HOW MANY MOOSE

By David G. Kelleyhouse
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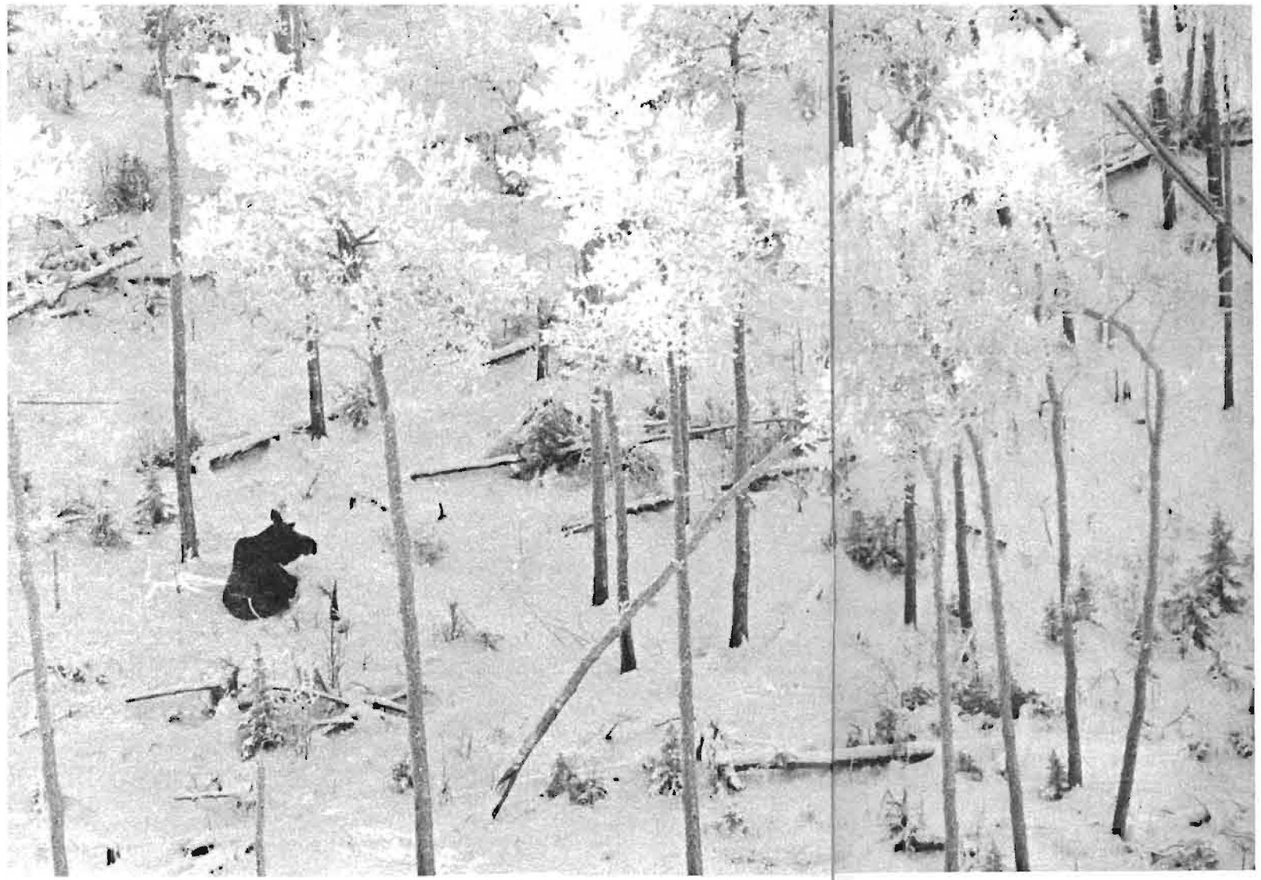

ADF&G Photo by Al Franzmann

IF YOU HAPPEN TO SEE a small red airplane going through aerobatic maneuvers near Fairbanks this winter, don't be alarmed. It's only biologists Bill Gasaway and Steve DuBois of the Alaska Department of Fish and Game conducting a moose research project. Gasaway, DuBois, Dr. Sam Harbo of the University of Alaska and other game biologists working on this project are trying to improve techniques used to find the answer to a question that has plagued them for years: how many moose are there in various regions of Alaska?

