Federal Rangeland Policy: Perverting Law and Jeopardizing Ecosystem Services

by

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FEDERAL RANGELAND POLICY: PERVERTING LAW AND JEOPARDIZING ECOSYSTEM SERVICES

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I. INTRODUCTION

In 2000 the federal Bureau of Land Management (BLM) warned that a "large part of the Great Basin lies on the brink of ecological collapse ."[1] The BLM attributed the "downward spiral of ecological conditions" on 75 million acres of public lands in the Great Basin to invasive plant species (primarily cheatgrass) and fire,[2] and it related fire and vegetative conditions to livestock grazing.[3] About the same time that BLM issued this dire warning, the first issue of a new journal devoted to biological invasions was re-

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1. BUREAU OF LAND MANAGEMENT, THE GREAT BASIN: HEALING THE LAND 1, 35 (2000) [hereinafter HEALING THE LAND]. *See also* Great Basin Restoration Initiative, Executive Summary ("The Great Basin is facing a crisis. A century ago, it consisted of a network of dynamic ecosystems that supported diverse species of plants and animals. Today . . . [it] has arrived at the threshold of a critical, and potentially permanent, change."), http://www.fire.blm.gov/articles/exec.htm (last visited June 21, 2007). The Great Basin, also known as the Intermountain Region, "includes most of Nevada, the western half of Utah, lower third of Idaho, the southeast corner of Oregon and a narrow strip of eastern California." HEALING THE LAND, *supra* at 9.

2. HEALING THE LAND, *supra* note 1, at Letter to Reader (statement of Acting BLM Director, Tom Fry).

3. *Id.* at 12 (noting that "changes in wildland fire" and grazing are "related," that early livestock grazing led to the decrease of native perennial grasses and invasion of cheatgrass, and that removal of biological soil crusts by livestock facilitated the invasion of exotic plants).

leased. In it, two prominent scientists warned that "positive feedbacks among [the] increasing number of exotic [plant and animal] species can facilitate additional invasions and lead to an invasional 'meltdown.'"[4] A study published in *Science* in 2006 provides compelling support for this hypothesis.[5] Based on their review of dozens of published studies, the researchers observed that "[n]ative herbivores strongly suppressed, whereas exotic herbivores strongly enhanced, the relative abundance of exotic plants."[6] They concluded that "anthropogenic alteration of herbivore communities has facilitated exotic plant invasions."[7] "These findings" they urged, "have considerable implications for ecosystem conservation, suggesting that *eradication of exotic herbivores and restoration of native generalist herbivores* could mitigate exotic plant invasions . . . ."[8]

Invasive plants are problematic West-wide.[9] Weeds significantly compromise the potential of rangelands[10] for producing ecosystem goods and services: They "threaten soil productivity, water quality and quantity, native plant communities, wildlife habitat, wilderness values, recreational opportunities, and livestock forage,

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4. Daniel Simberloff & Betsy Von Holle, *Positive Interactions of Nonindigenous Species: Invasional Meltdown?*, 1 BIOL. INVASIONS 21 (1999).

5. John D. Parker et al., *Opposing Effects of Native and Exotic Herbivores on Plant Invasions*, 311 SCI. 1459 (2006).

6. *Id.* at 1459 (citation omitted). The investigators "tested the effects of herbivores on exotic plant invasions using meta-analysis to examine 63 published studies that experimentally excluded herbivores and monitored the success of more than 100 exotic plant species." *Id.* (noting that studies were drawn from a broad range of biomes and vertebrate and invertebrate herbivores, both native and exotic). "[E]xotic herbivores increased the relative abundance of exotic plants by 65%" and "promoted exotic plant dominance and richness." *Id.* at 1459-60. "Native vertebrate herbivores had a three- to fivefold larger [negative] impact on exotic plant survival than did native invertebrate herbivores." *Id.* at 1460 (citation omitted).

7. *See id.* at 1460.

8. *Id.* (emphasis added) (footnote omitted).

9. *See, e.g.*, HEALING THE LAND, *supra* note 1, at 24 ("Montana, Wyoming, Colorado and California all have serious invasive species problems."); DAVID S. DOBKIN & JOEL D. SAUDER, SHRUBSTEPPE LANDSCAPES IN JEOPARDY: DISTRIBUTIONS, ABUNDANCES, AND THE UNCERTAIN FUTURE OF BIRDS AND SMALL MAMMALS IN THE INTERMOUNTAIN WEST 3, 6, 8 (2004) (describing sagebrush ecosystems as on the brink of "collapse"); Steven T. Knick et al., *Teetering on the Edge or Too Late? Conservation and Research Issues for Avifauna of Sagebrush Habitats*, 105 CONDOR 611 (2003).

10. "Rangeland" refers to both an ecosystem type and a land use. *See* Norman L. Christensen et al., *The Report of the Ecological Society of America Committee on the Scientific Basis for Ecosystem Management*, 6 ECOL. APPL'NS 665, 671, (Box 3) (1996). "Rangelands" are defined broadly by the Society for Range Management (SRM) as lands "characterized by native plant communities, which are often associated with grazing, and are managed by ecological, rather than agronomic methods." Society for Range Management, *Policy Statement: Rangeland and Range Resources*, http://www.rangelands.org/about_pos_rangeresources.shtml (last visited June 21, 2007); *see also* COMMITTEE ON RANGELAND CLASSIFICATION, NATIONAL RESEARCH COUNCIL, RANGELAND HEALTH: NEW METHODS TO CLASSIFY, INVENTORY, AND MONITOR RANGELANDS 19 (1994) [hereinafter RANGELAND HEALTH] ("Grazing lands . . . include rangelands, forests, and pastures.").

and are detrimental to the agriculture and commerce of the U.S. and to public health."[11] Despite efforts to combat them, "[i]nvasive vegetation and noxious weeds are the dominant vegetation on an estimated 35 million acres of public lands,"[12] spreading at an estimated rate of 4,600 acres per day.[13] According to the BLM, weeds and the resulting "build-up of hazardous fuels" pose "one of the greatest challenges in ecosystem management."[14]

Federal range management, however, seems divorced from these realities. Despite identifying the causal factors and admitting that "[w]hat we've done before . . . has not reversed this trend,"[15] the BLM pursues business as usual.[16] Its range management has changed little, and its proposals for restoring ranges[17] largely ignore the causes of current conditions.[18] Indeed, both the

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11. BUREAU OF LAND MANAGEMENT, DEP'T OF INTERIOR, VEGETATION TREATMENTS USING HERBICIDES ON BUREAU OF LAND MANAGEMENT LANDS IN 17 WESTERN STATES, DRAFT PROGRAMMATIC ENVIRONMENTAL IMPACT STATEMENT, at ES-1 (2005) [hereinafter VEGETATION TREATMENTS PEIS]. Healthy rangelands provide a wealth of goods and services. *See generally* RANGELAND HEALTH, *supra* note 10, at 4-5 (defining rangeland "health"); *id.* at 1, 18, 19 (including among rangeland ecosystem services "wildlife habitat, water, minerals, energy, recreational opportunities, some wood products, and plant and animal genes," as well as scenic beauty, solitude and open space, wilderness, sources of spiritual and cultural enrichment, and opportunities for scientific research); *cf.* Jan G. Laitos & Thomas A. Carr, *The Transformation on Public Lands*, 26 ECOL. L.Q. 140, 235 (1999) ("The total value of ecosystem services amounts to $71.7 billion from the national forest system, [and] $222.3 billion from BLM lands.").

12. VEGETATION TREATMENTS PEIS, *supra* note 11, at ES-1; *cf. id.* at 3-26 ("BLM estimates that nearly 36 million acres of public lands were infested with weeds in 2000, and that invasive plants and noxious weeds are spreading at a rate of about 2,300 acres per day." (citation omitted)).

13. AMERICAN LANDS ALLIANCE, THE SAGEBRUSH SEA 3, 12 (2001) (citing A.J. BELSKY & J.L. GELBARD, LIVESTOCK GRAZING AND WEED INVASIONS IN THE ARID WEST (2000); Use of Weed-free Forage on Public Lands in Nevada, 65 Fed. Reg. 54,544 (Sept. 8, 2000)).

14. *See* VEGETATION TREATMENTS PEIS, *supra* note 11, at 4-207; *cf.* JARED DIAMOND, COLLAPSE: HOW SOCIETIES CHOOSE TO FAIL OR SUCCEED 437 (2005) ("Among the most recalcitrant problems today are those posed by introduced pest species [including weeds] . . . ."); *see also id.* at 55-56.

15. HEALING THE LAND, *supra* note 1, at Letter to Reader. By "what we've done before" the agency was referring to "a combination of treatments primarily designed to stabilize soils after a wildland fire." *Id.* It seemed oblivious of the wider implications of the statement—that seventy years of BLM management has not checked the deterioration of arid and semiarid rangelands.

16. *See infra* Part II.A.-B.

17. *See* VEGETATION TREATMENTS PEIS, *supra* note 11; BUREAU OF LAND MANAGEMENT, DEP'T OF INTERIOR, VEGETATIVE TREATMENTS ON BUREAU OF LAND MANAGEMENT LANDS IN 17 WESTERN STATES, DRAFT PROGRAMMATIC ENVIRONMENTAL REPORT (2005) [hereinafter VEGETATION TREATMENTS PER] (describing the BLM's proposed heavy reliance on herbicides, mechanical treatments, and fire to combat invasive weeds). *See also* HEALING THE LAND, *supra* note 1; *infra* Part II.

18. National forest management is subject to similar criticisms. *See, e.g.*, USDA-FOREST SERVICE, CHANGE ON THE RANGE: NEW PERSPECTIVES FOR RANGELAND RESEARCH IN THE 90S (1992) (reporting that more than forty-seven percent of riparian areas in national forest grazing allotments were "not meeting management objectives"); CURTIS H. FLATHER ET AL., SPECIES ENDANGERMENT PATTERNS IN THE UNITED STATES, U.S. Forest Service Gen. Tech. Rep. RM-241, at 22-23 (1994) (deeming livestock grazing the primary cause of species

BLM and the U.S. Forest Service (USFS) continue to manage rangelands in ways that ensure the weed problem will persist and probably worsen. The immediate causes are management policies that unduly favor certain land uses, particularly livestock production.[19] Underlying these policies are skewed interpretations of the agencies' legal obligations and authority.[20] Thus, although the BLM has declared that "[r]estoration work must begin now,"[21] neither agency is using the potentially most powerful tool at its disposal—removal of livestock.[22]

Using the BLM's management of invasive weeds, specifically cheatgrass, as a case study, this article argues that the BLM and USFS possess both the authority and a duty to manage public rangelands so as to ensure the sustainable generation of ecosystem goods and services. The discussion centers on the worsening weeds problem because it is arguably the single greatest threat to rangeland ecosystem service provision.[23] All surface-disturbing activities tend to promote the spread of weeds.[24] The paper focuses on livestock grazing because it is the predominant western land use,[25] a (if not *the*) major cause of the weeds problem,[26] and a prin-

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endangerment in arid regions of the West).

19. Indeed, it is widely recognized that the impacts of livestock grazing on arid and semiarid lands can be (and in some cases already have been) irreversible. *See infra* discussion of thresholds at notes 31-39. *See also* COMPTROLLER GENERAL, GENERAL ACCOUNTING OFFICE, PUBLIC RANGELAND IMPROVEMENT—A SLOW, COSTLY PROCESS IN NEED OF ALTERNATE FUNDING, GAO/RCED-83-23 at 11 (1982) ("[I]t is widely accepted that past overgrazing permanently damaged our Nation's public rangelands and that they cannot be restored to their pregrazing state."); RANGELAND HEALTH, *supra* note 10, at 37-46, 90-91; DAVID SHERIDAN, DESERTIFICATION OF THE UNITED STATES 120–23 (1981) (noting overgrazing's contribution to desertification in vast areas of the West); DEBRA L. DONAHUE, THE WESTERN RANGE REVISITED: REMOVING LIVESTOCK FROM PUBLIC LANDS TO CONSERVE NATIVE BIODIVERSITY 64–66, 114–20 (1999) (describing changes in the physical landscape of rangelands).

20. *See infra* notes 61-71 and accompanying text; *infra* Part III.

21. HEALING THE LAND, *supra* note 1, at 6; *id.* at 2 ("Healing of the Great Basin needs to begin now. Tomorrow may be too late.").

22. *See infra* notes 112-20 and accompanying text; *see also* DONAHUE, *supra* note 19, at 287-88.

23. *See supra* text accompanying note 14.

24. According to the BLM:

> [I]nvasive plants are spread primarily by vehicles, humans, wild horses, livestock, wind, water, and wildlife. Initially, invasive weeds may get established in disturbed sites such as trailheads, along roads and trails, firebreaks, landing pads, oil and gas development sites, wildlife and/or livestock concentration areas, and campgrounds, but may also invade relatively undisturbed sites.

VEGETATION TREATMENTS PEIS, *supra* note 11, at 3-26.

25. *See generally* Thomas L. Fleischner, *Ecological Costs of Livestock Grazing in Western North America*, 8 CONS. BIO. 629 (1994); *id.* at 629 (reporting that "[l]ivestock grazing is the most widespread land management practice in western North America" occurring on seventy percent of the area); GEORGE CAMERON COGGINS ET AL., FEDERAL PUBLIC LAND AND RESOURCES LAW 777 (5th ed. 2002) (describing livestock production as the most wide-

cipal driver in the declining productivity of arid and semiarid rangelands.[27] Part II of this article provides a brief summary and critique of the BLM's strategy for weed control and argues that removing livestock from certain lands will be essential to the success of any invasive species control effort.[28] Part III examines the laws governing BLM and USFS rangeland management and urges that a proper construction of the agencies' legislative authority supports a weed control program based on the removal of livestock. The article concludes that the potentially drastic consequences of maintaining the status quo on public rangelands outweigh the costs to ranchers and the social risks of acting in the face of scientific uncertainty. As the BLM and a growing number of commentators have warned, we *must act now*. If we fail to change the way we use rangelands, both the lands and the human communities that depend on them[29] will become increasingly impoverished.[30]

II. CASE STUDY: INVASIVE WEEDS

A. A Summary and Critique of BLM Weed Control Proposals

Weed invasions on arid and semiarid western rangelands are accompanied by a progressive deterioration of ecological function.

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spread commercial use of federal lands). At least 160 million acres of BLM lands and about 100 million acres of national forests are open to grazing. *See generally* VEGETATION TREATMENTS PEIS, *supra* note 11, at 3-1; VEGETATION TREATMENTS PER, *supra* note 17, at 4-120; *Public Land Ranching by the Numbers*, *in* WELFARE RANCHING: THE SUBSIDIZED DESTRUCTION OF THE AMERICAN WEST 5 (George Wuerthner & Mollie Matteson eds., 2002) [hereinafter WELFARE RANCHING].

26. *See supra* notes 5-8, 24, *infra* notes 34-39, 56 and accompanying text.

27. *See generally* DONAHUE, *supra* note 19, chs. 1, 3 & 5 (recounting the ongoing ecological impacts of public-land livestock production and explaining the significance of aridity); *see also* Fleischner, *supra* note 25; R.D. Ohmart & B.W. Anderson, *Riparian Habitat*, *in* INVENTORY AND MONITORING WILDLIFE HABITAT 169–99 (B.S. Cooperrider ed., 1986) ("[L]ivestock grazing may be the major factor negatively affecting wildlife in the 11 western states."); VEGETATION TREATMENTS PEIS, *supra* note 11, at 4-211 (reporting "a general downward trend in habitat value from historical conditions for nearly all habitat types evaluated" in the Interior Columbia Basin, and attributing the habitat modification to "grazing by domestic livestock and wild horses and burros, timber management, fire suppression, and invasion by weeds and other unwanted vegetation"). *See also infra* notes 34, 256.

28. *See infra* Part II.

29. *See* AMERICAN LANDS ALLIANCE, *supra* note 13, at 3 (noting that the interior West is "the fastest growing region of the country" and "[a] number of the fastest growing counties . . . are in the Sagebrush Sea" (citing BLM, ELEVEN WESTERN STATES ARE AMONG THE FIFTEEN FASTEST GROWING IN THE U.S. (2000))).

30. "Impoverishment" is used increasingly to describe the consequences of species loss and degradation of ecosystems. *See, e.g.*, H E. Dregne, *Desertification of Arid Lands*, *in* PHYSICS OF DESERTIFICATION (F. El-Baz & M. H. A. Hassan eds., 1986), *available at* http://www.ciesin.columbia.edu/docs/002-193/002-193.html; James A. Young et al., *Alien Plants in the Great Basin*, 25 J. RANGE MGMT. 194, 194 (1972); Daniel Quammen, *Planet of Weeds*, HARPER'S, Oct. 1998, at 57, 67.

This process, which can culminate in ecological "collapse,"[31] demonstrates ecological threshold principles.[32] Drivers include loss of species and genetic diversity, "overharvesting, climate change, invasive species, and nutrient loading."[33] In the Intermountain West, the chief driver of ecosystem change has been prolonged and excessive disturbance by livestock grazing,[34] which has altered plant structure, species composition, and soil conditions[35] and led to altered fire cycles.[36] When threshold conditions are exceeded, a new vegetative community develops and reestablishment of predisturbance conditions can become unfeasible.[37] Ecosystem function and, hence, services can be impacted profoundly and irreversibly.[38] It is just such a transition—from native shrub-

31. *See* HEALING THE LAND, *supra* note 1; *see generally* BUREAU OF LAND MANAGEMENT, OUT OF ASHES, AN OPPORTUNITY 14 (1999) [hereinafter OUT OF ASHES].

32. Thresholds are "typical feature[s] of the relationship between human pressure on the environment and ecosystem function." ECONOMICS FOR THE ENVIRONMENT CONSULTANCY (EFTEC), THE ECONOMIC, SOCIAL AND ECOLOGICAL VALUE OF ECOSYSTEM SERVICES: A LITERATURE REVIEW 8 (Jan. 2005) [hereinafter EFTEC]. They mark "boundar[ies] in space and time between two ecological states." RANGELAND HEALTH, *supra* note 10, at 37. Regarding thresholds on arid and semiarid landscapes, *see* M.H. Friedel, *Range Condition Assessment and the Concept of Thresholds: A Viewpoint*, 44 J. RANGE MGMT. 422, 424-26 (1991); W.A. Laycock, *Stable States and Thresholds of Range Condition on North American Rangelands: A Viewpoint*, 44 J. RANGE MGMT. 427–28 (1991); *see generally* RANGELAND HEALTH, *supra* note 10, at 36–39 (discussing thresholds between ecological states and types of rangeland change).

33. *See* MILLENNIUM ECOSYSTEM ASSESSMENT, ECOSYSTEMS AND HUMAN WELL-BEING: SYNTHESIS 12 (Island Press 2005) [hereinafter MILLENNIUM ASSESSMENT]. Significantly, livestock grazing plays a role in each of these factors.

