

# Livestock Grazing in the West: Sacred Cows at the Public Trough Revisited

Bob Hughes, AFS President

Globally, agriculture has co-opted much of Earth's terrestrial primary production, but livestock grazing is a close second in converting native flora and fauna to anthropogenic products (Vitousek et al. 1986). Private-land agriculture remains the major pressure on North American waters on an areal basis; however, livestock grazing on public lands is the most widespread conservation concern in much of western North America. Many of the damaging effects of grazing can be reduced by markedly decreasing the number of animals grazed, greatly limiting their access to riparian zones, and fallowing large areas for multiple years (Knudson 1999). Although there are certainly many conservation-minded ranchers, it makes little sense to me to subsidize livestock grazing on public lands for three major reasons.

## 1. Economics

The U.S. Government Accountability Office (2005) documented the FY2004 expenditures and receipts of 10 federal agencies for livestock grazing on federal lands, with the Bureau of Land Management (BLM) and U.S. Forest Service (USFS) managing 98% of those lands. Those 10 agencies spent a total of at least \$144 million on land and water management for livestock grazing, but generated only \$21 million in grazing fees in 2004. Assuming that is a reasonable annual estimate, this is a yearly \$123 million federal subsidy to livestock ranchers, mostly in the western United States. Rather than the BLM and USFS fee of \$1.43 per animal unit month (cow/calf pair, 1 horse, 5 sheep), the agencies would need to charge \$7.64 and \$12.26, respectively, to match their expenditures (U.S. Government Accountability Office 2005).

These costs do not include the indirect costs of soil erosion, reservoir sedimentation, degraded water quality, alien invasive plant introductions, and species endangerment. Some may argue that these subsidies stimulate western economies and employment, but Power (2002) reported that federal forage contributed an average of only 0.04% and 0.07%, respectively, to the income and jobs of the 11 western states. When the nation is cutting other social and environmental programs, why should taxpayers subsidize a small class of often wealthy citizens, at least three of whom (Cliven Bundy, Kit Laney, Frank Robbins) refused to pay even those fees and penalties for decades? Why should we be sacrificing public land, forage, water, and wildlife and fish species to benefit three sacred species—thereby leading to the extirpation of native species? Why should we subsidize livestock grazing in national parks, wilderness areas, and wildlife refuges with markedly contrary management goals (Fleischner 1994; Kerr and Salvo 2002)?

## 2. Ecological damage

Livestock grazing damages more public land than fire, logging, and roads combined in the western United States, but much less is spent to mitigate grazing effects than to mitigate those other pressures (Beschta et al. 2013). Roughly 70% of the land area in the conterminous 11 western states is grazed by livestock (Fleischner 1994). In seven states (Colorado, Idaho, Nevada, New Mexico, Oregon, Utah, Wyoming), the majority of land area, and thus the waters that drain those lands, is managed by the federal government for livestock grazing. Riparian areas cover less than 2% of the West. However, livestock tend to aggregate in riparian zones, which are essential habitats for many terrestrial wildlife taxa and produce crucial aquatic habitat for fish through their effects on channel morphology, food webs, water quality, and fish cover (Gregory et al. 1991; Baxter et al. 2005; Beschta et al. 2013).

Those livestock aggregations remove riparian vegetation, trample stream banks, initiate incision or widening depending on channel slope and substrate, reduce groundwater and stream flow, elevate water temperature, increase turbidity and sedimentation, and lead to eutrophication (Platts 1991; Beschta et al. 2013). Such habitat changes have led to range reductions and imperilment of salmonids throughout the West (Jelks et al. 2008), but livestock removal experiments have produced marked increases in salmonid production, biomass, and individual size (Fleischner 1994). For example, small (<500 m long) grazing exclosures showed significant positive effects on age-0 Rainbow Trout (*Oncorhynchus mykiss*), but because of the extensive and intensive damage of western riparian zones by livestock grazing, those exclosures are ineffective at the population or watershed scales (Bayley and Li 2008). Watershed-scale impacts from grazing include devegetation, soil compaction, and water removal for irrigated pastures and hayfields—all of which mean reduced streamflows, degraded channel morphology, reduced and degraded fish habitat, and salmonid extirpations (Ferguson and Ferguson 1983; Platts 1991; Fleischner 1994; Wuerthner and Matteson 2002; Beschta et al. 2013).

## 3. Aridity and climate change

Nearly all public land livestock grazing occurs on arid and semi-arid lands where approximately 100 times the acreage is



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needed to support an animal unit month as in humid lands. That means that for ranches to be economical, they must be huge or have access to cheap forage and be dependent on irrigated forage for much of the year. As a result, irrigated livestock feed crops consume most of the water in the western United States (Wuerthner 2002). Because cattle evolved in the moist landscapes of Eurasia, they congregate in wetlands and riparian zones rather than disperse across the landscape or they require construction of expensive reservoirs and water diversions (typically at public expense). Although stream density is lower by definition in arid lands, it would be enormously costly to fence (or have cowboys continuously drive) livestock from the extensive network of streams draining those lands. Climate change projections indicate that western rangelands will become even drier and subject to more extreme flood, drought, and fire events. Livestock grazing exacerbates climate change effects on stream, riparian, and upland natural resources. Greatly reducing public land livestock grazing would greatly reduce this spatially extensive pressure and thereby reduce the susceptibility of those resources to climate change. It could also free up that \$144 million for more fish- and wildlife-friendly landscape rehabilitation.

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applications. Many evaluations still trend toward the qualitative, but there are fewer holes in our efforts to quantify ecological parameters in stock assessments. As a result, fishery management organizations are becoming more able to include forage or other ecological factors in their production models. The old problem of focusing mostly on fishing mortality and less on environmental mortality is shifting. The forage fish are finally having their say.

This maturation is evident in meetings, literature, and action. Scientists and managers across the fish realm are focusing increasingly on forage fish issues. In 2012, a global symposium convened to discuss tools to advance forage in ecosystem-based management of marine systems (Peck et al. 2014). Comparable efforts for freshwater forage have proven elusive, but we at AFS have tried to fill the holes. Most AFS Annual Meetings include technical sessions on forage, most recently at the 143rd Annual Meeting with a symposium on “Ecosystem Connections: Watershed Health, Anadromous Species, and Ocean Production” that connected fresh and salt water. The literature documents our knowledge and supports decisions such as those cited above.

Forage issues are unlikely to drift away from our mainstream priorities. We'll do well to consider the full implications of forage species, whether they be schooling fish like Menhaden or small morsels that nourish snipe predators. Most food chains lead to us, and we are responsible for understanding the implications of our actions, whether as scientists or consumers. Or both.

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