

Cautions for interpreting calf:cow and bull:cow ratios:

During most aerial surveys, biologists attempt to classify elk into calf, cow, and bull categories. Classifying elk can be difficult under certain conditions such as: high winds preventing low elevation flying, very large groups, location of groups in relation to fences or houses, snow conditions, groups moving into timber cover, or other circumstances. Because of these circumstances, sometimes biologists access large groups from the ground for follow up classifications. This is primarily used to estimate calf:cow ratios, rather than bull:cow ratios, as most bachelor groups of bulls are more difficult to find/observe during the winter from the ground near roads. When follow-up ground classifications can not be completed, there remains *unclassified* elk in the survey data.

Even during aerial surveys, bulls can be difficult to consistently find and classify due to bull elk distribution fluctuations, observability of bachelor groups of bulls being more variable (due to smaller group sizes and tendencies to be in or near to cover), and bull elk not always moving to winter range. Because of the differences in observability for bulls and the segregation between bulls and cows during winter, observed bull:cow ratios are often considered the *minimum* bull:cow ratio, with the assumption that there were additional bulls not observed.

However, if large groups that are typically cows, calves, and yearling bulls are left *unclassified* due to the difficulties associated with classifying large groups and are not included in calculating the bull:cow ratio, then the ratio may be artificially inflated.

Because of these difficulties in interpreting bull:cow ratios, in some areas other metrics are used to assess bull populations from year to year. These other metrics include: total bulls counted, size or age class of bulls in harvest, or brow-tined bulls: total elk observed.

In the data provided, bull:cow ratios have been adjusted if the survey included unclassified antlerless elk. This adjustment was made by assuming the unclassified antlerless elk had the same composition of calves:cows as those groups that were classified. From this assumption, we can estimate the number of cows that were in the unclassified group and include them in the bull:cow ratio calculation. Because of this correction, some of the reported data may be different from individual reports that were previously released. Bull:cow ratios were not calculated if there were <50 cows classified, or if the survey quality was deemed "poor".

One thing to bring up regarding bull:cow ratios and #s of EHA permits that folks need to keep in mind, is that not all HDs have the same bull objective. Some are managing for at least 30 bulls:100 cows, whereas others are managing to maintain 10 bulls:100 cows, others have no bull objective; the management strategies being used to reach or maintain those objectives are often reflected in the permit numbers being allocated.