34. Overgrazing is a chief cause of rangeland desertification not only in the West but worldwide. *See* Dregne, *supra* note 30; SHERIDAN, *supra* note 19, at 121 (identifying overgrazing as the "most potent desertification force, in terms of total acreage affected," of 225 million acres of the U.S.); *see also* MILLENNIUM ASSESSMENT, *supra* note 33, at 47 ("Expansion of livestock production around the world has often led to overgrazing and dryland degradation, rangeland fragmentation, loss of wildlife habitat, dust formation, bush encroachment, deforestation, nutrient overload through disposal of manure, and greenhouse gas emissions." (citation omitted)). *Cf. infra* text accompanying note 318 (quoting PRIA).

35. *See* RANGELAND HEALTH, *supra* note 10, at 91.

36. The spread of cheatgrass, in particular, is responsible for drastically shortened fire cycles in the Intermountain West. *See infra* note 95 and accompanying text.

37. *See* RANGELAND HEALTH, *supra* note 10, at 37-38 ("Threshold changes . . . are not reversible on a practical time scale without human intervention. In some cases, human intervention may not be sufficient to reverse these changes, for example, severe soil erosion." (citation omitted)); DONAHUE, *supra* note 19, at 145–51, 158–60, 179; *cf.* Thomas J. Valone et al., *Timescale of Perennial Grass Recovery in Desertified Arid Grasslands Following Livestock Removal*, 17 CONS. BIO. 995, 999 (2002) (observing "dramatic increase in perennial grass cover" following *thirty-nine* years of rest from grazing, and suggesting that on some sites, perhaps due to soils, "loss of perennial grass cover from historic grasslands may not be irreversible"). Unfortunately, "we currently lack sufficient understanding of ecosystem dynamics to identify thresholds *a priori*, and consequently it is difficult to implement informed policy." EFTEC, *supra* note 32, at 8.

38. "Ecosystem function depends on its structure, diversity, and integrity." Christensen et al., *supra* note 10, at 671. Experimental studies generally "show that ecosystem functioning is decreased as the number of species in a community decreases." Shahid Naeem et al., *Biodiversity and Ecosystem Functioning: Maintaining Natural Life Support Processes,*

perennial grass communities to a cheatgrass-dominated landscape—that caused the BLM to warn of the "downward spiral" and incipient collapse of much of the Great Basin.[39]

BLM management policies, however, do not heed what science teaches about thresholds. Pending BLM proposals to "treat" vegetation on millions of acres infested with exotic weeds would do nothing to halt existing land uses that lead to weed infestations,[40] while further disturbing degraded landscapes with chemicals, fire, and mechanized equipment.[41] These proposals are set forth in two programmatic documents, which the BLM refers to as the Vegetation Treatments EIS (or PEIS) and Vegetation Treatments Environmental Report (or PER).[42] The proposals involve massive, costly manipulations of rangeland conditions,[43] while assuming the continuation of the single most potent agent of environmental degradation, livestock grazing.[44]

It is impossible here to summarize the PEIS and PER (which comprise hundreds of pages). In brief, the agency intends to treat *annually* approximately 2.2 million acres using mechanical methods, 2.1 million acres using fire, 932,000 acres using herbicides, 545,000 acres using biological control (e.g., pathogens or livestock), and 270,000 acres manually (e.g., hand-pulling weeds).[45] The documents manifest a clear preference for active treatment rather than passive restoration techniques,[46] although the agency stops short of proposing to reestablish native vegetation on all treated

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ISSUES IN ECOL., Fall 1999, at 1, 8. *See also infra* notes 95-96 and accompanying text; *infra* text accompanying note 104.

39. *See supra* text accompanying notes 1-2.

40. *See* VEGETATION TREATMENTS PEIS, *supra* note 11, at 4-3 ("This PEIS assumes that . . . future land uses would be similar to those that currently occur on public lands.").

41. *See infra* text accompanying note 45.

42. *See supra* note 17. The "P" in each abbreviation stands for "programmatic." The PEIS sets forth an "ecological risk assessment methodology" to guide use of eighteen herbicides, including four never before used on public rangelands. *See* Vegetation Treatments EIS and Environmental Report, http://www.blm.gov/nhp/spotlight/VegEIS (last visited June 22, 2007). The PER describes the "environmental impacts of using non-herbicide vegetation treatment methods." *Id.*; *see also* VEGETATION TREATMENTS PER, *supra* note 17, at ES-1.

43. The total area treated by all treatments would increase from the current two million to six million acres annually. VEGETATION TREATMENTS PER, *supra* note 17, at ES-1 to -2 (noting that the increase is in response "to Presidential and Congressional mandates to reduce the risk of wildfire by reducing the occurrence of hazardous fuels, . . . restoring fire-adapted ecosystems, and repairing lands damaged by fire" (citing the National Fire Plan and the Healthy Forests Restoration Act of 2003)).

44. *See infra* notes 61-70, 110 and accompanying text.

45. *See* VEGETATION TREATMENTS PER, *supra* note 17, at ES-2, 4-33, 4-111, 4-125 to -126.

46. "Passive treatments involve suspension of activities that cause loss of ecological integrity," in other words, reduction or removal of livestock grazing, ORV use, and other surface-disturbing activities. *See* VEGETATION TREATMENTS PEIS, *supra* note 11, at 2-12 (tbl. 2-5). *See also infra* notes 56-63 and accompanying text.

areas.[47] The BLM claims that the "proposed actions would reduce the risk of catastrophic wildfires," "restor[e] fire-damaged lands," and "improve ecosystem health by controlling weeds . . . and managing vegetation to benefit fish and wildlife habitat, improve riparian and wetlands areas, and improve water quality in priority watersheds."[48] Scant support is offered for these claims.

The documents not only fail to deal frankly with the substantial role of livestock in impairing ecosystem function,[49] but they also imply that a significant objective of the treatments is to improve livestock forage conditions.[50] According to the PEIS, the BLM's management "focus" is on "restoring ecosystem processes *and* maintaining livestock populations in balance with the health of rangelands."[51] This "focus" reflects a flawed understanding of "ecosystem health."[52] The agency's assumption that there is some level at which livestock numbers can be maintained "in balance with the health of rangelands" takes for granted that livestock production is sustainable on *any* landscape.[53] But ecology and evolutionary constraints;[54] physical limits, such as topography; and

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47. *See infra* notes 80-85 and accompanying text.

48. VEGETATION TREATMENTS PER, *supra* note 17, at 4-33; *see also id.* at ES-1 (adding that "actions would be taken to . . . manage vegetation in a manner that provides for long-term economic sustainability of local communities").

49. For instance, the executive summary of BLM's Vegetation Treatments PEIS lacks any mention of livestock as a cause or contributor to the ecological conditions of concern. Similarly, livestock grazing is mentioned only once in the discussion of soil erosion in Chapter 3 ("Affected Environment"). *See* VEGETATION TREATMENTS PEIS, *supra* note 11, at 3-10 ("Biological soil crusts . . . are easily disturbed by grazing . . . .").

50. *See, e.g.*, VEGETATION TREATMENTS PER, *supra* note 17, at 4-95 ("All treatments that successfully reduce the cover of noxious weeds on rangelands would benefit livestock by increasing the number of acres suitable for grazing and the quality of forage."); VEGETATION TREATMENTS PEIS, *supra* note 11, at 4-215 (noting that "[w]here feasible, the BLM will incorporate the use of livestock as part of the overall weed management program," and that the program "should benefit the livestock industry"); *id.* at 4-216 ("Over the long term, . . . resources should improve and enable public lands to support populations of livestock at or above current levels.").

51. VEGETATION TREATMENTS PEIS, *supra* note 11, at 4-215 (emphasis added); *cf.* VEGETATION TREATMENTS PER, *supra* note 17, at 4-93 ("The purpose of vegetation management is to restore native ecosystems that have the capacity to provide a steady source of forage for livestock while meeting the needs of native animals and other uses and resource values."). Conversely, only "15% of [all] treatments would be specifically designed to benefit wildlife habitat." *Id.* at 4-73.

52. *See, e.g.*, RANGELAND HEALTH, *supra* note 10, at 5 ("Rangeland health should be a minimum ecological standard, independent of the rangeland's use and how it is managed."). As explored further below, the statement in the text also reflects a misunderstanding of the law. *See generally infra* Part III.

53. *Cf.* VEGETATION TREATMENTS PEIS, *supra* note 11, at 3-1 (suggesting that the only BLM lands that are *not* available for livestock grazing—19 of 262 million acres—"consist of barren mountains, mountaintops, glaciers, sand dunes, and playas").

54. *See, e.g.*, Richard N. Mack & John N. Thompson, *Evolution in Steppe with Few Large, Hooved Mammals*, 119 AM. NATURALIST 757, 758-61, 763-64 (1982) (attributing the more serious impacts of livestock grazing in the Intermountain West, compared to the Great Plains, to differences in vegetation, large herbivores, and evolutionary history); JAYNE BEL-

economics[55] belie this assumption.

The closest the BLM comes to acknowledging a remedy other than what it proposes—massive spraying, chaining, mowing, burning, and biocontrol measures—is in the following concession, buried in the middle of one of the tomes:

> Prevention and early detection are the least costly and most effective weed control methods. Weeds colonize highly disturbed ground and invade plant communities that have been degraded, but are also capable of invading intact communities. Passive treatments, such as *removing the cause* of the disturbance (*e.g., livestock*, OHVs) *may be more effective long term than active treatments* and would be evaluated for their merit before implementing active treatments.[56]

Throughout the rest of the documents, however, the BLM ignores or dilutes this advice.

The panoply of potential adverse environmental impacts attending the proposed treatments—many of which cannot be predicted much less avoided if the proposals are implemented[57]—should lead readers to question why the agency gives such short shrift to passive remedies, i.e., removing the causes of rangeland

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NAP ET AL., BIOLOGICAL SOIL CRUSTS: ECOLOGY AND MANAGEMENT, Tech. Ref. No. 1730-2, at 41 (USDI-BLM & USGS 2001); DONAHUE, *supra* note 19, at 133-39. *See also supra* note 27 and accompanying text.

55. *See, e.g.*, VEGETATION TREATMENTS PER, *supra* note 17, at 2-12 ("Caution should be used whenever grazing or any other vegetation control is prescribed near riparian areas [or] in steep topography . . . ."); *see also* A.J. Belsky et al., *Survey of Livestock Influences on Stream and Riparian Ecosystems in the Western United States*, 54 J. SOIL & WATER CONS. 419 (1999) (reviewing the literature); NATIONAL RESEARCH COUNCIL COMMITTEE ON RIPARIAN AREA FUNCTIONS AND STRATEGIES FOR MANAGEMENT, RIPARIAN AREAS: FUNCTIONS AND STRATEGIES FOR MANAGEMENT 171-73, 386-87 (2002) [hereinafter NRC, RIPARIAN AREAS] (noting the tendency of cattle to concentrate in riparian areas, especially in the arid and semiarid West, and that steep uplands may exacerbate the problem); R. Lal, *Soil Erosion and Carbon Dynamics on Grazing Land, in* THE POTENTIAL OF U.S. GRAZING LANDS TO SEQUESTER AND MITIGATE THE GREENHOUSE EFFECT 231, 234-35 (R.F. Follett et al., eds. 2001) ("A significant percentage of semiarid rangelands has steep slopes, often >25%. Soil erosion increases exponentially with increase in slope gradient."); DONAHUE, *supra* note 19, at 133-42. Regarding the economics of public-land ranching, *see infra* notes 122, 156, 289 and accompanying text.

56. VEGETATION TREATMENTS PER, *supra* note 17, at 4-32 (emphasis added); *see also id.* at 2-16 ("Prevention and early detection is the cheapest and most effective weed control method."). "OHVs" refers to off-highway vehicles. *Id.* at 1-5. "Active treatments" refers to the weed control methods on which the BLM relies in these documents, i.e., use of prescribed fire, herbicides, mechanical control, and biological controls. *Id.* at 2-5. Regarding passive restoration, see *infra* discussion at notes 58-63.

57. *See generally* VEGETATION TREATMENTS PEIS, *supra* note 11, at ch. 4 (in particular pp. 4-235 to -239, summarizing unavoidable adverse effects).

degradation.[58] The BLM considered a "passive treatment" alternative (Alternative E), but only at the insistence of several conservation organizations, which actually developed and submitted a plan describing this option.[59] The agency's analysis and rejection of this alternative evidence its bias against reducing livestock grazing[60] and its serious misunderstanding of the laws that govern BLM land management.[61]

As described by BLM:

> [Alternative E] would place greater emphasis on passive restoration, by prohibiting or restricting activities such as livestock grazing, OHV [off-highway vehicle] use, logging, or oil and gas development in areas where these activities have promoted a less desirable vegetation community or increased erosion. *Since these activities are allowed under FLPMA, however, restrictions on their use would only be considered to the extent they are consistent with BLM vegetation and land use management practices* (e.g., excluding grazing animals from recently reseeded areas).[62]

The agency also states that "OHV use and livestock grazing *could*

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58. *See supra* note 46; *infra* note 63 and accompanying text.

59. *See* VEGETATION TREATMENTS PEIS, *supra* note 11, at 2-12 (tbl. 2-5), 2-13 (describing Alternative E, which "was developed based on an alternative proposal . . . submitted by the American Lands Alliance"). The full text of this proposal, *Restore Native Ecosystems Alternative*, is set forth in Appendix G of the PEIS. *See* VEGETATION TREATMENTS PEIS, *supra* note 11, at app. G.

60. *See, e.g.*, VEGETATION TREATMENTS PEIS, *supra* note 11, at 4-216 ("By reducing the number of livestock entering degraded areas, improvement in ecosystem health can be expected. Thus, the number of livestock able to graze on public lands could be less under [Alternative E] than under the other alternatives." (citation omitted)); *Id.* at 4-133 (noting that EPA in 1981 recommended against registration of certain herbicides that BLM proposes to use because of their persistence in the environment and the difficulty of detecting them at low concentrations, but explaining that "in this assessment, none of [these] herbicides resulted in risk to livestock").

61. For instance, the BLM considered but rejected an alternative that would "[e]xclude logging, grazing, OHV use, and energy/mineral development on public lands," reasoning: "FLPMA *requires* that BLM manage public lands for multiple uses including those listed." VEGETATION TREATMENTS PEIS, *supra* note 11, at 2-14 (emphasis added). The agency conceded, however, that "[f]ield offices . . . can limit these activities, consistent with its [sic] land use plan where it benefits vegetation management and land health and complies with the FLPMA." *Id. See also infra* Part III.

62. VEGETATION TREATMENTS PEIS, *supra* note 11, at 2-13 to -14 (emphasis added); *see also id.* at 2-14 (asserting that "FLPMA requires that BLM manage public lands for multiple uses," including "logging, grazing, OHV use, and energy/mineral development"). The BLM concedes that "[f]ield offices . . . can limit these activities, consistent with its [sic] plan where it . . . complies with the FLPMA." *Id.*

only be restricted to levels consistent with adopted BLM LUPs [land use plans]," even though these activities are "known to impact soils and lead to invasive species establishment."[63]

These statements not only reflect a seriously jaundiced view of what the Federal Land Policy and Management Act (FLPMA)[64] allows and requires,[65] they turn administrative decisionmaking on its head: The agency suggests that land management *practices* dictate interpretation of the *law*. It is the law, of course, that governs (or *should* govern) public land management decisions.

The BLM's strained view of its governing legislation appears frequently throughout the Vegetation Treatments documents. For instance, the BLM asserts that it has made progress toward some of its water quality and watershed improvement goals, but that it is "challenged by the *need to meet multiple land use objectives*, such as allowing oil and gas development that may conflict with restoration objectives."[66] It argues that, "under the principles of multiple use and sustained yield in accordance with the intent of Congress [in FLPMA]," "vegetation must be managed to protect and enhance the health of the land *while providing a source of food, timber, and fiber* for domestic needs.[67] The agency concedes that "passive restoration would be *considered* first when developing restoration management plans," but adds that it "would be used [only] to the extent possible within the constraints of FLPMA."[68]

The BLM rationalizes what it seems to perceive as conflicting legal mandates:

> Passive restoration is often an important first step in improving watershed health because the anthropogenic activities that are causing degradation or preventing recovery are reduced or eliminated. Livestock grazing and OHV use are often cited as factors that cause loss of wetland and riparian habi-

63. *See id.* at 4-21 (emphasis added).

64. 43 U.S.C. §§ 1701-1784 (2000).

65. As I argue in Part III, the agency ignores or misconstrues FLPMA's multiple-use and sustained-yield principles, several planning directives, and the mandate that the agency "prevent unnecessary or undue degradation." 43 U.S.C. § 1732(b).

66. VEGETATION TREATMENTS PEIS, *supra* note 11, at 4-202 (citing OMB 2005) (emphasis added). The agency's claim to "progress" is inconsistent with its admission in an earlier report. *See* DEP'T OF INTERIOR, RANGELAND REFORM '94 DRAFT ENVIRONMENTAL IMPACT STATEMENT 45 (1994) [hereinafter RANGELAND REFORM '94] (reporting that riparian areas on BLM-managed lands were in their *worst condition* in history and that conditions on dry uplands had *not improved* under fifty years of BLM range management).

67. VEGETATION TREATMENTS PER, *supra* note 17, at ES-2 (emphasis added). I address and refute this argument in Part III.

68. VEGETATION TREATMENTS PEIS, *supra* note 11, at 4-209 (emphasis added).

> tat function and watershed degradation; by prohibiting livestock from entering wetland and riparian areas, and placing limits on OHV activity, improvement in watershed function can be expected. *However*, the BLM would *have to balance* watershed protection with the multiple use requirements under FLPMA.[69]

"[*T*]*herefore*," the agency explains, "the BLM modifies the timing and duration of grazing to reduce potential impacts rather than implements total exclusion [of livestock] whenever possible."[70]

As discussed in more detail in Part III, these and similar statements misinterpret or misapply the multiple-use and sustained-yield mandates in FLPMA, while ignoring many other provisions of law, including FLPMA's over-arching non-degradation mandate.[71] In addition to being flawed as a matter of law, the policy of adjusting the "the timing and duration of grazing" rather than removing livestock is not based on sound science.[72]

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69. *Id.* at 4-203 (emphasis added) (citation omitted). The BLM's intimation that "watershed protection" must be compromised to meet FLPMA's requirements is outrageous. "Watershed" is one of the objects of "multiple use" itemized in the FLPMA definition, *see infra* note 165, but "watershed" and watershed *protection* are not equivalent. Further, the PER and PEIS frequently acknowledge that ongoing land uses "are causing degradation" (*see* quotation in the text), but the BLM fails to consider the legal significance of this fact. *See infra* Part III.B.

70. VEGETATION TREATMENTS PEIS, *supra* note 11, at 4-205 (emphasis added); *cf.* VEGETATION TREATMENTS PER, *supra* note 17, at ES-2 ("Actions to prevent or minimize the need for vegetation control *could* include protecting intact systems . . . [or] reducing the effect of ongoing activities (e.g., improving grazing management practices." (emphasis added)).

71. The BLM comes closer to getting it right in the following passage:

> [V]egetation must be managed to protect and enhance the health of the land while providing a source of food, timber, and fiber for domestic needs. Land-disturbing activities must be conducted in a manner that minimizes ecosystem fragmentation and degradation, and lands should be rehabilitated when necessary to safeguard the long-term diversity and integrity of the land.

