The National Elk Refuge, both in concept and because of the lands it encompasses, played a central role in the settlement, culture, and conservation history of northwest Wyoming. Indeed, one of the epic dramas in our country's conservation legacy unfolded in Jackson Hole, Wyoming, early in the 20th Century. A newfound compassion and commitment to the protection of the great herds of western wildlife was born on the heels of rampant exploitation and near elimination of the West's bounty. As a growing nation was fulfilling the destiny of the Louisiana Purchase and the Homestead Act of 1862, the western pioneers brought change to the lands they crossed, settled, and called home. Through the vision of President Theodore Roosevelt and his contemporaries, the National Wildlife Refuge System was conceived with the establishment of Pelican Island Refuge in 1903. Not long thereafter, the National Elk Refuge was added in 1912 to this blossoming system of lands dedicated to the conservation of wildlife and their habitats.

The following pages represent our effort to develop a historical perspective plant community conditions on the National Elk Refuge in Jackson Hole, Wyoming, following Euro-American settlement. Our purposes are to document changes in the vegetation of the National Elk Refuge and to explore when and why those changes occurred. The scope is limited geographically to the southern half of the refuge for two reasons: that area is almost exclusively represented in historic photographs; and native vegetation in that area has been subject to far greater alteration than the northern half of the refuge.

We undertook this project for several reasons. First, scenes portrayed in historic photographs showed a very different Jackson town site and valley during the early 20th Century. Most of these scenes, displayed on the walls of area businesses, were not of the National Elk Refuge. Thus, we wondered about the extent of change that had occurred on lands within the present refuge. Second, prior to being acquired by the federal government and dedicated to wildlife conservation, the refuge had been homesteaded and much of it farmed and grazed by livestock, thus potentially altering native plant communities. Third, the annual concentration of thousands of elk on the refuge may have influenced plant communities. Finally, efforts to suppress wildfires of lightning and Native American origin and to eliminate large predators accompanied homesteading of Jackson Hole, and elsewhere in the West. All these factors may have altered composition, distribution, and successional stages of plant communities in ways that are poorly documented. Finally, requirements of the 1997 National Wildlife Refuge Improvement Act, and legal compliance

with the National Environmental Policy Act to assess the future of elk and bison management on the refuge and adjacent Grand Teton National Park, prompted our evaluation of habitat conditions.

The historical record largely resides in black and white photo images – the earliest of which were taken during 1900–1937. Repeat photography has been used extensively to record and evaluate changes in landscape features over time. Progulske's (1974) work in South Dakota's Black Hills, George Gruell's (1980*a*, *b*) work on Wyoming's Bridger-Teton National Forest during the 1970s and 1980s, and Meagher and Houston's (1998) publication from Yellowstone National Park are examples of how time–sequenced photography has been used effectively to document changes in vegetation and other attributes of the landscape resulting from natural or anthropogenic processes.

Our efforts led to a treasure hunt for old photographs of Jackson Hole. The search was extensive, but likely not exhaustive. Publication of this work will likely trigger contacts from individuals who may possess personal photographs handed down and stored away in shoeboxes by residents of the valley, both past and present. We apologize and regret that we were unable to locate and assess the usefulness of those treasures for our purposes. Our search of local, state, and regional sources was directed by suggestions from many individuals, requests through local organizations, and notices in local newsletters and newspapers. Although we viewed hundreds of photographs in archives and private collections, precious few were taken of refuge lands. Fewer still clearly depicted plant communities. We learned that these early photographers captured on film what interested them, not necessarily what interested us. People and pets, horses and homes, farmscapes and mountainscapes, stringers of fish and pelts of furbearers, and equipment in various states of use and disrepair were favored topics. Most did not depict natural plant communities, except by accident or in the blurry distance. However, we were fortunate that photographic images recorded by two sources, Stephen N. Leek and the Charlie Petersen Sr. family, proved fortuitous exceptions to the rule. The value of their photographs for interpreting changes in the landscape over time is a contribution to science that neither Leek nor the Petersens could have anticipated. The photographs serve as unbiased permanent "study plots".

We marveled at the differences between the historic photographs and the changed landscape we photographed almost a century later. Our curiosity led us to pursue several additional avenues to evaluate the geographic extent and causes of change. We compared a time series of aerial photographs of the refuge, mapped current distributions of plant communities, and designed experimental approaches to unravel the mystery of how natural processes, human intervention, and

time interacted to produce the landscape we see today. Plant communities are dynamic and most undergo constant change — some dramatically abrupt following wildfires and other episodic natural events. However, most changes are subtle and occur almost imperceptibly to the casual observer. Our challenge — one we found both daunting and exciting — was to bring a century of change to life for you the reader.