

ALASKA SHEEP HUNTER SURVEY

Problem & Need: During the early 2000s, Alaska hunters and commercial operators (guides, outfitters, transporters, air taxis) began expressing concern about declines in the quality of Dall sheep hunts. Many of the proposals submitted to the Alaska Board of Game (BOG) reported dissatisfaction with the level of crowding and competition while sheep hunting. Wildlife biologists and regulatory entities had insufficient data on hunter perceptions to address this problem.

Objective: To address this problem, the Alaska Department of Fish and Game contracted with the University of Alaska Fairbanks in 2013 to survey a large and representative sample of sheep hunters and commercial operators to collect perceptions on the extent and characteristics of the problem. The survey objectives were to: 1) Identify the extent of the sheep hunter problem, and 2) Better understand why there is a hunter problem.

Methods: UAF surveyed 1,889 sheep hunters and 140 commercial operators. The survey was designed to provide results with $\pm 5\%$ statistical confidence.

Results: The survey results indicated that *74% of resident sheep hunters and 84% commercial operators agreed or strongly agreed that sheep hunter crowding was a problem.* Crowding and competition ranked very high among a variety of different factors that affect sheep hunter satisfaction (Fig. 1). Potential solutions to the problem varied among different interest groups, but all groups approved of prohibiting the use of aircraft to spot sheep during the hunting season.

Implications: The survey provided data to help managers and decision makers address hunter conflict. The survey also served as a useful tool for engaging hunting groups in the research process.

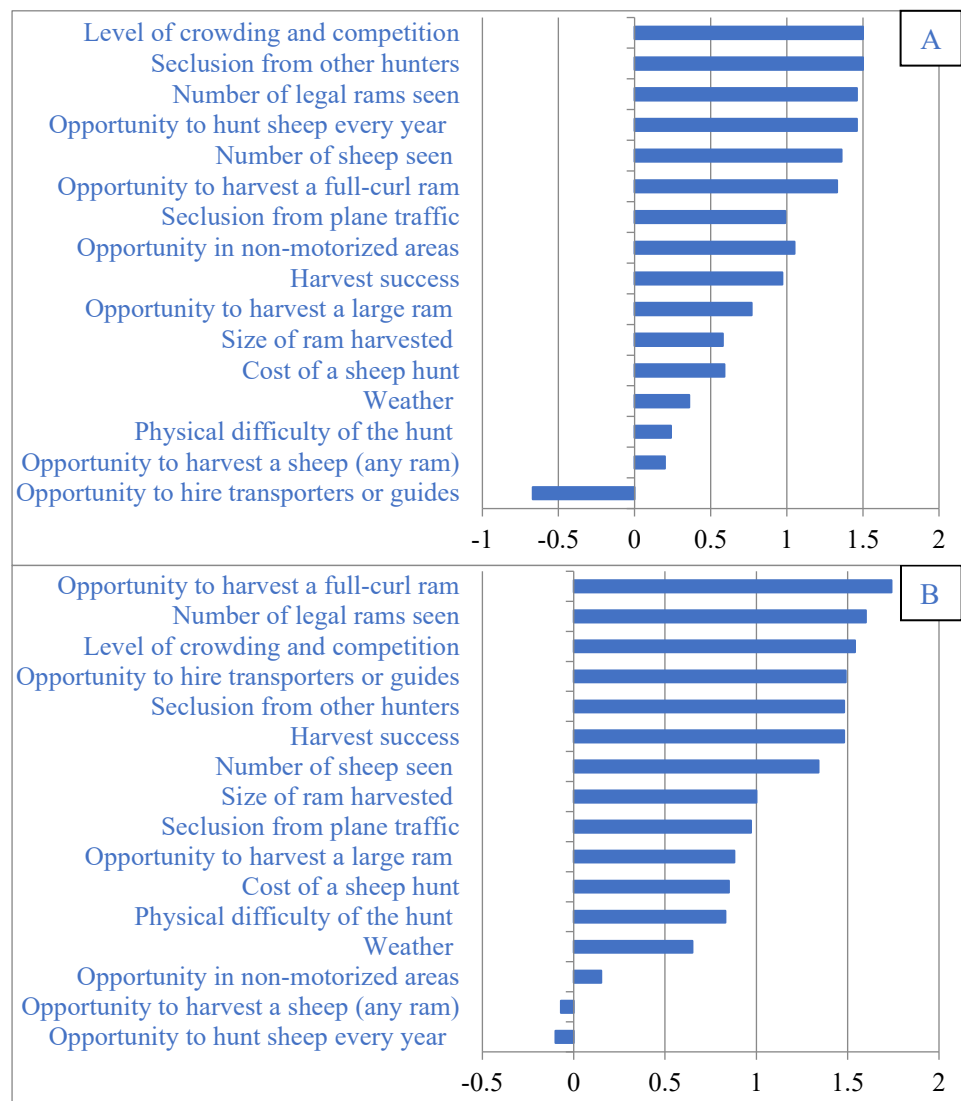


Figure 1. Survey responses to the questions “How important (+2) or unimportant (-2) are the following factors to your sheep hunting satisfaction in Alaska?”. (A) = Resident Hunters, (B) = Commercial Operators.