VEGETATION TREATMENTS PER, *supra* note 17, at ES-2. Despite this lip service to the law, the BLM has *not* managed its lands to "minimize" degradation, nor do its weed control proposals serve this ambitious objective.

72. The assumption that watershed and riparian restoration can be achieved simply by modifying the timing and duration of grazing has been refuted by both the BLM itself and an NRC Committee. *See* RANGELAND REFORM '94, *supra* note 66, at 45 (asserting that "[w]atershed and water quality conditions would *improve to their maximum potential*" if livestock were *removed* from public lands); NRC, RIPARIAN AREAS, *supra* note 55, at 232 (concluding that complete removal of livestock is necessary to restore riparian areas damaged by grazing). While altering the timing and duration of grazing can alleviate some effects (e.g., improve the ability of native plants to produce seed or reduce compaction of wet soils), many impacts of livestock (e.g., trampling, erosion, overuse of riparian areas and

The BLM also dismisses the passive treatment alternative based on perceived practical considerations, for example, because passive measures alone would be insufficient to restore certain lands[73] or because "recovery of vegetation" would "take longer" using only passive measures.[74] The agency intimates that if passive measures alone would not suffice, they should be disdained in favor of "more aggressive treatments."[75] Rejecting "passive treatments" simply because they would be inadequate, on their own, to restore degraded rangelands cannot be defended based on law, logic, or practical land management. The fallacy of this reasoning is that it justifies combating a problem with "aggressive" measures, while simultaneously *continuing the significant cause(s)* of the problem.[76] This is analogous to a doctor treating obesity with "fat pills" or liposuction, while encouraging the patient to continue her high-fat, high-calorie diet. In fact, "natural recovery," even if slower, "may be the most practical approach."[77] Passive restoration not only promotes improved conditions in the long term, it poses fewer negative short-term consequences.[78] Passive restoration thus ought to be the *primary* weed control tool. In the end, the BLM offers that "passive restoration would be *considered* when developing restoration management plans," but it drastically and unnecessarily limits this assurance by adding: "to the extent possible within the constraints of FLPMA."[79] We will return to this issue in Part III.

The BLM's endorsement of affirmative revegetation is similarly

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wetlands, water pollution, damage to biological soil crusts, reduction of cover for small mammals and birds, etc.) are simply unavoidable. *See generally* Fleischner, *supra* note 25; DONAHUE, *supra* note 19.

73. For instance, the BLM concedes that "[p]assive treatments, where the underlying cause of the invasive species problem is identified and eliminated or moderated . . . *would help*." VEGETATION TREATMENTS PER, *supra* note 17, at 4-93 (emphasis added).

74. *See* VEGETATION TREATMENTS PEIS, *supra* note 11, at 4-207; *see also id.* at 4-214.

75. *See* VEGETATION TREATMENTS PER, *supra* note 17, at 4-93.

76. In fact, the plan is to use *multiple* treatments to combat weeds. *See, e.g.*, VEGETATION TREATMENTS PER, *supra* note 17, at 2-13 ("Biological treatments are most effective when followed with other treatments."); *id.* at 4-133 (describing "Brown-and-burn Operations," in which vegetation is "treated with herbicides several weeks before beginning a prescribed burn"). In other words, the agency is proposing to use *multiple active* treatments, each of which will have adverse, unintended, and in some cases unpredictable environmental consequences, while continuing the disturbances that give rise to weed problems.

77. *See* Stephen B. Monsen, *Restoration or Rehabilitation through Management or Artificial Treatments* [hereinafter Monsen, *Restoration*], *in* RESTORING WESTERN RANGES AND WILDLANDS, Rocky Mtn. Res. Stn. Gen. Tech. Rep. RMRS-GTR-136, at 1, 25, 27 (Stephen B. Monsen et al. compilers, Sept. 2004) [hereinafter RESTORING WESTERN RANGES]. By "natural recovery," Monsen means passive restoration.

78. *See supra* text accompanying note 57.

79. VEGETATION TREATMENTS PEIS, *supra* note 11, at 4-209 (emphasis added); *see also id.* at 4-203, -205, and -209 (stating that "passive restoration would be . . . used to the extent possible within the constraints of FLPMA").

lukewarm.[80] Most authorities consider reintroduction of native species by seeding or planting essential to restoration or rehabilitation efforts in many circumstances, including where the target weed is cheatgrass.[81] But the BLM makes no promise that seeding or planting will occur in those cases where it is necessary or desirable,[82] nor does it explain why it would waste resources on treatment *sans* revegetation if the treatment would consequently fail.[83] Only once does the BLM indicate that it would revegetate herbicide-treated cheatgrass ranges.[84] Elsewhere, the agency equivocates.[85] More ominously, the agency insinuates that it will actually manage some lands *for* cheatgrass, one of the most invasive

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80. *See, e.g., id.* at 4-45 ("Some treatments are very successful at removing weeds over the short term, but are not successful at promoting the establishment of native species in their place. In such cases, seeding of native plant species would be *beneficial*." (emphasis added)); VEGETATION TREATMENTS PER, *supra* note 17, at 4-95 (same); *id.* at 4-32 ("Reseeding or replanting *may be* required to revegetate sites in which the soil has been disturbed or vegetation has been removed, and where there is insufficient vegetation or seed stores to naturally revegetate the site." (emphasis added)); *id.* at 2-16 (same).

81. *See, e.g., Restore Native Ecosystems Alternative, in* VEGETATION TREATMENTS PEIS, *supra* note 11, at app. G ("[S]olely killing weeds cannot restore ecosystems that are vulnerable to invasion by aggressive exotic species."); Monsen, *Restoration*, *supra* note 77, at 25, 26-27 (noting that disturbed, overgrazed rangelands have often lost important native forbs and grasses, which will not regenerate naturally); Richard Stevens, *Basic Considerations for Range and Wildland Revegetation and Restoration, in* RESTORING WESTERN RANGES, *supra* note 77, at 19, 22 ("Restoration of native plant communities usually requires the reintroduction of a variety of species to provide community structure and function."); Richard Stevens & Stephen B. Monsen, *Guidelines for Restoration and Rehabilitation of Principal Plant Communities, in* RESTORING WESTERN RANGES, *supra* note 77, at 199 [hereinafter Stevens & Monsen, *Guidelines*]; *see also id.* at 256 ("Cheatgrass sites must be planted with perennials to reduce the reestablishment of the annual grass. If perennials are not established the first season after treatment, cheatgrass will regain dominance.").

82. *See, e.g.*, VEGETATION TREATMENTS PEIS, *supra* note 11, at 2-15 ("Disturbed areas *may be* reseeded or planted with desirable vegetation when the native plant community cannot recover and occupy the site sufficiently" (emphasis added)); *id.* at ES-2 (observing that the "overriding goal is to restore desirable vegetation on lands only when it is necessary").

83. Similarly, the BLM indicates that herbicide treatments in hot deserts "usually must be followed by revegetation," but it warns that revegetation "may be unsuccessful due to low and erratic precipitation," and it points out the risks to wildlife of removing the sparse vegetation cover in these areas. VEGETATION TREATMENTS PEIS, *supra* note 11, at 4-109. Again, the BLM seems to suggest that its weed treatment proposals could waste resources on rehabilitation projects that are doomed to fail or which may only worsen ecological conditions on these sites. *See also infra* note 114.

84. *See infra* text accompanying note 88.

85. The agency's standard operating procedures (SOP), for instance, suggest that revegetation may be the exception rather than the rule. One SOP provides: "Revegetate sites with native species if there is no reasonable expectation of natural regeneration." But this SOP applies *only* to "Wilderness and Other Special Areas." *See* VEGETATION TREATMENTS PEIS, *supra* note 11, at 2-19 (tbl. 2-6). Similarly, the agency states that revegetating with native vegetation "has been incorporated into the proposed action *to the extent practical*." *Id.* at 2-14 (emphasis added). It is not clear whether "to the extent practical" applies to revegetation generally or only to the use of native species. But either interpretation is cause for concern. As discussed above, see *supra* notes 81-83 and accompanying text, seeding should not be considered optional in areas where native plants are significantly reduced or absent.

plants known, because the species is difficult to eradicate and because it provides useful forage for livestock.[86] The BLM's pro-livestock bias becomes most evident in its plans for dealing (or not) with cheatgrass.

B. The Specific Case of Cheatgrass

The PER and PEIS are ambiguous regarding the BLM's plans for cheatgrass (downy brome) control and management.[87] On the one hand, the BLM states: "Herbicides would be used on rangelands dominated by annual grasses, such as downy brome . . . , followed by revegetation with perennial grasses and forbs."[88] On the other hand, the agency declares: "Downy brome is unique among non-native weeds in that it is managed both *for and against*."[89] Despite the propensity of cheatgrass for devastating ecosystems,[90] the BLM observes that its abundance "has caused some livestock producers to rely on it as a source of early spring forage."[91] In fact: "Because of its widespread dominance, downy brome has become *the most important forage grass in the western U.S.*"[92] "The disadvantage for livestock producers," the BLM observes matter-of-factly, "is the narrow window of grazing opportunity and the wide variation of total forage production from year to year."[93]

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86. *See infra* notes 89-93, 100-10 and accompanying text.

87. Cheatgrass is the most frequently used of several common names for *Bromus tectorum*, but the BLM refers to it consistently throughout the PEIS and PER as downy brome.

88. VEGETATION TREATMENTS PEIS, *supra* note 11, at 4-61. The extent of the cheatgrass-infested area proposed for treatment cannot be determined from the documents. The agency indicates that it plans to apply herbicides to approximately 650,000 acres (70 percent of 932,000 acres) annually in the Temperate Desert Ecoregion where, it says, nearly all of the cheatgrass is found and where cheatgrass is the chief problem. If cheatgrass will be a target of all those treatments, this would equate to treating only six to seven percent of the cheatgrass-infested area (10-11 million acres) per year. *See generally* VEGETATION TREATMENTS PEIS, *supra* note 11, at 4-206, 4-126, 4-64, 3-26 to -27. If the BLM follows its own advice about the need for *multiple* treatments of the same areas to achieve effective annual weed control, *see supra* note 76, the aggregate area treated for cheatgrass will not necessarily increase each year.

89. *See* VEGETATION TREATMENTS PER, *supra* note 17, at 4-93 (emphasis added). The agency also states: "Grazing can be *managed to provide* nearly uniform grassland cover . . . ." *Id.* at 4-88 (emphasis added). The BLM offers no clue as to whether or where grazing might be used for this purpose, but few BLM lands are grasslands where "nearly uniform grassland cover" would be desirable. On the other hand, grazing can lead to "nearly uniform" stands of cheatgrass, a highly *undesirable* situation.

90. *See infra* notes 95-96 and accompanying text.

91. *See* VEGETATION TREATMENTS PER, *supra* note 17, at 4-93.

92. VEGETATION TREATMENTS PEIS, *supra* note 11, at 3-65 to -66 (emphasis added); *cf. id.* at 3-28 (tbl. 3-5) (reporting nearly 25 million acres infested with four species of *Bromus* in 2000).

93. VEGETATION TREATMENTS PER, *supra* note 17, at 4-93; *see id.* at 3-66 (reporting that cheatgrass is "highly unreliable as a forage base for both cattle and wildlife because it can exhibit 'tenfold differences (300-3,500 lbs/acre) from year to year' in productivity, de-

These statements signal a perilous development in BLM range management. Cheatgrass is perhaps the most intractable and potentially devastating ecological problem facing public-land managers in the Intermountain West.[94] The plant's chief threats to ecosystems are its ability to "increase the frequency and intensity of wildfire and destroy the structure of the native plant communities, particularly sagebrush habitats."[95] Ultimately, diverse, shrub-grass communities are replaced by cheatgrass monocultures, with

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pending on precipitation," offering no source for the internal quotation); Mike Pellant, *Cheatgrass: Invasion, Occurrence, Biological/Competitive Features and Control Measures, in* RESTORATION AND MANAGEMENT OF SAGEBRUSH/GRASS COMMUNITIES (2002) [hereinafter Pellant, SAGEBRUSH WORKSHOP], *available at* http://www.rangenet.org/trader/2002_Elko_Sagebrush_Conf.pdf (same); Mike Pellant, *Cheatgrass: The Invader that Won the West* 6 (1996) [hereinafter Pellant, *Invader*], *available at* http://www.icbemp.gov/science/ pellant.pdf (noting that cheatgrass is palatable to cattle only before it cures and dries, or if it is later moistened by rain or snow). Pellant now leads the BLM's Great Basin Research Initiative. *See Rangeland Ecologist Selected for Great Basin Restoration Position* (Jan. 2003), http://www.fire.blm.gov/gbri/news_pellant.html (last visited June 22, 2007).

94. *See* VEGETATION TREATMENTS PER, *supra* note 17, at 4-93 ("Downy brome [cheatgrass] and other related annual brome species are the most significant non-native species affecting rangelands in the West due to the sheer number of acres they cover and their site tenacity."); Monsen, *Restoration*, *supra* note 77, at 31 ("Cheatgrass is the most severe weed problem encountered on a wide spectrum of plant types within the Intermountain Region."). Cheatgrass infestations first occurred on livestock-degraded ranges in the late 1800s. *See* Pellant, *Invader*, *supra* note 93, at 1; Mack & Thompson, *supra* note 54, at 761. Having continued to spread on both disturbed and relatively undisturbed areas, see VEGETATION TREATMENTS PER, *supra* note 17, at 4-32, cheatgrass is now found over a huge area. *See* VEGETATION TREATMENTS PEIS, *supra* note 11, at 3-65 (estimating "that downy brome infests over 56 million acres in the 17 western states and the infestation is growing at 14% per year" (citing Duncan 2005)); Stevens & Monsen, *Guidelines*, *supra* note 81, at 253-54 ("Cheatgrass now dominates former brush and tree types in . . . big sagebrush, juniper-pinyon, blackbrush, shadscale saltbush, and mountain brush," and it has "recently invaded southern desert shrub regions.").

95. *See* VEGETATION TREATMENTS PEIS, *supra* note 11, at 3-65 to -66; Steven G. Whisenant, *Changing Fire Frequencies on Idaho's Snake River Plains: Ecological and Management Implications, in* PROCEEDINGS--SYMPOSIUM ON CHEATGRASS INVASION, SHRUB DIE-OFF, AND OTHER ASPECTS OF SHRUB BIOLOGY AND MANAGEMENT (E. Durant McArthur et al. eds., Apr. 5-7, 1989), U.S. Forest Service, Intermtn. Res. Sta. Gen. Tech. Rep. INT-276, at 4-10 (1990); Pellant, *Invader*, *supra* note 93, at 3; William L. Baker, *Fire and Restoration of Sagebrush Ecosystems*, 34 WILDLIFE SOC'Y BULL. 177, 183 (2006); Pellant, *Invader*, *supra* note 93; J.W. CONNELLY et al., CONSERVATION ASSESSMENT OF GREATER SAGE-GROUSE AND SAGEBRUSH HABITATS, *Synthesis* 7-22 (2004), *available at* http://www.blm.gov/ca/pdfs/bishop_pdfs/sagegrouse/ConAssessGSG_Connelly_etal_2004.pdf (noting that conversion to cheatgrass "changes the temporal availability of water and may impact [soil] nutrients as well"); *id.* at 7-14 ("Frequent fires [in cheatgrass stands] may also remove protective plant and litter cover, increasing flooding and susceptibility of soil to wind and water erosion."). *See also* David M. Richardson, et al., *Naturalization and Invasion of Alien Plants: Concepts and Definitions*, 6 DIVERSITY & DISTRIBUTIONS 93, 98 (tbl. 1) (2000) (placing cheatgrass within the category of "transformers," specifically, "fire promoters," a "subset of invasive plants which change the character, condition, form or nature of ecosystems over a substantial area"). Cheatgrass invasion of shrub steppe communities drastically alters ecosystem functions by reducing species richness and eliminating functional groups. VEGETATION TREATMENTS PEIS, *supra* note 11, at 4-106 (reporting declining populations of many native wildlife species due to replacement of native shrubs by cheatgrass and other exotic annual grasses).

drastically reduced potential for generating ecosystem goods and services.[96] Cheatgrass cannot be eradicated or even significantly reduced as long as the exogenous disturbance persists and unless native perennial species can be reestablished.[97] In other words, it will not be possible to control cheatgrass or other invasive weeds in the arid and semiarid shrub-steppes and deserts of the West so long as livestock grazing continues in these areas.[98] Furthermore, it may not be possible to prevent the subsequent invasion of cheatgrass-infested landscapes by even more undesirable and intractable weeds.[99]

The BLM's bald statements—that livestock producers "rely on" cheatgrass, that cheatgrass is "the most important forage grass in the western U.S.," that "*the* disadvantage" of cheatgrass for producers is forage production variability, and that it manages "for" cheatgrass[100]—are genuinely alarming.[101] Managing "for" cheat-

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96. Runoff and erosion increase, water quality decreases, wildlife habitat dwindles, fire-fighting costs sky-rocket, the scenery is blighted, and recreation use wanes. *See, e.g.*, VEGETATION TREATMENTS PEIS, *supra* note 11, at 3-65 to -66, 4-152, 4-212; CONNELLY ET AL., *supra* note 95, at 7-14, 7-21 to -22; Stevens & Monsen, *Guidelines*, *supra* note 81, at 233.

97. *See supra* note 81 and accompanying text.

98. *See infra* note 119 and accompanying text. According to The Nature Conservancy (TNC), where grazing does continue, "[l]asting control of cheatgrass will require a combination of chemical control, physical control, vegetative suppression, and proper livestock management." TNC, *Element Stewardship Abstract for* Bromus tectorum *L.* 4 (1998-99) [hereinafter TNC, *Bromus tectorum*], *available at* http://tncweeds.ucdavis.edu/esadocs/documnts/bromtec.pdf (referring to this as a "cumulative stress" method).

99. The replacement of cheatgrass by another Eurasian annual grass, medusahead wildrye, illustrates yet another threshold operating in some semiarid rangelands. *See* Stevens & Monsen, *Guidelines*, *supra* note 81, at 254; M. Hironaka, *Medusahead: Natural Successor to the Cheatgrass Type in the Northern Great Basin*, *in* PROCEEDINGS—ECOLOGY AND MANAGEMENT OF ANNUAL RANGELANDS, PROCS.—ECOLOGY AND MANAGEMENT OF ANNUAL RANGELANDS, USFS Intermtn. Res. Sta. Gen. Tech. Rep. INT-GTR-313, at 89 (Stephen B. Monsen & Stanley G. Kitchen eds., Sept. 1994); James A. Young & Charlie D. Clements, *Weed Problems on Great Basin Rangelands*, in SAGEBRUSH WORKSHOP, *supra* note 93.

100. *See supra* text accompanying notes 89, 91-92.

