Do not depress the tape into valleys or deep grooves. These grooves run parallel to the spirals found along the lower part of the horns and right at the horn bases of markhors. The tape must span from one high point to the next; thus, there will be “air bridges” created by the tape while measuring. Do not weave the tape along the edge of the base because this will result in a very much higher score for the circumference; this is wrong.

3. Growth Rings. This is a supplemental measurement. Determine the age by counting the rings (annuli) on both horns. It is important to remember that hunting is a conservation tool and as such hunters for mountain game seek to shoot old males. Whenever possible measurers for the Rowland Ward record book should make the extra effort to determine the age of ibexes, sheep, and goats.

Counting the rings is almost always possible for markhors, ibexes, true sheep, and many wild goats (*Capra*). Growth rings are created due to the lowering of food intake during the winter season and the accelerating of food intake in the spring; thus, based on food intake, horn growth slows and then accelerates during these two seasons. This, in turn, causes the growth of rings on the horns.

Be careful not to count rings that do not extend around the entire circumference of the horn; such “false start” rings can be caused by temporary better food conditions late in the winter season. With some sheep that exhibit heavy brooming, the first, and in rare cases, the second growth rings are no longer there because the horns have been worn off. This is only very rarely so for ibex and markhor. The age data will be published in *Rowland Ward's Records of Big Game*.

4. Tip to Tip. Measure the tip-to-tip value in a straight line from the center of the left horn tip to the center of the right horn tip. This is a required measurement.

Method 16 Rhinoceroses from Africa and Asia

Ranked on the Length of the Longest Horn.

General remarks: All rhino horns are subject to shrinkage; consequently, the drying out process is particularly critical to obtaining an accurate measurement. Like all other animals in RW the rhino requires a 60-day drying-out period. Hunters should keep in mind that green measurements taken in the field are invariably much greater than the eventually “dried-out” measurement that follows two months later. Measurers should be aware that many mounted rhinos today have horns made of artificial materials because of the extreme value of real horn and because of safety concerns of having real horn in one’s home. Artificial horns obviously cannot be measured.

When measuring the length and circumference, great care must be taken to not measure the hide or artificial taxidermy materials. The horns must be measured in a place where there is excellent light—daylight is preferred—so that the measurer can ascertain the difference between the actual horn and the skin. Many mounted rhino horns have been enhanced with taxidermy materials where the base of the horn and skin meet, and this must not be measured.

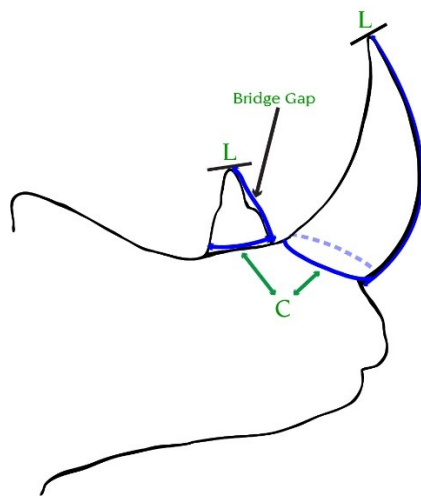


Figure 1

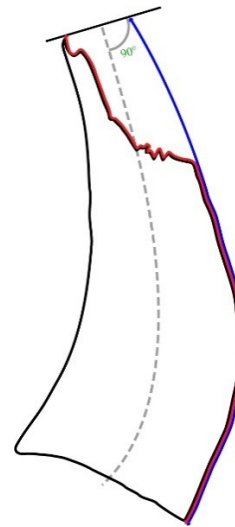


Figure 2

1. Length. Measure the length on the front curve of each horn from the base to the tip. (Figure 1) In case the horn has a piece missing or has grooves or holes, the tape measure must bridge such gaps and must not be pushed into the depressions. (See Figure 1, rear horn, L) Many rhinos have a broken horn or worn tips, and they must be carded off at the tip in order to get an accurate measurement of horn length. (See Figure 2 and General Instructions for carding off.) Make sure the tape measure is not pressed into the broken area or indentations, grooves, or holes, which would increase the length. Measure the front of the horn along the outer curve. Start where the hide stops and the short hairs of the base of the horn start.

