

North Sapphire Elk Research Project

Progress Report - Fall 2015



Montana Fish, Wildlife and Parks (FWP), in collaboration with several other project partners, initiated a 2-year elk research project in the North Sapphire Mountains with the goals of better understanding elk movements and hunter and landowner opinions about elk management in the northern Sapphire area. FWP will use this information to identify and develop effective responses to management challenges within the hunter and landowner communities of the northern Sapphire range. The project was initiated in February 2014. Currently, the research team is monitoring elk movements and survival, and evaluating elk diet and forage quality across the northern Sapphire range. Elk radiocollars are scheduled to release in February 2016, and field work will end with the collar retrieval in late-February. This report summarizes the work conducted during spring and summer 2015.

Elk Monitoring and Survival

Since the February 2015 elk capture, we have monitored survival of 42 adult female and 14 bull elk. No mortalities have occurred, and we will continue survival monitoring until collars release in February 2016.

Elk Movements

During late winter (March - April), 16% of adult female elk locations and 47% of bull locations occurred on public lands (Figure 1). During early summer (May - June), 41% of adult female elk locations and 86% of bull locations occurred on public lands. During late summer (July - August), 50% of adult female elk locations and 89% of bull locations occurred on public lands. This seasonal increase in use of public land corresponds to a general movement from lower elevation lands in winter, which are typically privately owned, to higher elevation areas in the summer, which tend to be either public land or corporate timber land (Figure 2). No elk have been documented crossing Highway 93 since May 2015. Six elk crossed the highway previously, typically at night during the winter.

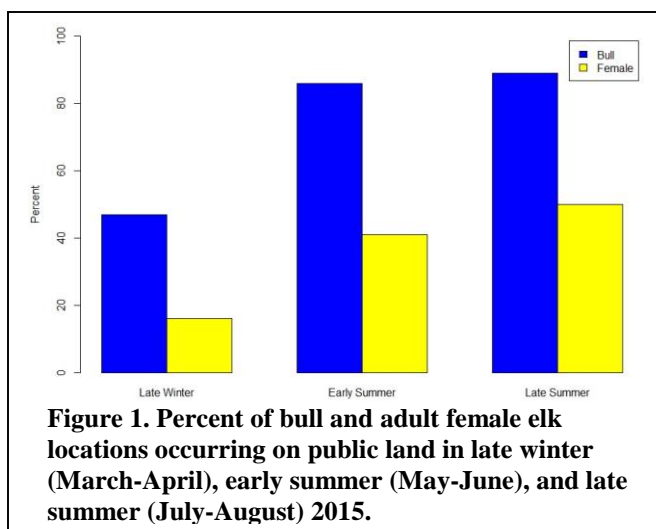
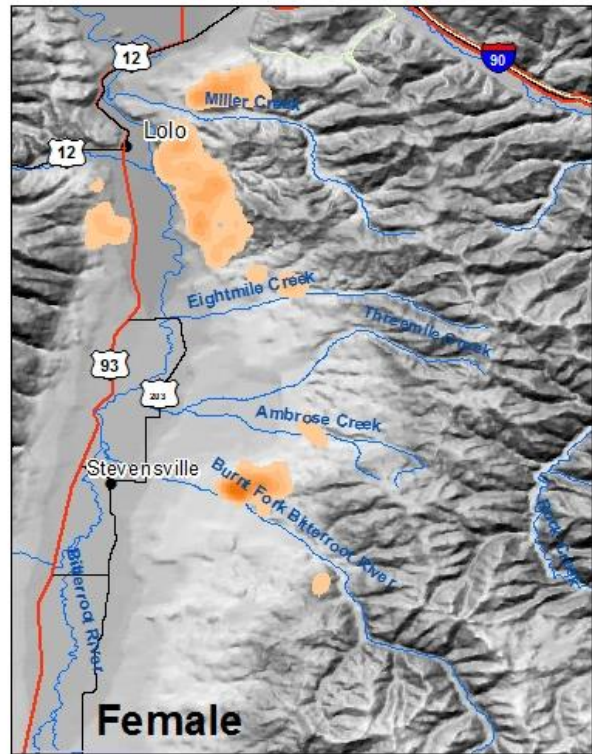
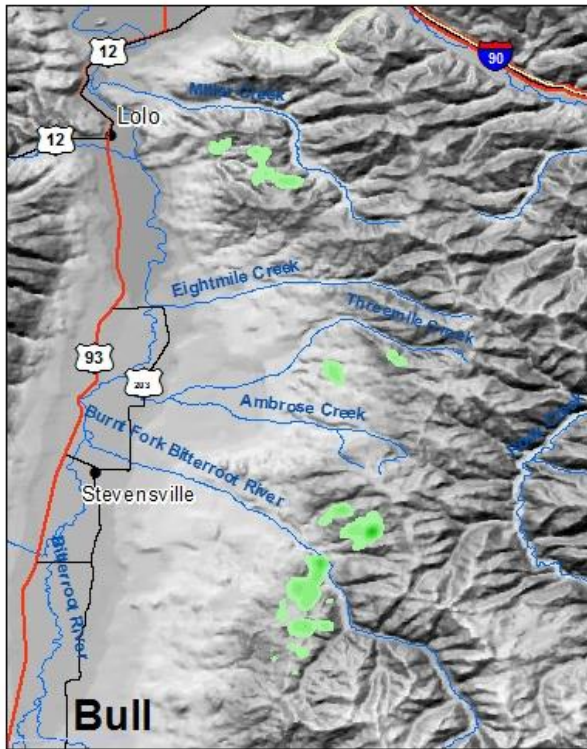
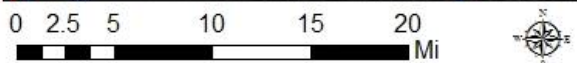
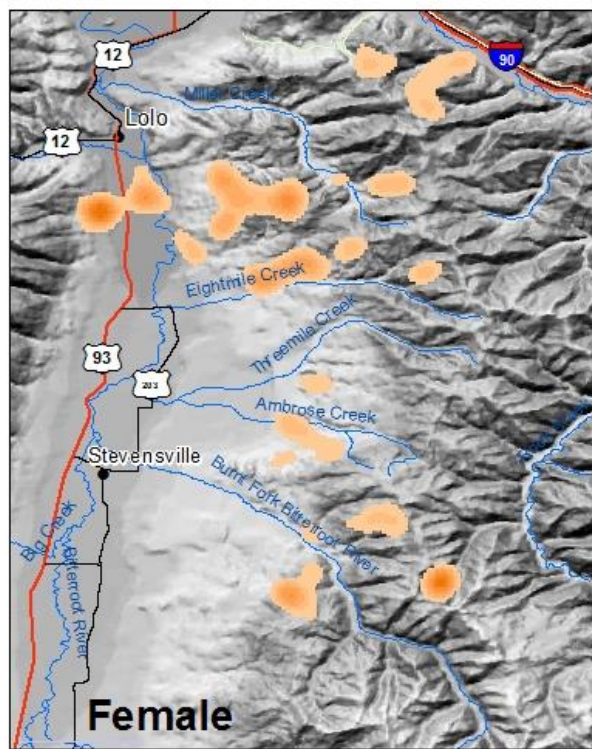
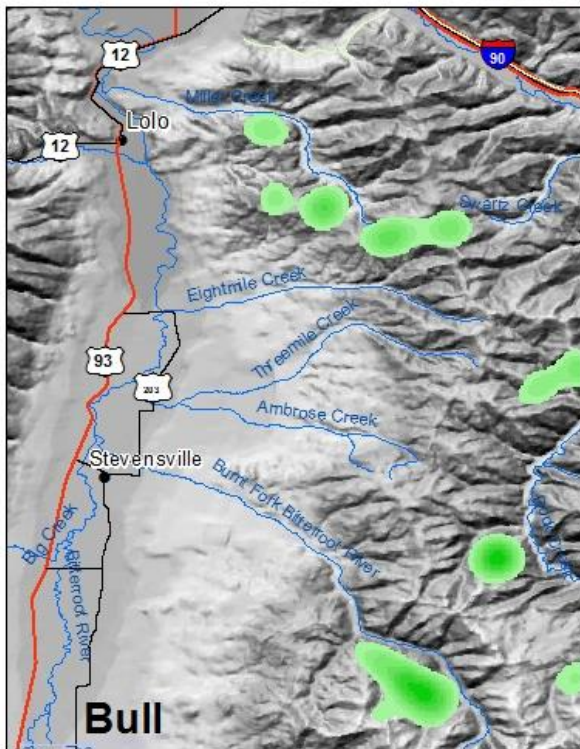