101. Also troubling is the BLM's co-sponsorship of research "to evaluate intensive cattle grazing as a method for reducing the fire hazard of cheatgrass." *See* Project Details—Great Basin CESU, http://www.ag.unr.edu/gbcesu/Project_Details.aspx?ProjectID=81 (last visited June 22, 2007). Numerous researchers, however, believe that "grazing is *not* a recommended method of control for cheatgrass." TNC, *Bromus tectorum*, *supra* note 98 at 17 (emphasis added); *see also* L.M. Roselle et al., *Effects of Grazing after Fire in Sagebrush Steppe Communities*, PROCS. SOC'Y FOR RANGE MGMT., 58th Ann. Mtg., Feb. 2-11, 2005 (reporting "[n]o differences in density" of cheatgrass six grazing treatments); BELSKY & GELBARD, *supra* note 13, at 20 ("Evidence to support the long-term effectiveness [of grazing] . . . is scant . . . ."); *id.* at 21 ("Such grazing is counterproductive since cattle grazing . . . also weakens native perennial grasses and disturbs wet soils."). Cattle grazing can reduce cheatgrass seed production and stand density, but this will not eliminate the stand. *See* Stephen B. Monsen, *Controlling Plant Competition*, *in* RESTORING WESTERN RANGES, *supra* note 77, at 59 [hereinafter Monsen, *Controlling Plant Competition*]. *Any* cheatgrass production will contribute to the potential for ranges to burn because the plants consume available soil moisture, crowd out other plants, and dry out early. Pellant, *Invader*, *supra* note 93, at 1, 3; U.S. Geological Survey, An Assessment of Exotic Plant Species of Rocky Mountain National

grass is antithetical to sustainable range management.[102] Cheatgrass is "a fire hazard in wet years, produce[s] little forage in dry years, and prevent[s] reestablishment of native species."[103] The presence of cattle on cheatgrass ranges, like cheatgrass itself, impairs ecosystem function in many ways.[104] Cheatgrass is not even sustainable as a livestock forage crop![105] Managing "for" an invasive weed to provide a few weeks of highly subsidized forage for cattle owned by 18,000 permittees,[106] when whole ecosystems are on the "brink of collapse" largely *because* of this plant, is unconscionable.[107]

While the PER and PEIS do not explain where or how the BLM manages "for" cheatgrass, *in effect* the agency manages for cheatgrass (1) on all rangelands where it does not reestablish native plants after applying herbicides, and (2) on all lands infested or susceptible to invasion by cheatgrass,[108] where livestock grazing continues or is resumed following herbicidal treatment.[109] These categories describe virtually *all* BLM rangelands.[110]

The highest priority for managing public lands should be to

Park: *Bromus tectorum L.* [hereinafter USGS, *Assessment*], http://www.npwrc.usgs.gov/resource/plants/explant/bromtect.htm (last visited June 22, 2007).

102. Significantly, there is no scientific basis for the view—urged by livestock producers and recited by the BLM—that "removal of livestock would actually accelerate conversion to cheatgrass because of increased fuel accumulations and more frequent wildfires." *See* Pellant, *Invader*, *supra* note 93, at 9 (calling the view "speculation").

103. Stevens & Monsen, *Guidelines*, *supra* note 81, at 254 (referring to cheatgrass, red brome, and medusahead wildrye).

104. *See supra* notes 34-36, 95-96, and accompanying text.

105. *See supra* note 99 and accompanying text; *infra* text accompanying note 333.

106. About 18,000 of the approximately 23,000 federal grazing permits hold permits for BLM lands. *See* COGGINS, WILKINSON & LESHY, *supra* note 25, at 777; DONAHUE, *supra* note 19, at 252-53.

107. Botanist Stephen Monsen put the tradeoffs this way: "'It's not about one month [of grazing use] in the spring. We're talking about [destroying] a year-round forage base. It's habitat, nesting habitat, concealment.'" Lisa Jones, *He's Worried about Weeds*, HIGH COUNTRY NEWS, May 22, 2000 (quoting Monsen), *available at* http://www.hcn.org/servlets/hcn.Article?article_id=5812. *See also supra* note 95.

108. Few if any rangelands lack cheatgrass or a reservoir of cheatgrass seed. *See, e.g.*, DENNIS KNIGHT, MOUNTAINS AND PLAINS: THE ECOLOGY OF WYOMING LANDSCAPES 104-05 (1994) ("Weed-free soil samples can still be found in remote locations at some distance from disturbances . . . but it seems probable that such areas will become more rare."). *See also* Pellant, *Invader*, *supra* note 93, at 2 (noting that cheatgrass seeds remain viable in soil for up to five years); USGS, *Assessment*, *supra* note 101. Cheatgrass also can invade relatively intact rangelands. *See supra* text accompanying note 56; *infra* notes 113, 120.

109. *See generally supra* notes 50-51 and accompanying text; *infra* note 110.

110. Apart from temporary grazing closures of some treated areas, *see* VEGETATION TREATMENTS PEIS, *supra* note 11, at 4-231; VEGETATION TREATMENTS PER, *supra* note 17, at 2-19, BLM range management apparently will be business as usual for livestock operators. *See also supra* notes 50-51. Indeed, the BLM predicts only slight declines in future grazing use of public lands. VEGETATION TREATMENTS PEIS, *supra* note 11, at 4-231 ("Livestock grazing activity in the Interior Columbia Basin on lands administered by the BLM and Forest Service is projected to decline about 1% annually to ensure protection of rangeland habitats and TES species.").

protect relatively intact native rangelands and to prevent expansion of cheatgrass and other noxious weeds.[111] The best—perhaps the only—way to prevent weed expansion is to "ensure [that] perennial herbaceous plants are managed to dominate the site."[112]

There is mounting evidence and opinion that stopping the onslaught of invasive weeds will require major changes in livestock grazing management. First, there is broad consensus that the best way to minimize invasion by weeds, including cheatgrass, is to maintain the cover and richness of native perennial species,[113] and the best way to maintain native perennials is to "minimize abuse" or disturbance.[114] Livestock are the chief agents of disturbance on western ranges.[115] Furthermore, cattle preferentially graze native grasses, [116] maintenance of which (as just noted) is the best way to keep weeds in check. Similar considerations apply to sites already infested with weeds, at least where some native perennial species remain. In the latter situations, removing livestock from arid and semi-arid shrublands may "prevent further degradation, control weed invasion, and effectively restore diverse communities."[117] On sagebrush sites where "there is some perennial understory in place, removal of grazing may be the most effective and economical means of restoring sites."[118] Conversely, "[n]atural recovery usually *cannot* occur unless grazing is *completely discontinued.*"[119]

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111. *See* Stevens, *Basic Considerations*, *supra* note 81, at 20 (fig. 1) ("[M]aintenance of diverse communities must be a key priority for land management throughout the West. Intact communities should not be altered or disrupted.").

112. Cheatgrass, http://extension.usu.edu/rangeplants/Grasses/cheatgrass.htm (last visited June 22, 2007); *see also infra* note 113.

113. *See, e.g.*, Jay E. Anderson & Richard S. Inouye, *Landscape-Scale Changes in Plant Species Abundance and Biodiversity of a Sagebrush Steppe over 45 Years*, 71 ECOL. MONOGRAPHS 531, 552-53 (2001) (reporting that the "bulk of the evidence available suggests" that cheatgrass poses less threat "where native plant populations in sagebrush steppe are thriving"). *See also supra* text accompanying note 56.

114. *See* Monsen, *Restoration*, *supra* note 77, at 29 (noting further: "Many semiarid ranges . . . need improvement, but changes can often be more easily attained through proper long-term management than through artificial revegetation."). Salt desert shrub communities are especially "difficult to restore" by artificial means; thus, "preventing weed invasion" in these sites is "essential." *See* Stevens & Monsen, *Guidelines*, *supra* note 81, at 245 (fig. 31).

115. *See supra* note 34 and accompanying text.

116. *See* VEGETATION TREATMENTS PER, *supra* note 17, at 4-96; *id.* at 2-12 ("Many weed species are less palatable than desired vegetation, so the animals may overgraze desired vegetation rather than the weeds."). Most BLM permits authorize cattle use. VEGETATION TREATMENTS PEIS, *supra* note 11, at 3-41.

117. Stevens & Monsen, *Guidelines*, *supra* note 81 at 233. *See also* Anderson & Inouye, *supra* note 113, at 547-49 (reporting a change from dense sagebrush canopy and depleted herbaceous understory [but little or no cheatgrass] to an open sagebrush stand with "productive . . . perennial understory" in twenty-five years after removal of livestock); *infra* text accompanying note 119.

118. *See* Stevens & Monsen, *Guidelines*, *supra* note 81, at 233.

119. *Id.* (emphasis added). *Cf. supra* text at note 9. The most compelling scientific arguments for removing livestock relate to thresholds. *See supra* notes 31-39 and accompa-

The conclusion is inescapable: The best way to alleviate *or* avoid weed problems is to exclude livestock.[120] Such a precautionary approach would be eminently more responsible than current federal range policy, as well as more faithful to the BLM and USFS mandates to manage public lands to produce a high level of the various renewable resources "in perpetuity" and "without impairment of the productivity of the land."[121]

C. A Proposal

If removing livestock *would improve* ecological conditions on some public lands, *might improve* conditions (given sufficient time) in other areas, and *would not worsen* weed infestations anywhere, why not do it? Answer: *there is no good reason not to.* The potential benefits of removing livestock from public rangelands are immense: maintenance or enhancement of *every* ecosystem good and service other than livestock production, generated on tens of millions of acres. The costs? Short-term losses of a few low-paying jobs and a tiny fraction of U.S. livestock forage supplies, possible short-term impacts on local community economic structures, and uncertain (but probably mild) effects on the ranching "lifestyle."[122] All of the economic, social, and cultural arguments that have been made in defense of continued public-land grazing have been refuted.[123] Most of them find little support in the law,[124] and none justifies the continuation of an unsustainable land use that alters ecosystems irreversibly. Because the law does not permit cheatgrass- or other weed-infested ranges to be managed *for* livestock,[125] and science suggests that natural conditions cannot be restored as

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nying text. A wealth of experience suggests that continuing to graze arid and semiarid rangelands will push more lands past thresholds. The only way to avoid this, absent more knowledge about where thresholds lie and how to predict them, is to avoid exogenous disturbances—in most cases livestock grazing.

120. *See* Anderson & Inouye, *supra* note 113, at 552-53 (noting that, although cheatgrass had spread to most areas with suitable soils on the INEEL during the forty-five years after grazing ended, it had "displaced the native vegetation on those areas only infrequently").

121. *See infra* notes 181-82 and accompanying text.

122. *See* Thomas M. Power, *Taking Stock of Public Lands Grazing: An Economic Analysis*, *in* WELFARE RANCHING, *supra* note 25, at 263-70; THOMAS MICHAEL POWER, LOST LANDSCAPES AND FAILED ECONOMIES: THE SEARCH FOR A VALUE OF PLACE 182-85 (1996); Debra L. Donahue, *Western Grazing: The Capture of Grass, Ground, and Government*, 35 ENVTL. L. 721, 800-01 (2005).

123. The case against public-land livestock grazing has been made by several writers. *See, e.g.*, WELFARE RANCHING, *supra* note 25; Power, *supra* note 122; LYNN JACOBS, WASTE OF THE WEST: PUBLIC LANDS RANCHING (1992), *available at* http://www.wasteofthewest.com; DONAHUE, *supra* note 19.

124. *See* DONAHUE, *supra* note 19.

125. *See infra* Part III.

long as livestock are present, livestock grazing should be discontinued on public rangelands.

I do not suggest that removal of livestock would, alone, bring about the quick or complete restoration of cheatgrass-dominated landscapes. In some cases there might be no detectable improvement, at least for many years.[126] In most cases, active measures—in particular, reintroduction of native species—will also be required.[127] Nevertheless, there is substantial evidence that simply removing livestock can result in improved ecological conditions.[128]

Restoration will be expensive and difficult.[129] In the near term, costs would be offset partially by the avoided costs of administering grazing on the millions of acres where grazing would no longer be permitted.[130] Long-term public and private benefits—including improved water and air quality, reduced soil erosion, enhanced wildlife populations, and enhanced recreation opportunities and revenues—would vastly outweigh the short-term losses to the government, grazing permittees, and consumers (e.g., grazing fees, private jobs and income, and livestock products, respectively).

At least initially, restoration would be hindered by cost as well

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126. *See, e.g.*, Monsen, *Controlling Plant Competition*, *supra* note 101, at 59 ("[M]any shrublands disrupted by grazing and infested with annual weeds may not recover satisfactorily as a result of simply eliminating grazing."); BELSKY & GELBARD, *supra* note 13, at 18-20 (cautioning that lack of recovery following removal of livestock can be "due to the short time allowed for recovery" or the absence of native seed sources at the site); Valone et al., *supra* note 37, at 999-1000 (reporting "dramatic recovery in perennial grass" on one site after thirty-nine years rest from grazing, but no recovery on another site after fifty years without livestock). *See also supra* notes 37-38 and accompanying text.

127. *See supra* note 81 and accompanying text.

128. *See, e.g.*, Susan L. Earnst et al., *Riparian Songbird Abundance a Decade After Cattle Removal on Hart Mountain and Sheldon National Wildlife Refuges*, *in* PROCEEDINGS OF THE THIRD INTERNATIONAL PARTNERS IN FLIGHT CONFERENCE: USDA-Forest Service Gen. Tech. Rep. PSW-GTR-191, at 550-58 (2005) (documenting increases in bird species in these northern Great Basin locations "consistent with recovery from cattle grazing," similar to findings elsewhere, including the San Pedro River, Arizona); M. Lisa Floyd et al., *Effects of Historic Grazing on Vegetation at Chaco Culture National Historic Park, New Mexico*, 17 CONS. BIO. 1703 (2003) (reporting increases in shrub and grass cover with long-term protection from grazing at four upland sites, higher species richness at all six sites with long-term protection from grazing, and increased biological soil crusts on one site); Kenneth L. Cole et al., *Holocene Vegetation and Historic Grazing Impacts at Capitol Reef National Park Reconstructed Using Packrat Middens*, 57 GREAT BASIN NATURALIST 315 (1997); BELSKY & GELBARD, *supra* note 13, at 18-20 (summarizing results from studies and concluding that "elimination of livestock grazing has often, but not always" reduced weed infestations). *See also supra* notes 114-19 and accompanying text.

129. *See* Statement of Robert V. Abbey, Director, Nevada Bureau of Land Management, before the U.S. Senate Environment and Public Works Committee Concerning Nevada Wildlife Conservation Initiatives, Apr. 10, 2001 [hereinafter Abbey], *available at* http://www.blm.gov/nhp/news/legislative/pages/2001/te010410.htm ("This [restoration] effort is massive, across the millions of acres of the Great Basin. Change will require labor intensive effort and significant amounts of native seed . . . . In some areas we may need to plant sagebrush seedlings and sow native seed by hand.").

130. *See* VEGETATION TREATMENTS PEIS, *supra* note 11, at 3-65 (tbl. 3-20) (reporting total BLM range management costs of $69.2 million in 2005 and $72.5 million in 2004).

as a limited supply of native seeds and planting stock. The BLM is already working to increase the supply of native seeds for restoration work,[131] but greater effort would be needed. Successful restoration requires site-adapted species.[132] An expanded government revegetation program would stimulate the market for native seeds and plants and thus could be expected to encourage growth in supplies and enhanced quality.[133]

One direct means of increasing supplies would be government subsidies for collecting or producing seed and planting stock on relatively healthy public rangelands.[134] Former grazing permittees are the logical persons to do this work.[135] It might strike readers as odd or ironic to pay ranchers to help restore rangelands, *not* for livestock use, but for recreation, wildlife, and watershed benefits. But ranchers have long capitalized on the non-livestock values of their private ranchlands and surrounding federal lands—through hunting- and fishing-related businesses, dude ranches, bed-and-breakfast enterprises, etc. Plus, ranchers (along with other private landowners) would benefit from enhanced water quality and quantity, pollination services, improved air quality and visibility, etc. Alternatively, or in addition, ranchers could market seeds and plants collected from private lands (their own or others'). If the demand for seed and planting stock generated sufficiently high prices, ranchers might decide to devote more of their private lands to native plant production instead of to livestock grazing. This would encourage the protection and restoration of privately owned rangelands and further enhance ecosystem services in the western range region.

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131. *See* Abbey, *supra* note 129 ("The BLM is working with the Plant Conservation Alliance, private seed growers, State and Federal nurseries and seed storage facilities to increase significantly the supply of native seeds available for rehabilitation and restoration work while reducing the cost of producing native seed in large quantities.").

132. *See* Stephen R. Monsen & Richard Stevens, *Seedbed Preparation and Seeding Practices*, *in* RESTORING WESTERN RANGES, *supra* note 77, at 121-22, 129 (noting that successful projects depend on "selection of adapted plant materials," but that "seeds or planting stock of many species are unavailable"); *see generally* Stevens, *Basic Considerations*, *supra* note 81, at 21; Stevens & Monsen, *Guidelines*, *supra* note 81, at 237 ("Broadleaf forbs are essential to arid shrublands, and development of additional sources is necessary.").

133. A demand for native seed already exists, spurred in part by "major wildfires in 1999 and 2000." *See* Abbey, *supra* note 129. Governments are not the only buyers. Homeowners and others seeking to establish more natural looking landscaping or drought-tolerant lawns purchase native seed mixtures. *See, e.g.*, LANDSCAPING WITH NATIVE PLANTS OF THE INTERMOUNTAIN REGION, U.S. Dep't of Interior, Bureau of Land Management, Tech. Ref. 1730-3, BLM/ID/ST-03/003+1730 (Hilary Parkinson, compiler, Dec. 2003).

134. The BLM already issues "permits for harvesting of sagebrush and other native species seeds." *See* Abbey, *supra* note 129.

135. Substantial advice is available to those who wish to participate in the growing business of restoration. Especially useful and authoritative is a three-volume manual recently published by U.S. Forest Service's Rocky Mountain Research Station. *See* RESTORING WESTERN RANGES, *supra* note 77.

Finally, broader range restoration efforts would enable ranchers to supplement their income as well as offer a means of pursuing something approaching their preferred lifestyle. This would go far toward offsetting the economic and cultural impacts of the loss of federal grazing privileges.[136] It would also involve ranchers in land stewardship, a role they have long claimed.[137]

The first step, however, will be to convince federal agencies to discontinue grazing so that the work of restoration can begin. "In the end, range productivity is a political problem that can be overcome only by political courage, the range resource in the shortest supply."[138]

III. PUBLIC RANGELAND ECOSYSTEM SERVICES AND THE LAW

The public land laws do not support the BLM's assumption that livestock grazing should continue on public lands, despite compelling evidence of the ecological impacts.[139] As an Interior official during FLPMA's early years stated, "Rangeland deterioration is . . . inconsistent with the sustained yield principle of public resource management legislated by FLPMA."[140] I have argued elsewhere that ample legal authority exists to remove livestock from public lands, where livestock are causing or contributing to degraded ecological conditions.[141] My purpose in this Part is to revisit that argument, considering more specifically how the law can and should be interpreted in addressing the invasive weeds problem.[142] Federal land management legislation undeniably embraces

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136. Another option, which is beyond the scope of this article, is federally funded buyouts of grazing privileges. *See generally* David G. Alderson, *Buyouts and Conservation Permits: A Market Approach to Address the Federal Public Land Grazing Problem*, 12 N.Y.U. ENVTL. L.J. 903 (2005).

137. *See* Donahue, *supra* note 122, at 802-03 & n.538.