2. Circumference. Measure the circumference around the base of each horn. (Figure 1) As with the measurements of antelope horns, the circumference must only measure horn, not skin. Most rhino horns will not have an even end like a piece of water pipe that has been cut off at a 90-degree angle. The temptation is to follow the uneven edges of the horn (weave the tape measure). This will result in a very much higher value for the circumference and is wrong. The tape measure must form one continuous circle at a 90-degree angle to the axis of the horn. Do not follow the uneven edge of the horn. Again, great care must be taken to not measure artificial taxidermy materials.

Method 17 African and Asian Elephants and Mammoths

Ranked on the Weight of Both Tusks.

General remarks:

Measurers should be aware that virtually no elephant shoulder mounts have actual ivory tusks; most have reconstructed fiberglass tusks. Some of these look remarkably like real ivory. Mounted elephant heads cannot be measured unless the tusks are removed. Please note that the length of a tusk and its circumference are worthwhile measurements that are of interest to naturalists, biologists, and hunters. Rowland Ward has listed lengths of tusks since the late 1800s. Please do not forget to record these supplemental measurements.

Rowland Ward has a number of recorded historical mammoth tusks listed in the book for comparison purposes and general interest.

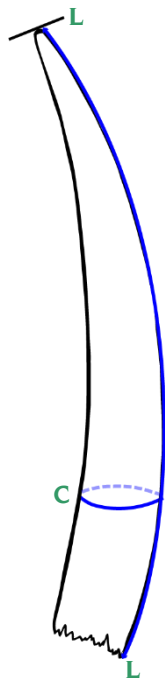


Figure 1

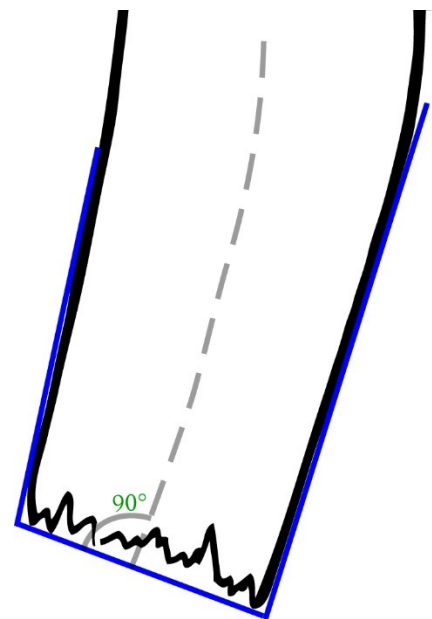


Figure 2

1. Weight. Weigh both tusks. Because some scales only give metric measurements, we give instructions in pounds and kilos. When ivory is weighed in pounds (454 metric grams), it should be recorded to the nearest pound. Weights falling at or above the half-pound mark are to be recorded at the next highest pound; weights falling below the half-pound mark are to be recorded at the next lowest pound. Make a photo of each tusk while on the scale in such a manner that the indicator on the scale can be seen and submit this photo

When weighing the tusk in kilograms, weigh each tusk to the nearest half kilogram (500 metric grams). Weights falling at or above the quarter-kilo mark will be recorded at the next highest half kilo; weights falling below the quarter-kilo will be recorded at the next lowest kilo. Weights falling on or above the three-

quarter- kilo mark will be recorded at the next highest kilo; weights falling below the three-quarter kilo will be recorded at the next lowest half kilo.

DO NOT weigh tusks with pedestals, taxidermy materials, or plugs placed in the hollows where the nerve used to be. Such tusks cannot be weighed unless removed from the bases and the materials in the nerve hollows completely removed.

Rowland Ward has two minimums for elephants—one for the weight of a single tusk and the other for a pair. See Minimums online at RowlandWard.org. If one tusk is broken and the other meets the minimum for a single tusk, such an elephant is eligible for entry; in such cases still record both tusks even if one is very small.

2. Length. Record the length on the *outside* curve of each tusk to the nearest quarter inch. (Figure 1) The measurer may find small chips missing at the base of an elephant's tusk because the ivory is very thin there. (Figure 2) To determine the end point of a length measurement, make an imaginary circle at a 90-degree angle to the axis of the tusk along the farthest points of the end of the tusk. Measure from this circle on the outside of the tusk to the tip. (Figure 2)

3. Circumference. Record the greatest circumference of each tusk to the nearest $\frac{1}{8}$ -inch. (Figure 1, C) It should be noted that the greatest circumference often is not at the base of the tusk but approximately where the end of the lip occurred. The circumference should be measured at a 90-degree angle to the axis of the tusk.