Gasaway has been spending many of his days for the last couple of years behind the stick of the Alaska Department of Fish and Game's high-performance Bellanca Scout aircraft as he and DuBois attempt to discover just how many moose are being overlooked during standard-technique moose surveys. Their work is neither routine nor easy, since Gasaway does much of his flying at almost treetop level. Standard surveys are normally flown in straight lines over vast expanses of bush at an altitude of 300 feet. Gasaway, however, often flies in a tight circular pattern. By intensively examining every clump of trees and shrubs he can count almost all the moose in a one or two square-mile area. This biologist's technique takes longer but he sees far more moose than observers conducting standard, straight-line transect surveys.

To find out just how much more efficient his method is, Gasaway and several other biologists radio-collared 44 moose in Game Management Unit 20(east of Fairbanks) during the fall of 1976. When they fly a test survey, Gasaway and DuBois first get a rough "fix" on the location of one of their collared moose by radio. They then select a one to two square-mile plot of land around the animal. Next they fly through the area using the standard moose survey technique, counting all the moose they see and noting if the collared moose was observed. They then search more thoroughly by flying in small tight circles over the entire plot, again counting all the moose they see. Usually, additional moose are spotted during the second search. In the rare instances when the radio-collared moose is not located after the second survey, DuBois flicks on the radio receiver so Gasaway can home-in on the collared animal. The radio signal usually leads to the solitary moose lying down in a spruce forest or some other spot difficult to see by air. Such animals would very rarely be seen using any standard survey technique, but Gasaway and DuBois have been able to find the hidden moose 9 out of 10 times using their intensive survey technique. While flying normal surveys through the same area they only see the collared animals 7 out of 10 times. If survey conditions are poor they may see as few as 3 out of 10 with the standard technique, but can still locate 9 out of 10 with the intensive method.

Through this technique of paired surveys, Gasaway is beginning to understand why some moose are missed during standard surveys. More importantly, he is usually able to predict about how many moose will be missed during standard surveys conducted under various snow, habitat and light conditions. Why all the fuss to develop such accurate moose population estimates? Well, as the human demand for moose, moose habitat, and industrial development increases, better estimates of moose numbers are needed to determine safe levels of harvest by humans, the relationship of the moose population to its habitat and the amount of wolf and bear predation upon various herds. Gasaway's research project hopefully will provide game biologists with new "tools" they need to determine such things.

In addition to gathering information about the limitations of standard survey techniques, this biologist and crew are also gaining additional knowledge of moose biology. For instance, in the fall many radio-collared moose that spend spring and summer in the Tanana Flats south of Fairbanks, migrate northeast into the Chena, Little Chena and Salcha River drainages or south into the foothills of the Alaska Range. These animals spend the winter in specific areas that they use year after year. Some moose, however, remain in the Tanana Flats year-round.

Gasaway's group has also found that moose use open grassy or marshy areas as well as shrub habitats in summer, birch and willow shrub habitats during the fall and