138. George Cameron Coggins, *The Law of Public Rangeland Management V: Prescriptions for Reform*, 14 ENVTL. L. 497, 546 (1984).

139. *E.g.*, VEGETATION TREATMENTS PEIS, *supra* note 11, at 4-3 ("The PEIS assumes that . . . future land uses would be similar to those that currently occur on public lands."). The BLM often states that the law "requires" it to allow livestock grazing. *See generally supra* discussion at notes 62-63, 70.

140. IMPROVING THE RANGE CONDITIONS OF THE PUBLIC GRAZING LANDS, H.R. REP. NO. 95-1122, at 31 (1978) (statement of Ass't Secretary of Interior Guy Martin).

141. *See* DONAHUE, *supra* note 19, at ch. 7. The commodification of public rangelands in terms of livestock production can be traced in part to federal statute. PRIA, for instance, defines "public rangelands" as lands managed by the BLM or Forest Service "on which there is domestic livestock grazing or which the Secretary concerned determines may be suitable for domestic livestock grazing." *See* 43 U.S.C. § 1902(a) (2000); *see also infra* text accompanying note 210 (citing Professor Blumm).

142. This Part emphasizes BLM law because most arid and semiarid rangelands are managed by the BLM and because the BLM's organic act, FLPMA, also governs livestock grazing on national forests (where some shrub-steppe rangelands are located). Also, the BLM is the proponent of the weed control efforts described in Part II.B, *supra*.

the concept, and occasionally even the terminology, of ecosystem goods and services.[143] This Part attempts to persuade readers that the law does not condone, much less mandate, *any* use of land that promotes the spread of invasive weeds and thus undermines the lands' potential for providing a sustained flow of these products and amenities.

A. Multiple Use and Sustained Yield

The Federal Land Policy and Management Act (FLPMA) identifies "range" as one of the "multiple uses" for which the public lands are to be managed,[144] and "domestic livestock grazing" is included in a list of "principal or major uses."[145] FLPMA states that it is U.S. policy that, inter alia, "the public lands be managed in a manner . . . that will provide food and habitat for fish and wildlife and domestic animals[,]"[146] and "which recognizes the Nation's need for domestic sources of . . . food . . . and fiber from the public land[s]."[147] I suspect that the BLM's unfortunate interpretation of its authority to restrict grazing and other land uses is based mainly on these provisions of FLPMA.[148]

Even a quick review of the statutes reveals flaws in the agency's (presumed) reasoning: To begin with, "range" is only one of many resource uses and values for which public lands are to be managed,[149] and all management is constrained by sustained-yield[150] and non-degradation management principles.[151] Neither

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143. *See infra* text accompanying notes 160-68, 318.

144. *See, e.g.*, 16 U.S.C. § 528 (2000); 16 U.S.C. § 1604(e)(1); 43 U.S.C. § 1702(c). Congress has not defined the term "range." However, in 1978 in PRIA it defined rangelands as "lands administered by [the BLM or Forest Service] . . . on which there is domestic livestock grazing or which . . . may be suitable for domestic livestock grazing." 43 U.S.C. § 1902(a). Multiple uses are listed alphabetically in the Forest Service's Multiple-Use, Sustained-Yield Act. *See* 16 U.S.C. § 528; *see also* COGGINS, WILKINSON & LESHY, *supra* note 25, at 706 (explaining the origin of the alphabetical listing). FLPMA retains basically the same order. *See* 43 U.S.C. § 1702(c). In the FLPMA list, however, "minerals" is inserted after "timber." *See id.* The Forest Service is not directly responsible for managing minerals. *See* 16 U.S.C. § 472.

145. 43 U.S.C. § 1702(l) (defining "principal or major uses" as "domestic livestock grazing, fish and wildlife development and utilization, mineral exploration and production, rights-of-way, outdoor recreation, and timber production").

146. *Id.* § 1701(a)(8).

147. *Id.* § 1701(a)(12). *See, e.g.*, VEGETATION TREATMENTS PEIS, *supra* note 11, at ES-2, 4-32 ("[V]egetation must be managed to protect and enhance the health of the land while providing a source of food, timber, and fiber for domestic needs.").

148. *See, e.g.*, VEGETATION TREATMENTS PEIS, *supra* note 11, at 2-14; *see also supra* notes 62-70 and accompanying text. The BLM has never clearly explained the reasoning that led it to conclude that it must allow livestock grazing on public lands.

149. *See, e.g., infra* discussion at notes 163, 169.

150. *See, e.g., infra* discussion at notes 180-82.

151. *See infra* Part III.B.

FLPMA nor the Taylor Grazing Act[152] mandates any particular level or frequency of livestock grazing or even that any particular lands be used for livestock. Congress specified "principal uses" for the sole purpose of indicating its intent to retain special oversight authority over these resources.[153] FLPMA expressly authorizes the BLM to "total[ly] eliminate[]" any of the enumerated "principal uses"[154] and, specifically, to discontinue grazing to devote public lands to a "public purpose."[155] Finally, the nation scarcely "need[s]" to obtain food or fiber from the public lands. BLM lands and national forests combined account for only about two percent of the total U.S. livestock production,[156] and private lands could easily fill the gap if public land grazing were to cease.[157] Indeed, public lands can provide "food" and "habitat" for domestic livestock even if the animals never set foot on public land. For example, public lands produce water, support pollinators, and provide pest control—all of which serve livestock production on *private* lands.[158]

The clearest evidence that Congress recognized the important ecosystem services generated by public lands is found in the "multiple-use, sustained-yield" (MUSY) scheme adopted in FLPMA,[159] the Multiple-Use, Sustained-Yield Act (MUSYA),[160] and the National Forest Management Act (NFMA),[161] and echoed in the Public Rangelands Improvement Act (PRIA).[162] FLPMA identifies

152. 43 U.S.C. § 315-315(r) (2000).

153. *See* H.R. REP. NO. 94-1163 (1976), *as reprinted in* 1976 U.S.C.C.A.N. 6175, 6179 ("'Principal or major uses' . . . represent the uses for which Congressional oversight is particularly needed. The definition does not mean to imply that other uses such as 'watershed' are not of great public significance.").

154. 43 U.S.C. § 1712(e).

155. *See* 43 U.S.C. § 1752(b)(2), (g). A grazing permit is not a property right; therefore, suspension, revocation, or nonrenewal of grazing permits does not "take" property in violation of the Fifth Amendment. *See* 43 U.S.C. § 1752(h); 43 U.S.C. § 315(b) (final clause). *Cf.* Reeves v. United States, 54 Fed. Cl. 652, 674 (2002) (holding that application of FLPMA's environmental protection requirements could not be a "taking").

156. *See* RANGELAND REFORM '94, *supra* note 66, at G-16; POWER, *supra* note 122, at 182.

157. *See* POWER, *supra* note 122, at 182. These economic facts should be kept in mind when considering FLPMA's definition of "multiple use," which calls for management that "takes into account the long-term *needs* of future generations for renewable and nonrenewable resources, including . . . range." 43 U.S.C. § 1702(c) (emphasis added).

158. If the reader finds this argument a stretch, consider that a congressional purpose in the 1897 act authorizing establishment of public-land forest reserves was to provide water for downstream, private-land users. *See* United States v. New Mexico, 438 U.S. 696 (1978) (construing 16 U.S.C. § 475 (2000)). Similarly, a 1936 U.S. Department of Agriculture report to Congress identified watershed and private-land agriculture as among the highest values attributable to western rangelands, both public domain and national forest. *See* U.S. DEP'T OF AGRIC., THE WESTERN RANGE: A GREAT BUT NEGLECTED NATURAL RESOURCE, S. DOC. NO. 74-199, at 338, 518 (1936) [hereinafter THE WESTERN RANGE]. *See infra* note 176.

159. 43 U.S.C. §§ 1701-1784.

160. 16 U.S.C. §§ 528-531.

161. 16 U.S.C. §§ 1600-1614.

162. Pub. L. 95-514, 43 U.S.C. §§ 1901-1908.

"range"—*not livestock products*—as among the several "renewable and nonrenewable *resources*" of public lands,[163] which are to be managed "under principles of multiple use and sustained yield."[164] The Act defines multiple-use "management of the public lands and their various *resource values*" in terms of an open-ended list of "renewable and nonrenewable *resources*, including, but not limited to, recreation, range, timber, minerals, watershed, wildlife and fish, and natural scenic, scientific and historical *values*."[165] The statute expands upon these "resource values," for instance, in stating congressional policy that "public lands be managed in a manner that will protect the quality of scientific, scenic, historical, ecological, environmental, air and atmospheric, water resource, and archeological values."[166] In other words, in FLPMA Congress described public land uses and resource values using the now familiar terminology of ecosystem goods and services.[167]

Similarly, the MUSYA and NFMA (both of which govern the

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163. 43 U.S.C. § 1702(c) (emphasis added).

164. 43 U.S.C. § 1732(a).

165. 43 U.S.C. § 1702(c) (emphasis added). Specifically:

> The term "multiple use" means the management of the public lands and their various resource values so that they are utilized in the combination that will best meet the present and future needs of the American people; making the most judicious use of the land for some or all of these resources or related services over areas large enough to provide sufficient latitude for periodic adjustments in use to conform to changing needs and conditions; the use of some land for less than all of the resources; a combination of balanced and diverse resource uses that takes into account the long-term needs of future generations for renewable and nonrenewable resources, including, but not limited to, recreation, range, timber, minerals, watershed, wildlife and fish, and natural scenic, scientific and historical values; and harmonious and coordinated management of the various resources without permanent impairment of the productivity of the land and the quality of the environment with consideration being given to the relative values of the resources and not necessarily to the combination of uses that will give the greatest economic return or the greatest unit output.

Id. The Supreme Court in *Norton v. Southern Utah Wilderness Alliance* called "[m]ultiple use management" a "deceptively simple term that describes the enormously complicated task of striking a balance among the many competing uses to which land can be put, 'including, but not limited to, recreation, range, timber, minerals, watershed, wildlife and fish, and [uses serving] natural scenic, scientific and historical values.'" 542 U.S. 55, 58 (2004) (quoting 43 U.S.C. § 1702(c)). Congress explicitly included "scenic, scientific and historical values" among public-land "resources," *see* 43 U.S.C. § 1702(c), but the Court's insertion of the phrase "uses serving" suggests a certain discomfort with the notion that nonuse values (or perhaps noncommodities) can be "resources."

166. 43 U.S.C. § 1701(a)(8). *See also id.* § 1765(b)(iv) (requiring that right-of-way permitting "protect the interests of individuals living in the general area . . . who rely on the fish, wildlife, and other biotic resources . . . for subsistence").

167. *See, e.g.*, Christensen et al., *supra* note 10, at 667 (Box 1); *see also supra* note 11.

national forests generally[168]) include "range" (again, not livestock per se) within the "*products* and *services*" obtainable from the national forests.[169] The MUSYA also includes "range" among the "purposes" for which "national forests are established and shall be administered . . . ."[170] Specifically, the Act calls for management of national forests for "outdoor recreation, range, timber, watershed, and wildlife and fish purposes[,]"[171] as well as for wilderness,[172] and it defines "multiple use" in terms of "these resources or [their] related *services* . . . ."[173] The NFMA builds on the MUSYA foundation by requiring forest plans: (1) to "provide for multiple use and sustained yield of the *products and services* obtained" from the lands; and (2) to "determine forest management systems, harvesting levels, and procedures in the light of" these uses, the defini-

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168. Livestock grazing on national forests is also governed by FLPMA. *See* 43 U.S.C. § 1752.

169. *See* 16 U.S.C. §§ 529, 531(b) (2000); *id.* § 1604(e)(1) (emphasis added).

170. 16 U.S.C. § 528. According to the Supreme Court, however, national forests were established for two *primary* purposes, to "'conserve the water flows, and to furnish a continuous supply of timber.'" United States v. New Mexico, 438 U.S. 696, 708 & n.14 (1978) (paraphrasing 16 U.S.C. § 475). "[G]razing was merely one *use* to which the national forests *could [possibly]* be put and would not be permitted where it *might* interfere with the specific *purposes* of the national forests including the securing of favorable conditions of water flow." *Id.* at 716 n.23 (emphasis added).

171. The MUSYA provides:

> It is the policy of the Congress that the national forests are established and shall be administered for outdoor recreation, range, timber, watershed, and wildlife and fish purposes. The purposes of [16 U.S.C. §§ 528-531] are declared to be supplemental to, but not in derogation of, the purposes for which the national forests were established as set forth in [16 U.S.C. § 475, namely, "to improve and protect the forest within the boundaries, or for the purpose of securing favorable conditions of water flows, and to furnish a continuous supply of timber"] . . . .

16 U.S.C. § 528.

172. 16 U.S.C. § 529 provides: "The establishment and maintenance of areas of wilderness are consistent with the purposes and provisions of sections 528 to 531 of this title."

173. 16 U.S.C. § 531(a) (emphasis added). Specifically:

> Multiple use means: The management of all the various renewable surface resources of the national forests so that they are utilized in the combination that will best meet the needs of the American people; making the most judicious use of the land for some or all of these resources or related services over areas large enough to provide sufficient latitude for periodic adjustments in use to conform to changing needs and conditions; that some land will be used for less than all of the resources; and harmonious and coordinated management of the various resources, each with the other, without impairment of the productivity of the land, with consideration being given to the relative values of the various resources, and not necessarily the combination of uses that will give the greatest dollar return or the greatest unit output.

Id.

tions of "multiple use" and "sustained yield," *and* the lands' "*suitability* for resource management."[174]

Congress plainly understood that the values of national forests and BLM lands reside not only in the commodities producible therefrom (and certainly not just the *livestock* commodities), but in a rich array of resources, uses, values, and services.[175] This view was consistent with prevailing understandings long before the so-called MUSY statutes were enacted.[176] Congress too had long understood that emphasis on production of one resource could damage others. Construing the late nineteenth century legislation that established the national forests, for instance, the Supreme Court observed that the national forests were "to be opened up [to] any economic use not inconsistent with the forests' primary purposes."[177] The Court explained that "grazing was merely one use to which the national forests *could [possibly]* be put and would *not be permitted* where it *might* interfere with the specific purposes of the national forests including the securing of favorable conditions of water flow."[178]

Equally self-evident is that Congress intended multiple-use

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174. 16 U.S.C. § 1604(e) (emphasis added).

175. *See, e.g.*, 43 U.S.C. § 1702(c) (2000) (referring to "resource values," "resource uses," "resources or related services," "renewable resources," and "relative values of the resources"); *id.* § 1702(h) ("output of the various renewable resources"); *id.* § 1712(c)(4) ("public lands, their resources, and other values"); *id.* § 1712(c)(5) ("present and potential uses"); 16 U.S.C. § 528 ("outdoor recreation, range, timber, watershed, and wildlife and fish purposes"); *id.* § 529 ("renewable surface resources" and the "products and services obtained therefrom"); *id.* § 531(a) ("various renewable surface resources"; "resources or related services"; "relative values"; "combination of uses"), 531(b) ("output of the various renewable resources"); 16 U.S.C. § 1604(e)(1) ("products and services"); *id.* § 1604(g)(2)(B) ("various renewable resources, and soil and water"); *id.* § 1604(g)(3)(A) ("provide for outdoor recreation (including wilderness), range, timber, watershed, wildlife, and fish"). According to the Ninth Circuit, the values set forth in MUSYA embrace "social" and "ecologic" as well as economic values. *See* Sierra Club v. Butz, 3 ENVTL. L. REP. 20, 292-93 (9th Cir. 1973) (citing a report by scientists A. Starker Leopold and Reginald H. Barrett).

176. *See, e.g.*, S.B. Snow, *The Probable Future Use and Ownership of Rangelands*, *in* THE WESTERN RANGE, *supra* note 158, at 421, 454 ("The multiple-use principle—including timber production, watershed protection, grazing, wildlife propagation, recreation, and other uses—has been adopted on the national forests . . . [and] sustained by the highest court."). Part V (pp. 301-418) of *The Western Range* describes the "social and economic function" of the western range area, including its recreational, watershed, wildlife, and agricultural values. One report author wrote that watershed is the "most valuable service" of rangelands. *See* L.F. Watts et al., *The Management of Range Lands*, *in* THE WESTERN RANGE, *supra* note 158, at 501, 518. *See also infra* text accompanying note 184 (concerning Gifford Pinchot's maxim).

177. United States v. New Mexico, 438 U.S. 696, 716 n.23 (1978) (referring to the acts of 1891 and 1897).

178. *Id.* (emphasis added). The Court added that "a limited and regulated use for pasturage might not be inconsistent with the object sought to be attained by [16 U.S.C. § 475]." *Id.* (quoting United States v. Grimaud, 220 U.S. 506, 515-16 (1911)). The Court in *Grimaud* had noted that grazing "fees were fixed to prevent excessive grazing, and thereby protect the young growth and native grasses from destruction." 220 U.S. 506, 522 (1911).

management prescriptions to consider land productivity and environmental quality.[179] More precisely, Congress intended public-land management to provide for the *long-term, sustained yield* of the various products, services, and values of the lands. In 1976 Congress directed both agencies to "use and observe the principles of multiple use and sustained yield" when managing lands and developing and revising land use plans.[180] Congress had defined "sustained yield" in the 1960 MUSYA as "the achievement and maintenance *in perpetuity* of a high-level annual or regular periodic output of the various renewable resources of the national forests *without impairment of the productivity* of the land."[181] It provided a nearly identical definition, applicable to BLM public lands, in FLPMA.[182]

Both notions, sustained yield and sustainable use, can be traced to Gifford Pinchot's "greatest good of the greatest number in the long run" maxim,[183] a guiding principle for multiple-use managers for the past century. Updated and shorn of misconceptions regarding Pinchot's utilitarianism,[184] each still can and should

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179. *See, e.g.*, 43 U.S.C. § 1702(c) (referring to "productivity of the land and the quality of the environment"); 16 U.S.C. § 531(b) ("without impairment of the productivity of the land"); 16 U.S.C. § 1604(g)(3)(C) ("productivity of the land"), *id.* § (g)(3)(A) ("insure consideration of the economic and environmental aspects of various systems of renewable resource management"), *id.* § (g)(3)(C) ("not produce substantial and permanent impairment of the productivity of the land").

180. FLPMA, 43 U.S.C. § 1712(c)(1); *compare* 16 U.S.C. § 1604(e)(1) (directing forest plans to "provide for multiple use and sustained yield of the products and services . . . in accordance with [MUSYA]"). *See also* MUSYA, 16 U.S.C. § 529 (directing the Forest Service "to develop and administer the renewable surface resources of the national forests for . . . sustained yield of the several products and services obtained therefrom"). Each of these statutory provisions is mandatory (i.e., each uses the word "shall"). *Cf.* George Cameron Coggins, *Of Succotash Syndromes and Vacuous Platitudes: The Meaning of Multiple Use*, 53 U. COLO. L. REV. 229, 279 (1982) [hereinafter Coggins, *Succotash Syndromes*] ("The multiple use laws contain a series of 'shalls' and 'shall nots' that ought to be binding on public land managers.").

181. 16 U.S.C. § 531(b) (emphasis added).

