

Pristine May Not Be What We Think It Is

Quentin Skinner, professor in the Department of Rangeland Ecology and Watershed Management at the University of Wyoming's College of Agriculture put together a historical perspective on riparian zones in the late 1980s. The paper was presented in 1986 at the Wyoming Water 1986 and Streamside Zone Conference in Casper, and more recently in November 1995 at a conference at Tufts University which focused on Environmental Enhancement Through Agriculture. Joe Hiller who is currently the Associate Director of Cooperative Extension Service at the University of Wyoming co-presented the paper with Dr. Skinner at Tufts. They offer some insight as to what riparian areas looked like in the 1800's, and how agriculture heightened the quality and the extent of riparian wetlands in the semi-arid western United States. Skinner and Hiller divide the management history of western riparian areas into six periods; exploration, migration, settlement, after creation of dams and reservoir storage, multiple use management, and riparian zone management.

Using the written accounts of the Lewis and Clark expeditions, Skinner and Hiller conclude that riparian vegetation was limited to specific situations. Water would spread over wide channels during high flows, then return to narrow channels during low flow. The observations of Lewis and Clark imply that river banks were seldom overflooded. Vegetation was noted to be at the very edges of straight reaches in a water channel, at meander point bars where groundwater interflow would supply water, at stream junctions where groundwater and surface water moved from one stream to the next, and on islands where water in the channel was available even at low flows.

Expedition accounts also report that buffalo, as well as the Native Americans, were confined to riparian areas because of their need for water and shelter. Huge herds of buffalo were reported as were the impacts that these herds had on vegetation and riparian areas. One account by Captain Fremont on the North Platte, near Casper, in July of 1842 says: "We found no grass today at noon; and in the course of our search on the Platte, came to a grove of cottonwoods where an Indian village had recently encamped. Boughs of the cottonwoods, yet green, covered the ground, which the Indians had cut down to feed their horses upon. It is only in the winter that recourse is had to this means of sustaining them; and their resort to it at this time was a striking evidence of the state of the country."

Water is absolutely necessary to life, so settlement naturally took place close to rivers and streams. Agriculture replaced buffalo with livestock, and began to develop off-stream water supplies. These activities reduced the impact on riparian areas, and reduced erosion by diverting high flows to other uses such as flood irrigation which in turn provided groundwater, that according to Skinner "was, and often still is, stored under the developed land mass that borders our present perennial streams." Reductions in streamflow during spring runoff caused sediment to be deposited along stream banks and fill in the less-developed braided channels. Streamflow became consolidated into one or a few channels, with the wide channels that Lewis and Clark saw becoming riparian zone flood plains. These flood plains are still supported today by the over-bank flooding that occurs during spring runoff. The change in configuration of stream channels

that occurred during settlement actually augmented riparian zones.

Further augmentation of riparian areas would come with the creation of reservoir storage. "Riparian zone wetlands along regulated river systems now support corridor forest from the Missouri River to the Rocky Mountains in areas where they did not exist before settlement," states Skinner. "Small reservoir storage designed by agriculture for livestock water, distribution of animals and erosion control has created riparian zones where none existed before," writes Skinner.

Skinner and Hiller conclude that agriculture, livestock grazing and water development must be given their fair share of credit for building and maintaining riparian zone resources. They state, "... in the western U.S., well-managed private lands and riparian zones represent a large fraction of the critical winter habitat needed to maintain the increased wildlife populations the public desires. Equally important is that the off-stream water developed by agriculture is the reason that the distribution of all grazing livestock can be managed today. Agriculture in Wyoming appears to have accomplished much since the 1930's when it was common knowledge that livestock grazing was too heavy to maintain desired rangeland conditions. Today's grazing management has allowed vegetation cover to keep erosion to a level that is natural for the landscape position that Wyoming occupies in the U.S."

"Agriculture and livestock grazing have taken their share

of criticism for reducing riparian zones. We hope that this historical perspective of water development in the semi-arid west puts some of the myths concerning the destructiveness of agriculture to rest," they write.

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