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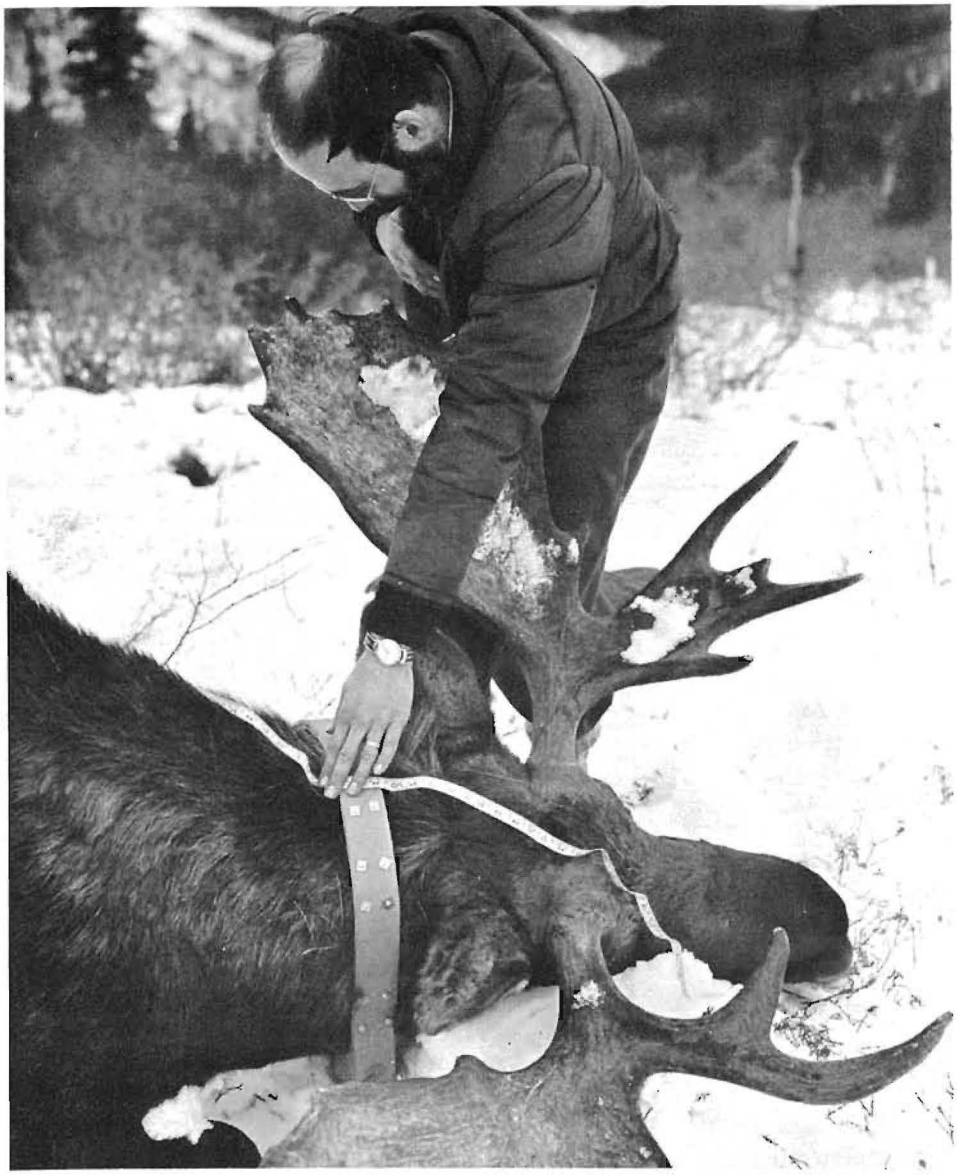
Left: Spotting a moose. Below: Supercub used for spotting and Steve DuBois adjusting radio tracking gear.

Photo by Ed Martley

ADF&G Photo by Dave Johnson



ADF&G Photos by Dave Johnson

Bill Gasaway measuring the overall length of a tranquilized moose.

forest or taller shrub habitats during late winter. Much of this preferred moose habitat in interior Alaska was created by wildfires during the late 1940's and 1950's. Now, most of the trees and shrubs are growing out of reach of the moose. As a result the capacity of the land to support moose is declining. To insure sufficient habitat for substantial numbers of moose in the future, more area will have to be allowed to burn than is currently the case.