182. *See* 43 U.S.C. § 1702(h) (defining sustained yield as "the achievement and maintenance in perpetuity of a high-level annual or regular periodic output of the various renewable resources of the public lands consistent with multiple use"). The meaning of "permanent impairment" can be discerned from the legislative history as "'anything greater' 'than minor alterations of a temporary nature.'" Roger Flynn, *Daybreak on the Land: The Coming of Age of the Federal Land Policy and Management Act of 1976*, 29 VT. L. REV. 815, 839 n.141 (2005) (*citing* H.R. REP. No. 94-1163, at 44 (1976), *as reprinted* in S. COMM. ON ENERGY & NAT. RESOURCES, 95th Cong. 2d Sess., LEGISLATIVE HISTORY OF THE FEDERAL LAND POLICY AND MANAGEMENT ACT OF 1976 (Committee Print 1978)).

183. *See* GIFFORD PINCHOT, BREAKING NEW GROUND 192 (1947); *see also* Robert B. Keiter, *Public Lands and Law Reform: Putting Theory, Policy, and Practice in Perspective*, 2005 UTAH L. REV. 1127, 1159-61 (2005).

184. Pinchot did not believe in profligate use of any resource. He lamented the "gigantic and gigantically wasteful lumbering of the great Sequoias," stating: "I resented then, and I still resent, the practice of making vine stakes hardly larger than walking sticks out of these greatest of living things." *See* PINCHOT, *supra* note 183, at 103. He offered his "greatest good in the long run" formula for those situations "'where conflicting interests must be

guide federal land management.[185] Today, given our deeper understanding of humankind's effect on the environment and its dependence on natural systems, we know that the "greatest good of the greatest number in the long run" indisputably depends on maintaining "viable ecosystems."[186]

Although some courts and commentators have disparaged federal multiple-use mandates as lacking substance or teeth,[187] at least a few have expressed a contrary view.[188] Notably, one court found content in the MUSYA direction to give "due consideration" to the "relative values of the various resources in particular areas" in administering the national forests.[189] In a case challenging a Forest Service decision to sell nearly one hundred percent of the commercial timber on the Tongass National Forest, a panel of the Ninth Circuit accepted the district court's ruling that the Forest Service should "'apply their expertise to the problem after consideration of all relevant values,'" but it rejected the notion that the court "'must presume . . . that the Forest Service *did* give due consideration to the various values specified in the [MUSYA].'"[190] The appellate court cautioned: "'[D]ue consideration' to us requires that the values in question be *informedly and rationally* taken into balance. The requirement can hardly be satisfied by a showing of

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reconciled.'" *See* COGGINS ET AL., *supra* note 25, at 115 (quoting Harold W. Wood, Jr., *Pinchot and Mather: How the Forest Service and the Park Service Got that Way*, NOT MAN APART, Dec. 1976 (quoting Pinchot)).

185. *See, e.g.*, 36 C.F.R. § 219.3 (1992) (definition of "net public benefits").

186. *See, e.g.*, Scott W. Hardt, *Federal Land Management in the Twenty-First Century: From Wise Use to Wise Stewardship*, 18 HARV. ENVTL. L. REV. 345, 391 (1994) ("Only by maintaining the health of this country's ecosystems can federal land managers ensure that they are providing the greatest good for the greatest number over the long run."); *see also* Christensen et al., *supra* note 10.

187. *See, e.g.*, Michael C. Blumm, *Public Choice Theory and the Public Lands: Why "Multiple Use" Failed*, 18 HARV. ENVTL. L. REV. 405, 405 (1994); Keiter, *supra* note 183, at 1161 (describing the MU mandate as "amorphous"); *id.* at 1162 (asserting that MU "failed to meet crucial resource needs, instead fostering considerable environmental degradation"); COGGINS ET AL., *supra* note 25, at 710-12 (critiquing the MUSY mandates and citing sources). According to one Ninth Circuit panel, the "so-called standards" of the MUSY Act "contain the most general clauses and phrases," and "can hardly be considered concrete limits on agency discretion. Rather, it is language which 'breathe[s] discretion at every pore.'" Perkins v. Bergland, 608 F.2d 803, 806 (9th Cir. 1979) (quoting Strickland v. Morton, 519 F.2d 467, 469 (9th Cir. 1975)). *See also infra* discussion at notes 209-11.

188. *See, e.g.*, George Cameron Coggins, *The Law of Public Rangeland Management IV: FLPMA, PRIA, and the Multiple Use Mandate*, 14 ENVTL. L. 1, 50 (1983) [hereinafter Coggins, *Public Rangeland Management IV*] (asserting that FLPMA's definitions of "multiple use" and "sustained yield" "in fact require fairly definite management emphases and practices"); *id.* (pointing out FLPMA's "emphasis on intergenerational equity, the clear directive to achieve long-term conservation, and the requirement of environmental nonimpairment"); Hardt, *supra* note 186; Coggins, *Succotash Syndromes*, *supra* note 180, at 279.

189. Sierra Club v. Butz, 3 ENVTL. L. REP. 20,292 (9th Cir. 1973) (construing 16 U.S.C. § 529 (1988)).

190. *Id.* at 20,292 (quoting Sierra Club v. Hardin, 325 F. Supp. 99, 124 (D. Alaska 1971) (emphasis added)).

knowledge of the consequences and a decision to ignore them."[191] According to the Ninth Circuit, the "relevant values" to be weighed included "social" and "ecologic" as well as economic.[192] Whether the agency had knowledge of and failed to consider new information bearing on social and ecological considerations was relevant to the issue of "due" consideration.[193] While this case dealt with the MUSYA, similar constraints are now relevant to land use planning and management under both the NFMA and FLPMA.[194]

In a later timber case, this time arising in Wyoming, a federal district court construed the MUSYA as *requiring* forest officials to "consider the relative values of *all* resources within the national forests" when deciding what uses to allow.[195] Relying on the statutes and legislative history, the court rejected out of hand the plaintiffs' assertion that "the national forests must be managed primarily to produce economic benefits."[196] The court pointed out that under both the Organic Act[197] and NFMA the Secretary of Agriculture is accorded discretion to decide "whether *or not* to sell timber."[198] The court observed that "Congress envisioned the domination of non-timber uses in certain forests."[199]

The Ninth Circuit's reasoning in the Tongass case was influential in an appeal of a BLM grazing decision, involving an area of Utah known as Comb Wash. In *National Wildlife Federation v. BLM*, the Interior Board of Land Appeals (IBLA, or Board) affirmed the ruling of District Chief Administrative Law Judge John R. Rampton, Jr., that the BLM had "violated FLPMA, because it failed to engage in any *reasoned or informed* decisionmaking process concerning grazing in the canyons in the [Comb Wash] allotment."[200] The Board ruled that

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191. *Id.* at 20,293 (emphasis added).

192. *See id.*

193. *See id.*

194. *Cf.* Nat'l Wildlife Fed'n v. Bureau of Land Mgmt., 140 IBLA 85, 99 n.11 (1997) (noting the similarity between MUSYA's and FLPMA's multiple-use provisions).

195. Intermountain Forest Indus. Ass'n v. Lyng, 683 F. Supp. 1330, 1337 (D. Wyo. 1988) (citing 16 U.S.C. § 529) (emphasis added).

196. *Id.* at 1338 (finding "no principled basis" for the argument); *see id.* at 1337 ("MUSYA itself rebuts plaintiffs' assertion that the national forests must be managed primarily for economic reasons.").

197. Act of June 7, 1897, 30 Stat. 34.

198. *See Intermountain Forest Indus. Ass'n*, 683 F. Supp. at 1337-38 (citing 16 U.S.C. §§ 476, 472a(a) (emphasis added)); *id.* at 1338 ("NFMA modifies the Organic Act by providing that the Secretary 'may sell' timber located on national forest land. 16 U.S.C. § 472a(a).").

199. *Id.* at 1337 (citing H. REP. NO. 1551, 86th Cong., 2nd Sess. (1960), *reprinted in* 1960 U.S. Code Cong. & Admin. News 2377, 2379).

200. Nat'l Wildlife Fed'n v. Bureau of Land Mgmt., 140 IBLA 85, 101 (1997). The Board noted that Judge Rampton had cited the Ninth Circuit's statement "that the multiple-use principle 'requires that the values in question be informedly and rationally taken

> FLPMA's multiple-use mandate requires that BLM balance competing resource values to ensure that public lands are managed in the manner "that will best meet the present and future needs of the American people." 43 U.S.C. § 1702(c) (1994). Indeed, all parties agree that BLM must conduct some form of balancing of competing resource values in order to comply with the statute.[201]

The purpose of this balancing exercise, according to the IBLA, is to ensure that "'all BLM decisions [are] in the public interest as that interest is defined by Congress in law.'"[202] The Board agreed with Judge Rampton's conclusion that the "'BLM's decision to graze the canyons was not reasoned or informed, but rather based upon [a BLM employee's] misinterpretation of the [land use plan] and a totally inadequate investigation and analysis of the condition of the canyons' varied resources and the impacts of grazing upon those resources.'"[203]

Each of these tribunals discerned "teeth" in Congress's multiple-use mandates. Two of them recognized that Congress has constrained agency discretion in making land-use choices; all three affirmed the importance of noncommodity values in public land planning and management. Each recognized that what qualifies as "due consideration," "relative values," and "best interests" will vary over time. That is, because these analyses are grounded in the present as well as forward looking, the state of scientific knowledge and society's understanding of resource values must influence decisions. Likewise, what constitutes an "adequate investigation and analysis" of resource condition and the impacts of proposed land uses will change depending on what managers know and what Americans care about. As we will see, this interpretation is entirely consistent with other provisions of the statutes.[204]

Legal commentators have also found substance, or at least promise, in MUSY principles. Scott Hardt concluded that "multi-

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into balance,'" and then "concluded that an agency is required to engage in such a balancing test in order to determine whether a proposed activity is in the public interest" under FLPMA. *Id.* at 99.

201. *Id.*

202. *Id.* (noting that even counsel for the BLM agreed with this interpretation and citing BLM's Statement of Reasons at 5).

203. *Id.* at 100-01 (quoting Judge Rampton's decision at 23-25). At the hearing, NWF introduced expert testimony that grazing had impacted "archaeological sites, recreational opportunities, riparian vegetation, soil conditions, water quality, and wildlife habitat." *See id.* at 89.

204. *See infra* notes 229-330 and accompanying text (discussing FLPMA and NFMA planning principles, the UUD provision, and PRIA).

ple use is a viable land management directive as long as it is implemented within an ecologically sound framework."[205] He reasoned that "multiple use, as incorporated in existing law, is not synonymous with commodity development, but rather requires a balancing of commodity uses, noncommodity uses, and environmental protection."[206] In a section entitled "Sustainability Is a Key Element in Multiple Use Management," Hardt argued:

> "[M]anaging for viable ecosystems" implies that the two principles [multiple use and sustained yield] cannot be separated. The federal land laws focus on sustaining the yield of renewable resources, not sustaining ecosystems. Yet, given the expansion of uses and products for which federal lands must be managed, including fish and wildlife, clean air, clean water, wilderness, recreation, and aesthetics, as well as traditional commodity uses, it is clear that the maintenance of viable ecosystems is essential to providing a sustained yield of all federal land uses and renewable resources.[207]

Professor Robert Keiter has taken a more middle-of-the-road approach. He suggests that the "fabled multiple-use doctrine that was long employed to favor industrial uses on the public lands is truly a double edged sword; it can also be used to promote species conservation and ecological restoration goals on those same lands."[208]

Much less sanguine about the MUSY statutes, Professor Mi-

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205. Hardt, *supra* note 186, at 386.

206. *Id.* at 350. The requirement of "sustained yield" gives meaning to Hardt's term "balancing." *Cf.* Norton v. S. Utah Wilderness Alliance, 542 U.S. 55, 58 (2004) (stating that multiple-use management "describes the enormously complicated task of striking a *balance* among the many competing uses to which land can be put") (emphasis added).

207. Hardt, *supra* note 186, at 396-97 (citing 16 U.S.C. § 529 (1988); 43 U.S.C. § 1702(h) (1988)). *Cf.* Seattle Audubon Soc'y v. Lyons, 871 F. Supp. 1291, 1311 (W.D. Wash. 1994), *aff'd sub nom.* Seattle Audubon Soc'y v. Moseley, 80 F.3d 1401 (9th Cir. 1996) ("Given the current condition of the [Northwest] forests, there is no way the agencies could comply with the environmental laws *without* planning on an ecosystem basis."). *Cf.* Oliver A. Houck, *On the Law of Biodiversity and Ecosystem Management*, 81 MINN. L. REV. 869, 898 (1997) ("Multiple use itself cannot be provided when native species are extirpated." (citing *Seattle Audubon Soc'y*, 871 F. Supp. at 1311)).

208. Keiter, *supra* note 183, at 1197. Keiter's comment suggests that nothing in the MUSY concept per se favors either interpretation. Instead, he asserts, "an array of [other] environmental laws . . . have [sic] forced the agencies to incorporate ecological principles into their planning and decision processes." *Id.* In this respect, his view is much closer to Professor Blumm's, *infra* notes 209-11, than to Mr. Hardt's, *supra* notes 205-07. *But cf.* Keiter, *supra* note 183, at 1201 ("Despite some lingering uncertainties, the essentials of ecological sustainability are clear enough to acknowledge it as a viable public land management policy.").

chael Blumm asserted that multiple use is founded upon "a standardless delegation of authority to land managers," that "it cannot fulfill its promise because it is inherently biased toward commodity users," and ultimately that it has "failed" and should be "discarded."[209] In Blumm's view, "the concepts of multiple use and sustained yield have failed to produce sustainable public land ecosystems supporting a variety of renewable resources."[210] He urged a "redefinition of multiple use," which would emphasize the development of sustainable ecosystems and the simultaneous production of renewable resources that do not damage watersheds or fish and wildlife species. This result should be understood as the inevitable consequence of the influence of . . . other statutory commitments [e.g., the Clean Water Act and Endangered Species Act] on the concepts of multiple use and sustained yield.[211]

I concur in Professor Blumm's conclusion that we have "failed to produce sustainable public land ecosystems," nowhere more patently than on western rangelands. But I do not agree that the concepts of multiple use and sustained yield are content-less, nor that *they* are responsible for the condition of the public lands. The blame lies with the agencies, for failing to interpret the statutes rationally or in the public interest[212] and for not incorporating contemporary ecological understanding into management prescriptions,[213] and with the courts for not enforcing congressional intent in the governing legislation.[214] I also agree that Professor Blumm's suggested "*redefinition* of multiple use" should be "inevitable."[215] But the reinterpretation need not hinge on "other statutory commitments" (although I have argued that other governing laws are relevant and support a more ecological view[216]). Con-

209. *See* Blumm, *supra* note 187, at 407, 415, 422, 428 (describing "MUSYA's statutory directive that land productivity not be impaired [as] a mandate which the courts ruled was too vague to be judicially enforced," and citing Nat'l Wildlife Fed'n v. U.S. Forest Serv., 592 F. Supp. 931, 938-39 (D. Or. 1984), *appeal dismissed as moot*, 801 F.2d 360 (9th Cir. 1987)).

210. Blumm, *supra* note 187, at 429 (arguing that the "failure is demonstrated by the enormous costs of the subsidy system as well as by that system's deleterious effects on wildlife").

211. *Id.* at 430.

212. Indeed, Professor Blumm concedes this point. *See id.* at 422 ("Instead of managing in the public interest, 'captured' land managers serve factional interests, thus undermining the long term sustainability of public land resources."). But the BLM was captured by the livestock industry before the agency had even a temporary MUSY mandate, *see generally* Donahue, *supra* note 122, at 745-58 (exploring the capture thesis and its application to the early BLM).

213. *See, e.g., supra* notes 32, 119, and accompanying text and text preceding note 40.

214. *See supra* note 188 and accompanying text; *see also* Houck, *supra* note 207 (critiquing cases).

215. *See supra* text accompanying note 211.

216. *See* DONAHUE, *supra* note 19, at 222-28 (discussing the National Environmental Policy Act, Endangered Species Act, and Clean Water Act).

gress's evolving understanding of "multiple use," reflected in all three Acts, along with its environmental protection mandates in NFMA and FLPMA, *require* agencies to heed the teachings of ecology in their land-use decisions. Illuminated by modern understandings of sustainable use[217] and ecosystem health,[218] the concept of "multiple use" solidifies into a management directive with substance, one that guides and limits agency discretion.[219]

It might be argued that the Tongass case gives credence to the notion that single-use management could, in theory, be acceptable under the multiple-use statutes.[220] However, the statutes refer to "the *combination*" of uses and resource values that will "best meet the present and future needs of the American people; making the most judicious use of the land for *some* or all of these resources or related services."[221] Not only do the statutes imply that lands should be managed for resources and/or values (plural), but they contemplate that those uses will be compatible and sustainable in perpetuity.[222] Neither expectation is borne out in the case of lands managed for one use at the expense of all others. Management for cheatgrass, for example, is incompatible with or detrimental to all other renewable uses listed by FLPMA, which might be made of these lands, i.e., "recreation, . . . watershed, wildlife and fish, and natural scenic, scientific and historical values."[223]

The Forest Service and the BLM are among several federal agencies that ostensibly have "committed to the principles of ecosystem management,"[224] "*the* central goal or value" of which is "sustainability."[225] The Forest Service embraced this goal whole-

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217. *See, e.g., infra* notes 225-26 and accompanying text.

218. *Cf. supra* text accompanying note 11 (discussing rangeland health).

219. *Cf.* Keiter, *supra* note 183, at 1200-01 ("Ecological principles and sustainability concepts are both well-embedded in the laws governing the public domain.").

220. *See supra* text accompanying note 190. "Dominant use" is a better term than single use since all lands can and do support more than one use, as defined in the MUSY statutes.

221. *See* FLPMA, 43 U.S.C. § 1702(c) (2000) (emphasis added); *cf.* MUSYA, 16 U.S.C. § 531(a) (2000).

222. *See, e.g.*, 43 U.S.C. § 1702(c) ("harmonious and coordinated management"); *id.* ("combination of balanced and diverse resource uses"); *see also supra* notes 181-82 and accompanying text.

223. *See* 43 U.S.C. § 1702(c). The exception is "minerals." *See also supra* discussion at notes 95-96.

224. Christensen et al., *supra* note 10, at 668 (citing CONGRESSIONAL RESEARCH SERVICE, ECOSYSTEM MANAGEMENT: FEDERAL AGENCY INITIATIVES (1994)).

224. *Id.* (noting that eighteen federal agencies endorse ecosystem management); *see also id.* (setting forth several definitions of "ecosystem management"). *See generally* Keiter, *supra* note 183, at 1192-1202; *id.* at 1202 n.401 ("[A] strong case can be made that the courts have introduced ecosystem management principles onto the public lands.").