Figure 1. Percent of bull and adult female elk locations occurring on public land in late winter (March-April), early summer (May-June), and late summer (July-August) 2015.

Winter 2015



Summer 2015



Elk Seasonal Distributions

Figure 2. Bull elk and adult female elk distributions in winter (February – April) and summer (June – August) 2015.

Elk Habitat and Vegetation Monitoring



During summer 2015, we sampled vegetation composition and biomass at 295 locations in order to assess the availability and abundance of elk forage plants across the study area. We also repeatedly sampled 10 phenology plots every 3 weeks from May to September to examine seasonal changes in forage availability. Additionally, we collected samples of key elk forage plants at each phenological stage (emerging, flowering, seeding, and cured) and will have these samples analyzed to estimate nutritional content of each species in each phenophase. Samples and data from the field season are currently being prepared for analysis.

To gain insight about the relationship between phenology, forage quality, and elk nutrition, we collected forage plant samples and elk fecal pellet samples biweekly throughout the growing season. We collected a total of 51 samples collected from migratory and resident female elk in 2014. Forty-three (43) additional samples have been collected in 2015, and collection will continue through late September. The protein content of forage species and fecal nitrogen levels will be estimated. We

will use this information to evaluate the relationship between remotely sensed vegetation indices, forage quality, and elk nutrition, as well as potential differences in these relationships between migratory and resident elk.

Acknowledgements

We thank the summer 2015 field teams for their hard work in collecting the vegetation data, plant samples, and fecal samples. We thank Becca Durham, Craig Jourdonnais, and Teagan Hayes of MPG Ranch for coordinating fieldwork and ensuring a successful and productive field season.

We thank the landowners that have allowed access for fieldwork and provided logistical support. We also thank the organizations and individuals that have provided financial support for this project: Ecosystem Research Group, Montana Department of Transportation, Montana Department of Fish, Wildlife and Parks, Montana's Outdoor Legacy Foundation, MPG Ranch, Ravalli County Fish and Wildlife Association, Rocky Mountain Elk Foundation, Roseburg Forest Product Company, Burnt Fork Ranch, Missoula Community Foundation, First Security Bank of Missoula, Old Bulls for the North Sapphires Group, and Sun Mountain Lumber. Additional funding was provided by revenues from the sale of Montana hunting and fishing licenses and matching Federal Aid in Wildlife Restoration grants to Montana Fish, Wildlife and Parks.