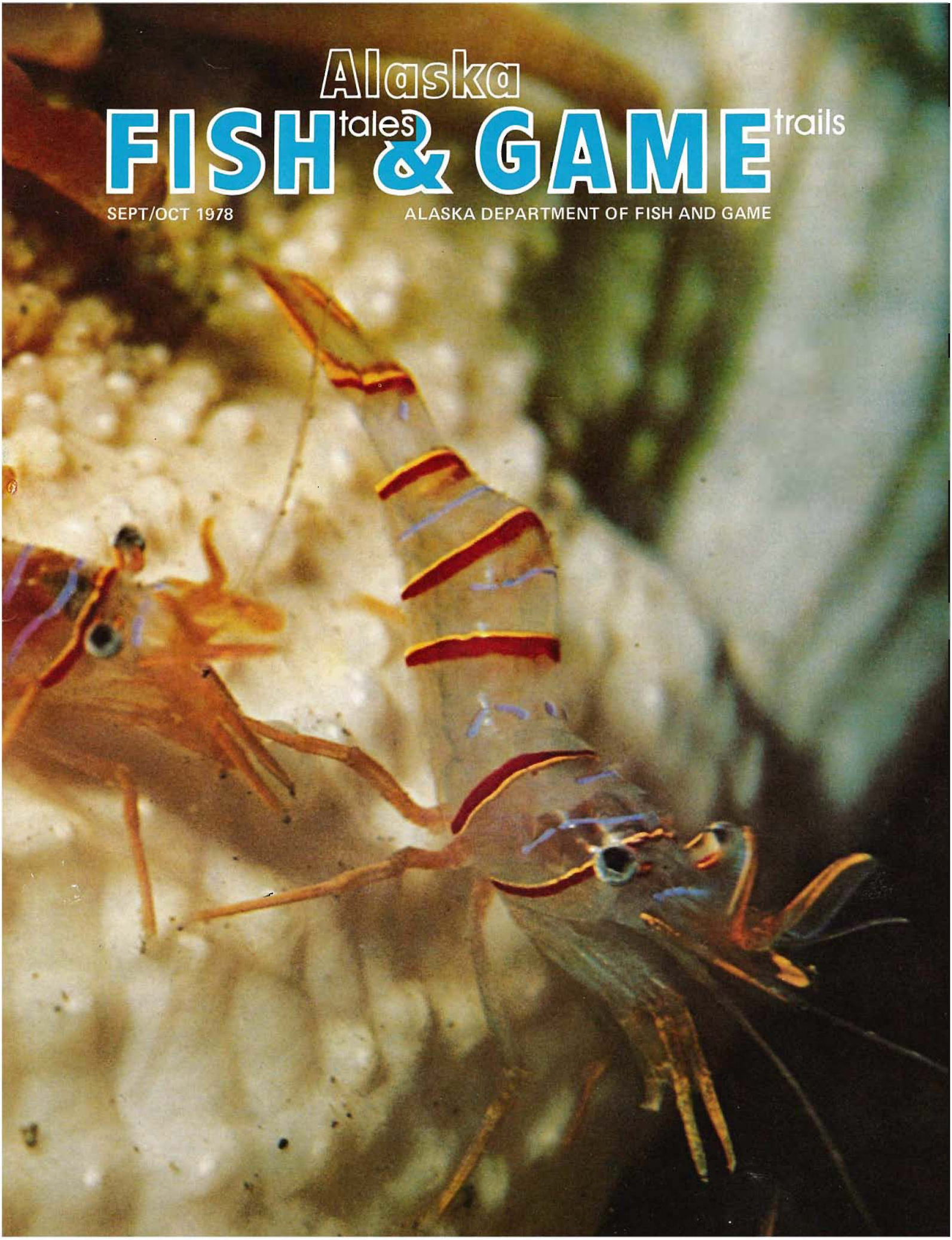
Another important observation is that adult moose often gather in the fall with as many as 20 moose in a group. Moose cows with calves, on the other hand, seldom associate with other adults. The importance of this fact is that large groups of moose are easily seen and counted during a fall survey, but single moose and cows with calves may be overlooked because they are hard to see. For this reason, standard surveys may underestimate the number of young animals in a population, suggesting that the population is less productive than is actually the case.

Gasaway's observations of radio-collared cow moose have been useful in determining when and where calves are born and when and where they die. Such information is crucial for assessing the effects of the wolf control-moose herd rehabilitation program in Game Management Unit 20A south of Fairbanks. For instance, it is now evident that wolf control efforts are primarily benefiting only those moose calves remaining year-round with their mothers on the Tanana Flats where wolf control is most intensive. Although spring and summer survival is high for all moose calves born on the Flats, Gasaway has found that calves which leave the Flats in the fall with their mothers are often lost over the winter.

Anyone who spends a lot of time flying at low elevations over the Alaskan bush is bound to observe many varieties of wildlife. Gasaway and DuBois are no exceptions. Steve DuBois has always held a special interest in waterfowl, so during his spring flights he has been keeping a record of swan nesting sites on the Tanana Flats, noting seasonal concentrations and preferred nesting areas. Gasaway and DuBois have also gathered valuable information on the distribution, abundance and biology of other species, including black bear, caribou and wolf.

Gasaway's research is providing much needed answers to questions about the effectiveness of present moose survey techniques. When he finishes his field work he will be responsible for training other biologists so that they too are able to use the new survey technique. Because the new technique is expensive, it will probably not be used on a statewide basis every year, but it will be used when more accurate population estimates are required for a specific area. All in all, Gasaway's work should lead to definite improvements in the management of Alaskan moose populations.

David G. Kelleyhouse is a Game Division biologist, ADF&G in Tok. He has also worked for the U.S. Fish & Wildlife Service and holds both B.S. and M.S. degrees in wildlife management.



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