225. Christensen et al., *supra* note 10, at 668. Indeed, Professor Keiter equates the "concept of ecological sustainability" with "ecosystem management." Keiter, *supra* note 183, at 1192. *See also supra* text accompanying note 207.

heartedly (if temporarily), when it revised its planning rules, recognizing the preeminent importance of "maintain[ing] or restor[ing] *ecological* sustainability to provide a sustainable flow of uses, values, products, and services."[226] "In practice, however, [agency] management strategies and tactics have often focused on maximizing short-term yield and economic gain, rather than long-term sustainability."[227] As one ecologist put it: "Historically, western ecosystems have been used economically."[228]

"Multiple use" and "sustained yield," of course, must be interpreted in the context of each Act as a whole. The planning statutes illuminate what Congress had in mind in the MUSY mandates. The NFMA directs the Forest Service to "promulgate regulations, *under the principles of* [*the MUSYA*], that set out the process for the development and revision of the land management plans, and the guidelines and standards prescribed" for resource management.[229] Some of these "guidelines" include:

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226. *See* 36 C.F.R. §§ 219.1 - .2 (1999) (emphasis added). The relevant provisions were:

> Sustainability, composed of interdependent ecological, social, and economic elements, embodies the principles of multiple-use and sustained-yield without impairment to the productivity of the land. Sustainability means meeting needs of the present generation without compromising the ability of future generations to meet their needs. Planning contributes to social and economic sustainability without compromising the basic composition, structure, and functioning of ecological ***67569*** systems. . . .
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> . . .
>
> The first priority for planning to guide management of the National Forest System is to maintain or restore ecological sustainability of national forests and grasslands to provide for a wide variety of uses, values, products, and services. The benefits sought from these lands depend upon long-term ecological sustainability. Considering increased human uses, it is essential that uses of today do not impair the functioning of ecological processes and the ability of these natural resources to contribute to sustainability in the future.

Id. §§ 219.1(b)(3), 219.2. The Forest Service deleted these sections when it revised its planning rules in 2005. *See* Nat'l Forest Sys. Land Mgmt. Planning, 70 Fed. Reg. 1023 (Jan. 5, 2005); 36 C.F.R. §§ 219.1 to -.16 (2005). The current rule provides in part that the "overall goal of [ecological] sustainability is to provide a framework to contribute to sustaining native ecological systems." *See id.* § 219.10(b). *See generally* Robert B. Keiter, *Ecological Concepts, Legal Standards, and Public Land Law: An Analysis and Assessment*, 44 NAT. RESOUR. J. 943 (comparing the two sets of rules).

227. Christensen et al., *supra* note 10, at 667; *accord* Houck, *supra* note 207, at 977 ("The emerging ecosystem approach is friendly and non-threatening; it perpetuates business-as-usual and defers the hard decisions to a later day.").

228. Duncan T. Patten, *Restoration as the Order of the 21st Century: An Ecologist's Perspective*, 18 J. LAND, RES. & ENVTL. L. 31, 40 (1998).

229. 16 U.S.C. § 1604(g) (2000) (emphasis added).

- identifying "the *suitability* of lands for resource management,"
- obtaining "inventory data on the various renewable resources, *and soil and water,*"
- insuring "consideration of the *economic and environmental* aspects of various systems of renewable resource management,"
- providing "for *diversity* of plant and animal communities based on the *suitability* and *capability* of the specific land area," and
- insuring "evaluation of the effects of each management system to the end that it will not produce substantial and permanent *impairment* of the *productivity* of the land."[230]

FLPMA contains many functionally comparable provisions. It requires the BLM to "prepare and maintain on a continuing basis an inventory of all public lands and their resource and other values (including . . . outdoor recreation and scenic values), giving priority to areas of environmental concern";[231] to "rely" on that inventory in developing and revising land use plans;[232] and to "manage the public lands under principles of multiple use and sustained yield, in accordance with [available] land use plans."[233] FLPMA does not contain a similarly explicit diversity mandate, but several provisions of the Act, taken together, clearly embody such a requirement,[234] and the BLM has discerned a duty.[235] Similarly, FLPMA does not direct the agency expressly to consider the "suitability" or "capability" of land to support particular uses,[236] but the

230. *See id.* § 1604(g)(2)-(3) (emphasis added).

231. 43 U.S.C. § 1711(a) (2000).

232. *Id.* § 1712(c)(4).

233. *Id.* § 1732(a).

234. *See* Keiter, *supra* note 183, at 1197 & n.426 (pointing to 43 U.S.C. § 1701(a)(8) as the source of the BLM's "clear biodiversity conservation legal obligations").

235. *See, e.g.*, VEGETATION TREATMENTS PEIS, *supra* note 11, at ES-2, 4-32 (declaring that public lands "should be rehabilitated when necessary to safeguard the long-term diversity and integrity of the land"). The BLM's "fundamentals of rangeland health" require that "[e]cological processes . . . are maintained, or there is significant progress toward their attainment, in order to support healthy biotic populations and communities." *See* 43 C.F.R. § 4180.1 (2006). The National Environmental Policy Act (NEPA) makes it the "continuing responsibility of the Federal Government to use all practicable means . . . to the end that the Nation may . . . preserve important . . . natural aspects of our national heritage, and maintain, wherever possible, an environment which supports diversity." *See* 42 U.S.C. § 4331(b) (2000).

236. The Forest Service does, or should, determine the suitability or capability of national forest lands for grazing before authorizing livestock use. *See supra* text accompanying notes 174, 230; *see also* Scott McMillion, *Grazing Cutbacks Proposed for Crazies*, BOZEMAN DAILY CHRON., Aug. 31, 2005, *available at* http://www.bozemandailychronicle.com/articles/

admonition is implicit in several statutory provisions discussed above, taken together.[237] Furthermore, grazing on BLM lands is governed by the Taylor Grazing Act, which on its face requires not mere "suitability," but an affirmative determination that the land be "chiefly valuable for grazing and raising forage crops."[238]

Other relevant FLPMA planning directives[239] include:

- "use and observe the principles of multiple use and sustained yield,"
- "use a systematic interdisciplinary approach to achieve *integrated consideration* of physical, biological, economic, and other sciences,"
- "give priority to the designation and protection of *areas of critical environmental concern*" (ACECs),

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2005/08/31/news/03crazygrazing.prt (reporting Forest Service decision to reduce cattle grazing on an unfenced, 8400-acre allotment, only one-quarter of which was deemed "suitable for grazing," because of declining condition due to overstocking and weeds); W Watersheds Project v. U.S. Forest Serv., No. 05-cv-189-E-BLW (D. Id. Feb. 7, 2006) (holding that "the Sawtooth National Forest must assess the 'capability' of forest lands for grazing on a site-specific basis, before authorizing grazing"), cited and quoted in Letter from Lauren M. Rule, Attorney for WWP, to Ruth Monahan, Sawtooth National Forest Supervisor et al., Mar. 22, 2006 (copy on file with author).

237. Several references in the "multiple use" definition support this interpretation, including: "judicious use"; "a combination of balanced . . . resource uses that takes into account the long-term needs of future generations"; "management of the various resources without permanent impairment of the productivity of the land and the quality of the environment"; and "the relative values of the resources." *See* 43 U.S.C. § 1702(c). Similarly, the "sustained yield" definition calls for "maintenance in perpetuity of a high-level annual or regular periodic output of the various renewable resources . . . consistent with multiple use." *See* 43 U.S.C. § 1702(h). Only if a land area is "suitable" for a resource use could long-term, high-level production of that resource be maintained. PRIA also contemplates a suitability determination. *See* 43 U.S.C. § 1902(a) (stating that "rangelands" "means lands administered by [either] Secretary . . . on which there is domestic livestock grazing or which the Secretary concerned determines may be suitable for domestic livestock grazing"). It might be argued that this definition allows any public lands—suitable or not—to be used for livestock grazing. But the interpretation more consonant with pre-existing law is that Congress assumed that lands *presently* used for grazing *had been* determined suitable for that use, and that suitability *would be* determined before any *other* lands were opened to grazing in the future. PRIA refers expressly to removing livestock where necessary to improve range conditions. *See* 43 U.S.C. § 1903(b); *infra* notes 321-25 and accompanying text. Also keep in mind that PRIA applies to the BLM *and* the Forest Service, and it was enacted two years *after* NFMA, which expressly requires that national forest lands be suitable for a prescribed use. *See* 16 U.S.C. § 1604(e)(2), (g)(2)(A), (g)(3)(B) (2000).

238. *See* 43 U.S.C. § 315.

239. Professor Coggins has called the planning criteria in 43 U.S.C. § 1712(c) "remarkable for their lack of specificity." George Cameron Coggins, *The Developing Law of Land Use Planning on the Federal Lands*, 61 U. COLO. L. REV. 307, 321 (1990) [hereinafter Coggins, *Developing Law*]. Coggins conceded that a court "possibly could fashion primitive, loose standards of review from" these criteria, if it "were to carefully examine these provisions in the context of an actual plan that arguably ignored one or more" of them. *Id.* at 323. I argue that the planning criteria do have content, which can be gleaned from the statute as a whole and which should be informed by improvements in scientific understanding. *See generally infra* discussion at notes 247-97.

- "consider present and *potential* uses of the public lands,"
- "consider the *relative scarcity* of the values involved and the availability of alternative means (including recycling) and sites for realization of those values,"
- "weigh *long-term benefits to the public* against short-term benefits," and
- "provide for compliance with applicable pollution control laws."[240]

Congress repeatedly emphasized the "priority" it accorded to "the designation and protection of [ACECs],"[241] which FLPMA defines as "areas within the public lands where special management attention is required . . . to protect and prevent irreparable damage to important historic, cultural, or scenic values, fish and wildlife resources or other natural systems or processes, or to protect life and safety from natural hazards."[242] ACECs are to be given "priority" in land use plans[243] and in public-land inventories,[244] and "regulations and plans for [their] protection" were to be "promptly developed."[245] Professor Coggins has argued that "Congress certainly intended the double priority in designation and protection it placed on ACECs to be more than consideration—even 'due' or 'full' consideration."[246]

The BLM's implementation notwithstanding,[247] FLPMA's ACEC provisions reveal an overriding congressional concern for protecting the ecological health and amenity values of public lands,

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240. 43 U.S.C. § 1712(c) (emphasis added). FLPMA's reference to the "availability of alternative means . . . and sites for realization of those values," *id.* § 1712(c)(6), resembles the CERCLA- and CWA-implementing regulation, which provides for "acquisition of equivalent resources" to compensate for damage to natural resources. *See* 43 C.F.R. § 11.15(a)(3)(ii) (2006) (implementing 42 U.S.C. § 9607(a)(4) and 33 U.S.C. § 1321). Both rules contemplate the varying ability of lands and resources to produce ecosystem services.

241. *See infra* notes 243-45, 248-49 and accompanying text.

242. 43 U.S.C. § 1702(a).

243. *See* 43 U.S.C. § 1711(a) ("The Secretary shall prepare and maintain on a continuing basis an inventory of all public lands and their resource and other values . . . , giving priority to areas of environmental concern.").

244. *See* 43 U.S.C. § 1712(c)(3).

245. 43 U.S.C. § 1701(a)(11).

246. Coggins, *Developing Law*, *supra* note 239, at 321-22 (citing Sierra Club v. Butz, 3 ENVTL. L. REP. (Envtl. L. Inst.) 20,292 (9th Cir. 1973)). *See supra* discussion of "due consideration" at notes 189-93, 200. In fact, ACECs receive "triple" priority in FLPMA. *See supra* text accompanying notes 243-45.

247. According to the BLM, "903 areas comprising nearly 13 million acres are designated as ACEC." VEGETATION TREATMENTS PEIS, *supra* note 11, at 3-56. This area amounts to less than five percent of all BLM lands. *See also infra* note 252 and accompanying text.

not for producing commodities, and assuredly not for domestic livestock production. This preference is unambiguous in the Act's directions to "*give priority*" to protecting areas designated for their "cultural, or scenic values, [or] fish and wildlife resources or other natural systems or processes"[248] and to "prevent irreparable damage" to these areas.[249] It also comports with the national policy to manage public lands "in a manner that will protect the quality of scientific, scenic, historical, ecological, environmental, air and atmospheric, water resource, *and* archeological values."[250] Protecting these values (which embrace the full array of ecosystem services) will not be possible if livestock or other commodity production is emphasized.[251]

The deeper understanding of ecology and ecological economics acquired since 1976 argues in favor of more liberal and effective use of the ACEC designation than has been the BLM's practice to date.[252] Ecosystems at risk of "collapse" due to fire and weeds are surely "areas of critical environmental concern." At least one judge has upheld BLM authority to "close off 'areas of critical environmental concern' [to grazing] under its multiple use mandate."[253]

Public-land livestock grazing would not fare very well in an honest, conscientious, science-informed application of the foregoing statutory provisions.[254] Certainly, these provisions would not support a decision to manage deteriorating rangelands[255] for their

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248. *See* 43 U.S.C. § 1702(a).

249. *See id.*

250. *See* 43 U.S.C. § 1701(a)(8) (emphasis added).

251. *See, e.g.*, Christensen et al., *supra* note 10, at 673 ("[O]verexploitation of resources resulting in diminished diversity often has both ecological and economic long-term opportunity costs that far exceed the short-term benefits."); Rudolf S. de Groot et al., *A Typology for Classification, Description, and Valuation of Ecosystem Functions, Goods, and Services*, 41 ECOL. ECON. 393, 397 (2002) (The "use of one [ecological] function may influence the availability of other functions, and their associated goods and services."). "Expansion of livestock production around the world has often led to overgrazing and dryland degradation, rangeland fragmentation, loss of wildlife habitat, dust formation, bush encroachment, deforestation, nutrient overload through disposal of manure, and greenhouse gas emissions." MILLENNIUM ASSESSMENT, *supra* note 33, at 47. *Cf. supra* note 203.

252. *See* David C. Williams & Faith Campbell, *How the Bureau of Land Management Designates and Protects Areas of Critical Environmental Concern: A Status Report with a Critical Review by the Natural Resources Defense Council*, 8 NAT. AREAS J. 231 (1988). *See also supra* note 247.

253. Joe Baird, *Activists Win Fight on Rights to Grazing*, SALT LAKE TRIB., Jan. 31, 2006 (reporting administrative law judge's approval of the Grand Canyon Trust's purchase and retirement of grazing permits in the BLM-managed Grand Staircase-Escalante National Monument).

254. *See generally* DONAHUE, *supra* note 19, at 210-17 (applying these principles to livestock grazing).

255. There is growing evidence that range conditions have worsened through the twentieth and into the twenty-first centuries. Consider the following: Congress attempted to legislate remedies in 1934, in 1976, and again in 1978. *See* Taylor Grazing Act, 48 Stat. 1269 (1934); Federal Land Policy and Management Act, 43 U.S.C. § 1751(b)(1); Public

nonindigenous forage.

Consider "scarcity," for example. There is nothing scarce about livestock or livestock forage (or cheatgrass, for that matter[256]), nor do the public lands contribute to livestock production in a manner not replicated by *non*federal lands.[257] Livestock products are among the few ecosystem goods that have actually increased in recent years.[258] Livestock forage is fungible and substitutable.[259] Public-land forage can easily be replaced by the rest of the industry. In other words, "alternative means . . . and sites for realization of [public land grazing] values" are readily available.[260]

In contrast, "native-plant communities [are] the most precious asset on the range."[261] Along with their uses and services, these communities are increasingly scarce and declining in condition and

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Rangeland Improvement Act, 43 U.S.C. §§ 1901-1904. PRIA reported Congress's findings that "vast segments of the public rangelands are . . . in an unsatisfactory condition" and "some areas may decline further under present . . . management." *Id.* § 1901(a)(1), (2). In reports published in the 1980s and 1990s, the General Accounting Office, USFS, and BLM all documented deteriorating range conditions. *See* RANGELAND HEALTH, *supra* note 10, at 25 (citing several reports that documented soil erosion and compaction, the spread of introduced weeds, reduced water quality and wildlife habitat, and riparian habitat degradation). In 1994, the Department of the Interior reported that riparian areas on BLM-managed lands were in their *worst condition* in history and that conditions on dry uplands had *not improved* under fifty years of BLM range management. *See* RANGELAND REFORM '94, *supra* note 66, at 45. An agency analysis in 2000 of public lands in the Interior Columbia Basin "showed a general *downward* trend in habitat value from historical conditions for nearly *all habitat types* evaluated." *See, e.g.*, VEGETATION TREATMENTS PEIS, *supra* note 11, at 4-211 (emphasis added) (attributing the habitat modification to "grazing by domestic livestock and wild horses and burros, timber management, fire suppression, and invasion by weeds and other unwanted vegetation," and citing BLM/USFS (2000)). In 2006, the BLM reported that fifty-seven percent of its rangeland is rated fair or poor for "habitat quality," VEGETATION TREATMENTS PEIS, *supra* note 11, at 3-34, and it plans to spend millions of dollars to treat invasive plant species on six million acres of public lands across the West—*triple* the area treated annually under a prior program, *see* VEGETATION TREATMENTS PER, *supra* note 17, at ES-2.

256. *See supra* notes 94, 108.

257. *See supra* notes 122, 156-57; *infra* note 289, and accompanying text.

258. *See* MILLENNIUM ASSESSMENT, *supra* note 33, at 6-7 (concluding that livestock production was among only four ecosystem services [of twenty-four studied] that had "been enhanced in the past 50 years").

259. Substituting private-land livestock forage for public-land forage is like substituting baked potatoes for French fries—or even baked potatoes for baked potatoes. *See* R. David Simpson, *Economic Analysis and Ecosystems: Some Concepts and Issues*, 8 ECOLOGICAL APPLICATIONS 342, 344 (1998); *cf.* POWER, *supra* note 122, at 254 ("Such commodities . . . are not only uniform, they are abundant, and oversupply regularly plagues their markets."). For sagebrush obligate species, such as sage grouse or pygmy rabbits, however, there is no substitute for sagebrush. Similarly, there is no substitute for the black-footed ferret's prey, black-tailed prairie dogs. For these species, in other words, sagebrush and black-tailed prairie dogs are simply *food*, for which there is no substitute. *See id.*

260. *See* 43 U.S.C. § 1712(c).

261. *See* Jones, *supra* note 107 (citing botanist and range restoration expert Stephen Monsen). *Ungrazed* sage-steppe is among the rarest of native communities. *See* REED F. NOSS ET AL., ENDANGERED ECOSYSTEMS OF THE UNITED STATES: A PRELIMINARY ASSESSMENT OF LOSS AND DEGRADATION app. B (Biological Rep. 28, 1995).

often cannot be replaced on nonfederal lands.[262] Livestock and weeds are homogenizing habitats across entire landscapes and regions.[263] Among the casualties are healthy arid and semiarid shrub-steppe communities, secure habitats for rare or sensitive plants and animals, functioning riparian areas, healthy soils, intact biological soil crusts, high-quality recreational opportunities, cultural resources, and scenery. According to a prominent western economist:

> Intact ecosystems are rare islands surrounded by the 'econo-tech' culture of the late twentieth century. What natural landscapes remain are shriveled vestiges . . . . Their value lies in their fragile, irreplaceable biodiversity. Intact ecosystems are increasingly scarce and unique. We are down to the last, and what we lose now we cannot regain.[264]

FLPMA's "relative scarcity" criterion overlaps somewhat with the statute's requirement to "weigh" the relative short- and long-term benefits of competing uses, paying special heed to *public* benefits.[265] Access to public-land forage, including cheatgrass, for livestock is the quintessential "short-term [private] benefit"; it inures solely to a handful of grazing permittees.[266] It is inconceivable that Congress intended short-term private benefits to be given priority in *public land* management. In fact, the statute plainly authorizes either agency to discontinue grazing to devote public

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262. While private lands afford many recreation opportunities, they cannot substitute—in quality, quantity, or diversity—for the kinds of opportunities available on public-lands, nor would the quality of the experience survive the increased densities of recreational users concentrated in smaller areas.

