

# NATIONAL PUBLIC LANDS GRAZING CAMPAIGN

## Livestock and Alien Weeds

Livestock cause weed invasion by grazing and trampling native plants; clearing vegetation, destroying the soil crust and preparing weed seedbeds through hoof action; and transporting and dispersing seeds on their coats and through their digestive tracks.<sup>1</sup>

**"At the community scale, livestock may be the major factor causing weed invasions."**

Weeds spread on western federal lands at an estimated 4000-5000 acres per day.<sup>2</sup>

Introduced weeds alter and damage western landscapes by increasing fire frequency, reducing biodiversity and wildlife habitat, and increasing topsoil loss.<sup>3</sup>

Competition with or predation by alien species is the second-ranked factor for the listing of all threatened and endangered species.<sup>4</sup>

**Livestock transport weed seeds into uninfested sites on their coats and feet and in their guts; preferentially graze native plant species over weed species; create patches of bare, disturbed soils that act as weed seedbeds; and destroy microbiotic crusts that stabilize soils and inhibit weed seed germination. Grazing also creates patches of nitrogen-rich soils, which favor nitrogen-loving weed species; reduces concentrations of soil mycorrhizae required by most western native species; and accelerates soil erosion that buries weed seeds and facilitates their germination.<sup>5</sup>**

Livestock grazing for "weed control" is counterproductive—research demonstrates that grazing harms native species, reduces species richness and vegetative cover, while promoting alien plant growth in many ecosystem types.<sup>6</sup>

Cheatgrass, a noxious weed perpetuated by grazing and wildfire,<sup>7</sup> is now the dominant species on 100,000 million acres – 158,000 square miles – or one-third of the sagebrush grasslands in the Intermountain West.<sup>8</sup>

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- <sup>1</sup> Belsky, A. J. and J. L. Gelbard. 2000. Livestock grazing and weed invasions in the arid west. Oregon Natural Desert Association. Bend, OR (citations omitted).
- <sup>2</sup> Belsky, A. J. and J. L. Gelbard. 2000. Livestock grazing and weed invasions in the arid west. Oregon Natural Desert Association. Bend, OR: 4; Bureau of Land Management. 2000. Use of weed-free forage on public lands in Nevada. Fed. Reg. 65-54544. USDI-BLM.
- <sup>3</sup> Belsky, A. J. and J. L. Gelbard. 2000. Livestock grazing and weed invasions in the arid west. Oregon Natural Desert Association. Bend, OR: 4 (citations omitted).
- <sup>4</sup> Wilcove, D. S., D. Rothstein, J. Dubow, A. Phillips, E. Losos. 1998. Quantifying threats to imperiled species in the United States. *Bioscience* 48: 609.
- <sup>5</sup> Belsky, A. J. and J. L. Gelbard. 2000. Livestock grazing and weed invasions in the arid west. Oregon Natural Desert Association. Bend, OR: 3.
- <sup>6</sup> See Kimball, K. and P. M. Schiffman. 2003. Differing effects of cattle grazing in native and alien plants. *Conservation Biology* 17(6): 1681-1693 (grazing harms native plant species and promotes alien plant growth in California grasslands); M. L. Floyd, T. L. Fleishner, D. Hanna, P. Whiefield. 2003. Effects of historic livestock grazing on vegetation at Chaco Culture National Historic Park, New Mexico. *Conservation Biology* 17(6): 1703-1711 (native species richness and shrub and grass cover higher inside long-term grazing exclosures than on nearby grazed sites in northern New Mexico); T. L. Fleishner. 1994. Ecological costs of livestock grazing in western North America. *Conservation Biology* 8(3): 629-644 (p. 631, table 1) (native species richness and vegetative cover higher in absence of domestic livestock in a variety of western ecosystem types); A. Jones. 2001. Review and analysis of cattle grazing effects in the arid West, with implications for BLM grazing management in southern Utah: a literature review submitted to the Southern Utah Landscape Restoration Project. Wild Utah Project. Salt Lake City, UT.
- <sup>7</sup> See E. J. Rawlings, K. K. Hanson, R. L. Sanford, J. Belnap. 1997. The striking effects of land use practices and *Bromus tectorum* invasion on phosphorous cycling in a desert ecosystem of the Colorado Plateau. *Bull. Ecological Soc'y of America* 78: 300; J. Gelbard. 1999. Multiple scale causes of exotic plant invasions in the Colorado Plateau and Great Basin, USA. M.S. thesis. Duke University, Nicholas School of the Environment. Durham, NC.
- <sup>8</sup> Rosentreter, R. 1994. Displacement of rare plants by exotic grasses. Pages 170-175 in S. B. Monsen and S. G. Kitchen. PROC. ECOLOGY AND MANAGEMENT OF ANNUAL RANGELANDS. Gen. Tech. Rep. 313. Intermountain Research Station. Ogden, UT: 170 (citing R. Mack. 1981. Invasion of *Bromus tectorum* L. into western North America: an ecological chronicle. *Agro-Ecosystems* 7: 145-165).