Method 18 Skulls of All Cats, Chevrotains, Hyenas, Javelinas (Peccaries), Wolverines, and Wolves

Ranked on the Sum of Measurements 1 and 2.

General remarks: For the skulls of carnivores, measure to $\frac{1}{16}$ -inch. Note that only the upper skull may be measured; no lower jaw is included. The skull must be entirely cleaned, and all hide, flesh, and cartilage must be removed and then dried for 60 days. The measurements are taken along the length of the axis of the skull (length) and at a right angle of this axis (width).

Measurers must note all malformations. Injuries to the jaw can make teeth stick out and thus increase the score; they must not be measured. In some cases a skull may have come apart during the cleaning process. In such cases, a reassembled skull may be measured, but the measurer must be certain such reconstruction does not add to the score. If this cannot be ascertained, the skull cannot be measured.

Make sure the caliper is tight along the skull but not so tight that it snaps inward once removed from the skull but not too loose around the skull either. The caliper must touch bone when being removed from the skull so that the space can be measured with an inch tape.

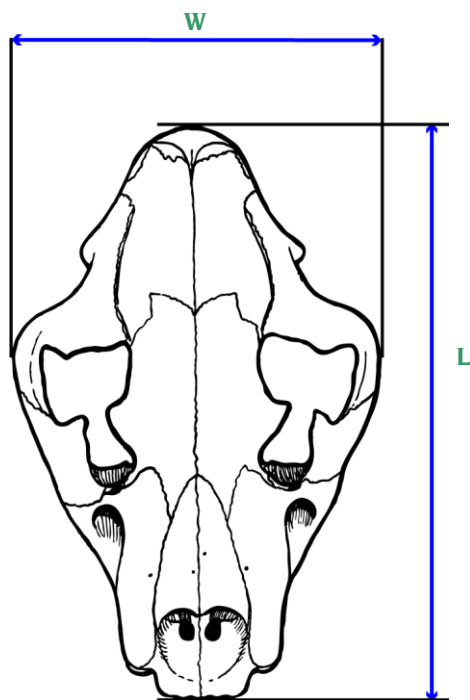


Figure 1

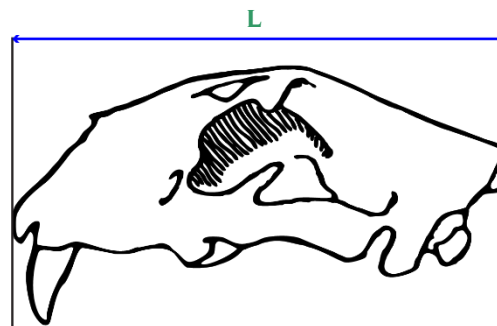


Figure 2

1. Length. Establish the outer limits of the length of the skull. Measure with a caliper along the skull's lengthwise axis. Measure the distance between the points of the caliper. (Figures 1 and 2, L)

2. Width. Using a caliper, determine the width of the skull at a 90-degree angle to the skull's axis. Measure the distance between the points of the caliper. (Figure 1, W)

Supplemental Measurements: The following measurements will only be accepted if the skull measurement qualifies the animal for inclusion. **Animals are ranked only on skull measurements and not on body measurements/weights.** These measurements can be taken by the guide or outfitter and a witness if an official Rowland Ward measurer is not available. They must sign and date the measurement form.

Body Length for Cats, Civets, Hyenas, Wolverines, and Wolves (Supplemental)

Rowland Ward will accept a body length measurement as supplemental data for all cats, civets, hyenas, wolverines, and wolves, but for no others. This is a field measurement and must be taken before skinning. It is a measurement of the total body length, including the length of the tail. Measure to the nearest quarter-inch. Do not measure a skinned animal because a fresh, green skin stretches considerably.

Lay the animal on its side on a flat piece of terrain. This is important in order to get a proper measurement. Pull the nose and tail into a straight line, and then drive in pegs at each end. Place the peg at the end of the tail flesh/skin and not at the end of the hairs. Make sure the pegs are at a 90-degree angle to the ground. Remove the animal. Take the measurement between the pegs directly on the ground, not with a gap between the tape and the ground. Do not measure over the contours of the body of the animal. The terrain must be flat and cleaned of debris and the tape measure must not be pushed into depressions in the terrain.