EFFECTS OF WEATHER ON SHEEP HARVEST

Problem & Need: Although extensive research has been conducted on a variety of factors that influence wildlife harvest rates, few studies have quantified the impact of weather on harvest success. As climate-related change continues to contribute to unprecedented changes in local weather regimes, particularly in arctic and alpine ecosystems, understanding how these changes impact human–wildlife interactions will become increasingly important and relevant for wildlife managers.

Objective: Our objective was to assess the effects of daily weather conditions on daily harvest success for Dall’s sheep in Alaska, USA.

Methods: We used a long-term dataset (1999–2015) from sheep harvest records. Weather variables included daily mean relative humidity, precipitation, air temperature and wind speed. We quantified how moderate (i.e., mean values) and extreme (i.e., 2 standard deviations) increases and decreases in daily weather affects change (%) in daily sheep harvest.

Results: Our dataset included 2,287 days when at least one sheep harvest (total harvest of 10,612 sheep) occurred within a given mountain range in Alaska. *Our findings indicated that relative humidity, precipitation, and temperature all had significant effects on daily sheep harvest (Fig. 2).* Relative humidity had the largest effect. A mean increase in relative humidity decreased daily sheep harvest by 12%. A mean decrease in relative humidity increased daily sheep harvest by 13%. Extreme daily changes in relative humidity changed daily harvest by >30%.

Implications: Relative humidity likely had a large impact on daily sheep harvest because changes in relatively humidity affects the potential for the presence or absence of fog in alpine areas. This can affect hunter visibility and navigability in mountainous terrain. The quantitative effects of weather on hunter harvest is a relatively unexplored topic for all game species but may be a critical component to effective harvest management in a shifting climate regime. As seasonal norms in weather shift, assessing the associations between weather and harvest may provide insight into effective strategies for adapting hunting regulations and meeting harvest goals.

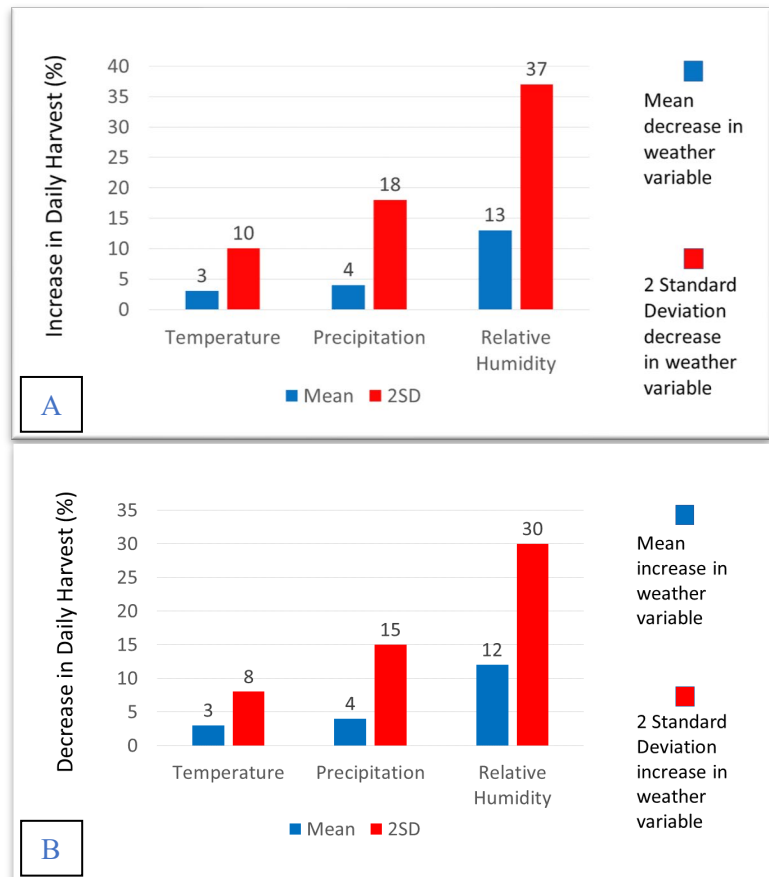


Figure 2. Effects of daily changes in weather variables on daily sheep harvest in Alaska. A. Decrease in the value of daily weather variables results in an increase in daily harvest. B. Increase in the value of daily weather variables results in a decrease in daily harvest.