Squared Measurement for Bears (Supplemental)

For all bears, Rowland Ward will accept as supplemental data a “squared” skin measurement. This is a field measurement of a fresh skin and must be taken after skinning. It is a measurement of the total skin width and length. Lay the skin on a flat, even surface but do not stretch it. Measure to the nearest quarter-inch. Measure from the tip of the nose to the end of the tail, but not the hairs that extend beyond the tip of the tail. Next, measure the width of the skin from the claws of the left front leg to the claws of the right front leg; the claws of the front feet are part of the measurement. Add the two measurements together and divide by two.

Weight Measurement for All Animals (Supplemental)

For all animals that fall under Method 18, we will accept as supplemental data a body weight measurement. This must be taken before skinning or gutting and as soon as practical after the animal is shot. Animals may not be measured when wet, either from rain or having been dunked in water. Be sure not to weigh any harness or other devices that may be used to hold up the animal for the scale. The weight must be taken with a scale; no estimated weights can be accepted. When measuring in pounds (lbs.), record to nearest 0.5 (half) pound. When measuring in kilograms (kg), record to nearest 0.25kg (250 metric grams). (A pound equals 454 metric grams.) Make a photo of the scale in such a manner so that the indicator on the scale can be seen with the animal and submit this photo.

Method 19 All Crocodilians; Nile, Salt Water, Mugger (Marsh) Crocodiles and American Alligator

Ranked on Length.

General remarks: It is generally accepted that the length of a crocodilian is its most desirable attribute. Hunters consider the “between-the-pegs” technique to be the most accurate measurement of length; it is the method Rowland Ward has used since the late 1800s. This is a field measurement and is taken before skinning; it is a measurement of the total body length, including the length of the tail. Do not measure a skinned crocodile as fresh, green skin stretches considerably.

Rowland Ward measures crocodilians in a straight line between the pegs and **not** following the contour line of the body from nose to tail. (Figure 1) The body contour, scales and depression over the spine add considerably to the measurement. Also, some specimens are considerably bulkier in the middle, depending on two factors: a) the size of recent meals, and b) the amount of time elapsed after death because crocodilians bloat after dying and both are factors that will increase an “over the body” contour measurement.

This measurement can be taken by the professional hunter or witness if an official Rowland Ward measurer is not available. In that case, it must then later be certified by a measurer. It should be noted that the editors will accept measurements of fully mounted specimens as it has been established that there is very little, if any, longitudinal stretching of the skin involved in such cases. However, not many crocodiles are mounted in a straight-line position, yet the length can only be taken in a straight line between the tip of the nose and the tip of the tail. Length of fresh or raw skins, dried, cured, or tanned skins will not be accepted.

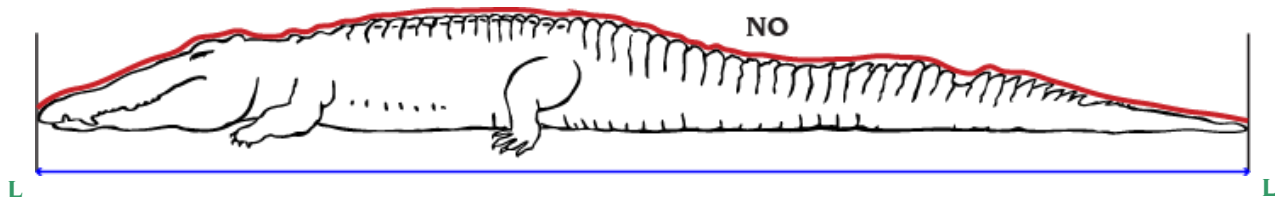


Figure 1

1. Length. Lay the crocodile on a flat piece of terrain that is cleared of debris such as rocks and sticks. This is important in order to get a proper measurement. Pull the nose and tail of the reptile into a straight line, and then drive in pegs at each end. Make sure the pegs are at a 90-degree angle to the ground. Remove the crocodile. Take the measurements between pegs along the ground. Care should be taken to measure from where the peg is entered in the ground in a straight line to where the second peg touches the ground. The terrain must be flat and the tape measure must not be pushed into depressions or lifted up by sticks or rocks. Measurements should be taken to the nearest quarter-inch (or centimeter). Do not measure over the contours of the body of the animal. (See red line in Figure 1.) Make a photo of the animal in such a manner so that the pegs can be seen with the animal and submit this photo.