263. *See, e.g.*, Quammen, *supra* note 30. Cheatgrass and other Eurasian species are reducing vegetative diversity worldwide. *See, e.g.*, University of California, Bromus tectorum (reporting occurrence in Europe, southern Russia, west central Asia, North America, Japan, South Africa, Australia, New Zealand, Iceland, and Greenland), http://ucce.ucdavis.edu/datastore/detailreport.cfm?usernumber=21&surveynumber=182 (last visited June 22, 2007).

264. POWER, *supra* note 122, at 254.

265. *See* 43 U.S.C. § 1712(c)(7). The statute's phrasing, "weigh *long-term benefits to the public* against short-term benefits," intimates that Congress was distinguishing between short-term *private* benefits and long-term benefits which, by their nature, would tend to accrue to the public at large, rather than to a relative few individuals. *Id.* (emphasis added).

266. And even then, the "value of these grazing permits and the acreage they entail vary widely depending on the location, soil characteristics, and precipitation." VEGETATION TREATMENTS PEIS, *supra* note 11, at 3-62. The BLM, grazing permittees, and others often argue that local communities benefit as well. *See, e.g.*, VEGETATION TREATMENTS PEIS, *supra* note 11, at 3-62 ("The availability of public land grazing leases is highly beneficial, if not crucial, to some ranching operations, however, and consequently is very important to many rural communities throughout the west."). However, little or no evidence has ever been offered to support this claim. *See* Donahue, *supra* note 122, at 799-800.

lands to a "public purpose."[267] The statute also refers repeatedly to the national interest, general public, American people, and the nation's need for resources.[268] References to local interests are few and qualified.[269]

Moreover, experience tells us that livestock grazing is not sustainable in the Great Basin, and it suggests that grazing will not be sustainable on cheatgrass rangelands either.[270] Livestock production on any native rangelands, but especially in the arid and semi-arid West,[271] is possible only at the expense (in quality or quantity) of other goods and services, all of which otherwise would contribute to "long-term, *public* benefits." Livestock production plainly leads to a net loss of public benefits. The difficulty of quantifying costs and benefits does not foreclose our ability to weigh the broad choices presented.[272] Predicting how much beef or lamb the public lands can produce is far easier than estimating the long-term values of "watershed protection, stability of wildlife popula-

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267. *See* 43 U.S.C. § 1752(b)(2), (g). FLPMA's grazing provisions apply to both the BLM and to the Forest Service.

268. *See, e.g.*, 43 U.S.C. § 1701(a)(1) (providing for disposal of land parcels if it would serve the national interest); *id.* § 1701(a)(2) (realizing the national interest through inventories and planning); *id.* § 1701(a)(12) (concerning the nation's need for food, fiber, and minerals); *id.* § 1702(c) (defining multiple use in terms of needs of American people); *id.* § 1702(j) (defining withdrawal in terms of public values and public purposes).

269. *See, e.g.*, 43 U.S.C. § 1712(c) (calling for coordination with "local government" land use plans "to the extent consistent with" federal public land laws); *id.* § 1716(a) (referring to the "needs of . . . local people" for land exchanges). According to Professor Keiter, "it remains unclear whether . . . local views should trump more distant voices on any particular [public-land] issue." *See* Keiter, *supra* note 183, at 1191. But this statement was not based on an analysis of FLPMA as a whole or its qualifications concerning the role of local land use plans. *See id.* at 1175, n.295. In contrast, Professor Coggins pointed out that FLPMA "does *not* refer to such specific goals as supporting local economies," and he concluded, "[W]hile local or limited aims are not barred by the law as management goals, the lesser aims should be subservient to national requirements." Coggins, *Public Rangeland Management IV*, *supra* note 188, at 51. Professor Blumm recommended that "multiple use should be redefined to reflect *national* interests expressed in other statutory directives, such as the Endangered Species Act and the Clean Water Act." Blumm, *supra*, note 187, at 408 (emphasis added). As I argue herein, however, national interests *are* the overriding concern in the federal land management statutes. Furthermore, relying on the Clean Water Act may not ensure that national, rather than local, interests are favored. A federal district court relied on state law in declining to hold grazing permittees or the Forest Service responsible for livestock-caused water quality standards (WQS) violations in streams on national forests. *See* Center for Native Ecosystems v. Cables, No. 04-cv-02409-PSF-CBS, 2006 WL 57935, at *6 (D. Colo. Jan. 9, 2006) (explaining that "Wyoming 'will not take enforcement action against a non-point source discharger who is implementing [best management practices] in good faith, even where an exceedance of [WQS] is demonstrated'" (apparently quoting a Forest Service pleading)).

270. *See generally supra* notes 54, 99, 102-05, 119 and accompanying text.

271. *See supra* note 54 and accompanying text; DONAHUE, *supra* note 19, at ch. 7.

272. "[T]he most important decisions to get right are those where benefits greatly outweigh costs or vice versa, and in such cases, complete accuracy is unnecessary." Gretchen C. Daily et al., *The Value of Nature and the Nature of Value*, 289 SCI. 395, 396 (2000).

tions, esthetics, [or] recreational uses."[273] But that does not prevent us from *knowing* that the latter are more valuable.

To defend continued public-land grazing, the BLM and livestock producers rely on FLPMA's "policy" that "the public lands be managed in a manner which recognizes the Nation's need for domestic sources of minerals, food, timber, and fiber from the public lands."[274] But this provision—the penultimate in a list of fourteen policy statements[275]—hardly obligates the BLM to *provide* "food . . . and fiber" *from domestic livestock produced on the public lands.*[276] For one thing, the public lands contain myriad food sources in the form of native, wild game—deer, elk, antelope, moose, bighorn sheep, upland birds (including several species of grouse), and small game animals, such as rabbits.[277] Wild animals convert native plants to high-quality protein, without inputs of fertilizers, feed supplements, pharmaceuticals, or fossil fuels.[278] Wild meat costs less to produce and harvest than livestock, and it generates more jobs, income, and tax revenues.[279] Native animals also produce "fiber," e.g., furs and hides (although no one is lobbying Congress or

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273. *See* Monsen, *Controlling Plant Competition, supra* note 101, at 64 (discussing the difficulty of weighing the costs and benefits of restoration projects, but emphasizing that these "long-term values" are "important considerations," as are the "continued degradation and loss of resource values" if "deteriorated sites . . . are left untreated").

274. 43 U.S.C. § 1701(a)(12).

275. *See id.* § 1701(a).

276. *Id.* § 1701(a)(12). I can't resist adding that it's highly unlikely that *horses* pastured on federal grazing allotments are raised to produce either food or fiber.

277. "During some part of the year, rangeland ecosystems are associated with eighty-four and seventy-four percent of the total number of mammalian and avian species, respectively, found in the United States." RANGELAND HEALTH, *supra* note 10, at 20.

278. Wild meat is almost certainly healthier for humans than most domestic meat products. Most beef is "finished" on corn or other grains and has a higher fat content than the meat of wild game or cattle fed a strict grass diet. *See* Medline Plus Medical Encyclopedia: Heart disease and diet: Food Sources (recommending "very lean beef" and "wild game"), http://www.nlm.nih.gov/medlineplus/ency/article/002436.htm#Food%20Sources (last visited June 22, 2007). *See generally* Virginia Kisch Messina, *It's What's for Dinner: The Health Costs of Meat, in* WELFARE RANCHING, *supra* note 25, at 279; Margot Roosevelt, *The Grass-Fed Revolution,* TIME, June 11, 2006, *available at* http://www.time.com/time/archive/preview/0,10987,1200759,00.html (describing the nutritional advantages of grass- over grain-fed beef, noting that less than one percent of the nation's beef supply is grass-fed, and noting that "feeding steers grain and supplements can create safety issues"). In addition, most cattle are produced using other supplements, including animal parts, antibiotics, growth hormones, etc. *See* MILLENNIUM ASSESSMENT, *supra* note 33, at 114 ("Intensive livestock agriculture that uses subtherapeutic doses of antibiotics has led to the emergence of antibiotic-resistant strains of [several species of bacteria].").

279. *See generally* Kenneth H. Mathews, Jr. et al., *Public Lands & Western Communities,* AGRIC. OUTLOOK, June-July 2002, at 18-19; Laitos & Carr, *supra* note 11, at 143-66. Some would argue that wild meat is expensive, pointing to the fuel and travel costs incurred by big game hunters and fishermen. But these costs reflect not just the value of the meat but the recreational value of the wild animal and the hunting experience to the hunters—and they are revenues to those providing the lodging, food, and other services demanded by the hunters and anglers.

local agencies to institute more liberal trapping rules).[280] Cattle, sheep, goats, and horses pastured on the public lands reduce the numbers, and thus the collective food and fiber value, of wild animals. They do this not only by competing directly with native animals for food, water, and shelter, but also in countless other, indirect ways—by causing erosion, spreading weeds, altering fire cycles, polluting streams, introducing disease.[281]

Congress surely intended that, if the nation has relatively little "need" for food or fiber from public-land-raised domestic livestock, managers can and should emphasize *other* values of public lands. The definition of "multiple use" supports this reasoning. Most instructive are the provisions calling for "periodic adjustments in use to conform to changing needs and conditions" and consideration of "the long-term needs of future generations" and "the relative values of the resources."[282] The definition's caveat that "multiple use" does "not necessarily" mean "the combination of uses that will give the greatest economic return or the greatest unit output"[283] should defuse any argument that commodity production is preferred. Moreover, FLPMA's directions to "consider the relative scarcity of the values involved and the availability of alternative means . . . and sites for realization of those values" and to "weigh long-term benefits to the public against short-term benefits" should overwhelm arguments based on a purported "need" for public-land livestock products.[284] In sum, livestock products are neither scarce nor relatively valuable, livestock can be produced more efficiently elsewhere, and using public lands to produce livestock serves the short-term interests of a narrow class of users while sacrificing long-term public values.

The corollary argument that maintaining public-land beef production is justified because of humans' need for protein simply does not withstand scrutiny. As a practical matter, beef is not feeding the world's poor,[285] and substantially more food would be

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280. Furbearers that can legally be trapped or killed in some states include bobcat, marten, river otter, beaver, mink, weasels, raccoons, squirrels, coyotes, badgers, and black bears. Some hunters keep the hides of deer, elk and moose, and tan them for use in making leather clothing. *See* Hidemarket.com, Directory of U.S./Canadian Tannery websites, http://www.hidemarket.com/public/Directories/usatanners.htm (last visited Apr. 21, 2007).

281. *See, e.g.*, Bill Willers, *Where Bison Once Roamed: The Impacts of Cattle and Sheep on Native Herbivores*, *in* WELFARE RANCHING, *supra* note 25, at 241. Even in the Greater Yellowstone Ecosystem, renowned as "the premier wilderness of the lower 48 states," domestic livestock outnumber native ungulates by more than four to one *on national forest lands*! *See* Bill Willers, *Animals Wild and Domestic: A Comment on Ratios*, WILD EARTH, Spring 1995, at 6 (citing U.S. Fish & Wildlife Service figures from 1993).

282. 43 U.S.C. § 1702(c).

283. *Id.*

284. *Id.* § 1712(c)(6), (7).

285. Fish is a much more important source of protein worldwide, and especially to poor

available to the hungry if less grain went to feeding cattle and other livestock.[286] "Eradicating hunger . . . depends on sustainable and productive agriculture, which in turn relies on conserving and maintaining agricultural soils, water, genetic resources and ecological processes."[287] Judged by these criteria, public-land livestock production is plainly not sustainable. As a legal matter, FLPMA refers to "the *Nation's* need for domestic sources of food . . . and fiber *from the public lands*," not to the nation's needs for food in general, nor to world or local needs. Granted, the United States is a huge importer of beef.[288] But this would be so even if public-land forage were unavailable. As University of Montana economist Thomas Michael Power has demonstrated, the federal lands' contribution to U.S. beef production could readily be replaced by private land producers, particularly in other regions of the country.[289] If the beef that the United States imports from developing nations comes (as it certainly does) at the expense of local peoples or the environment in the exporting countries,[290] the solution is *not* to increase production on U.S. public lands. Better alternatives include cutting U.S. imports, imposing higher import taxes, or (best of all) seeking to reduce Americans' beef consumption.[291]

Two increasingly common defenses of public-land grazing are that it maintains a historically significant lifestyle (ranching) and supports local communities.[292] These arguments find little support

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people. *See, e.g.*, MILLENNIUM ASSESSMENT, *supra* note 33, at 103 (reporting that total fish consumption "has nearly doubled in the developing world since 1973"); EFTEC, *supra* note 32, at 4; JEREMY RIFKIN, BEYOND BEEF: THE RISE AND FALL OF THE CATTLE CULTURE 155-56 (1992) (noting that increased consumption of animal protein, particularly beef, is directly related to rising income).

286. *See,* RIFKIN, *supra* note 285, at 161-63; Douglas A. Kysar, *Law, Environment, and Vision*, 97 NW. U. L. REV. 675, 722 (2003) ("Each kilogram of red meat requires three thousand liters of water, the equivalent of two liters of gasoline in petrochemicals and other farm inputs, and five kilograms of corn and meal that otherwise could be used to feed humans.")

287. EFTEC, *supra* note 32, at 4. Eradicating hunger is the United Nations Development Programme's "Millennium Development Goal" number one. *Id.*

288. *See* RIFKIN, *supra* note 285, at 192-93. But the U.S. is also the world's major beef producer. *Id.* at 154. U.S. beef production for 2006 was projected to be nearly 12 million tons (of a worldwide total of more than 53 million tons). U.S. DEP'T OF AGRIC., LIVESTOCK & POULTRY: WORLD MARKETS AND TRADE 5-6 (2005), *available at* http://www.fas.usda.gov/dlp/circular/2005/05-11LP/dlp05_11LP.pdf.

289. *See* POWER, *supra* note 122, at 184–86.

290. *See, e.g.*, RIFKIN, *supra* note 285, at 163, 180-81, 192-99, 282. Regarding the global environmental impacts of livestock production, *see generally* HENNING STEINFELD ET AL., LIVESTOCK'S LONG SHADOW: ENVIRONMENTAL ISSUES AND OPTIONS (Rome: Food & Agriculture Organization 2006).

291. *See generally* RIFKIN, *supra* note 285; EFTEC, *supra* note 32, at 27; Messina, *supra* note 278.

292. *See generally* Donahue, *supra* note 122, at 730 & nn.40-42, 800-01 & nn.530-32 (and sources cited therein). Readers who might be inclined to accept that this lifestyle is worthy of preservation would do well to consider the agrarian attitude toward predators and

in the facts, however,[293] and none in legislation. The closest Congress has come to recognizing a federal interest in communities that (allegedly) depend on public-land livestock grazing is its direction to the Secretary of the Interior in the preamble to the Taylor Grazing Act to "do any and all things necessary . . . to stabilize the livestock industry dependent upon the public range."[294] This objective was not codified, and it was accompanied by two other goals—to "stop injury to the public grazing lands by preventing overgrazing and soil deterioration [and] to provide for [the lands'] orderly use, improvement, and development."[295] The Tenth Circuit Court of Appeals concluded that this language leaves the Secretary of the Interior "free to consider" the minor contribution of BLM lands to livestock production when "balancing the need for industry stability against the *need to protect the federal lands from deterioration.*"[296]

FLPMA's more comprehensive provisions, which supplement the Taylor Act, leave no doubt that the Secretary is *not* free to elevate the economic interests of a few public land users (or even local communities) over long-term public interests in the lands.[297] Live-

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so-called pests. *See generally* WELFARE RANCHING, *supra* note 25, at 221-30, 257-50.

293. *See supra* notes 122-23 and accompanying text.

294. Taylor Grazing Act, 48 Stat. 1269 (1934). This language was not codified.

295. *Id.* Moreover, the codified Taylor Act described the "objects" of grazing districts as "to regulate their occupancy and use, to preserve the land and its resources from destruction or unnecessary injury, [and] to provide for the orderly use, improvement, and development of the range." 43 U.S.C. § 315a. *See also* DONAHUE, *supra* note 19, at 36-37, 195-96 (discussing significance of the industry stability objective).

296. Pub. Lands Council v. Babbitt, 154 F.3d 1160, 1172 (1998) (emphasis added), *aff'd in (relevant) part and rev'd in part*, 529 U.S. 728, 742 (2000) (observing that the "Secretary is free reasonably to determine just how, and the extent to which, 'grazing privileges' shall be safeguarded in light of the Act's basic purposes"). It can seriously be questioned whether there *is* now a livestock industry dependent upon the public range, as there arguably was in the early era of range livestock grazing. Certainly, the U.S. livestock industry as a whole depends but little on public-land forage. *See supra* notes 156-57 and accompanying text. And there is no separate "public-land livestock industry" for the simple reason that few if any animals are fed solely on federal lands. Federal forage provides an average of twelve percent of the total feed requirements of beef cattle produced in the eleven western states. *See* POWER, *supra* note 122, at 182-83 (reporting that the percent by state ranges from two in Washington to forty-three in Nevada, which is more than eighty percent federal land).

297. A federal district court's interpretation of a Forest Service regulation (for which the BLM has no analog) is instructive. The court in *Intermountain Forest Industry Association v. Lyng* construed 36 C.F.R. § 221.3(a)(3), which provides, "One purpose of timber planning is to facilitate the stabilization of communities and of opportunities for employment." 683 F. Supp. 1330, 1339 (D. Wyo. 1988). After noting that the regulation "contains an escape clause: timber management plans shall stabilize dependent communities and promote employment '*so far as feasible,*" the court continued:

> Recognizing that strong local economies are a desirable result of timber harvest planning, the lack of commercially profitable timber, limited funds, and protection of other forest resources may supersede local economic development. Indeed, the regulation requires coordination of timber production with other forest uses. [36 C.F.R.] § 221.3(a)(4). The regu-

stock grazing pursued on arid and semiarid lands is simply not sustainable. If it is pursued on the pretext of supporting local communities, the economic boost will be minimal and short-lived, and when the grazing lands are depleted so will be the capacity of local ecosystems to provide many other goods and services. The BLM's rangeland health regulations reflect this understanding:

> The objectives of these regulations are to promote healthy sustainable rangeland ecosystems; to accelerate restoration and improvement of public rangelands to properly functioning conditions; to promote the orderly use, improvement and development of the public lands; to establish efficient and effective administration of grazing of public rangelands; and to provide for the sustainability of the western livestock industry and communities that are dependent upon productive, healthy public rangelands. These objectives shall be realized in a manner that is consistent with land use plans, multiple use, sustained yield, environmental values, economic and other objectives [of the law].[298]

When the BLM chooses to allow grazing on lands unsuited to that use, it fails to provide either for sustained yield of rangeland resources—water, forage, fish and wildlife habitat, recreation, and natural scenic and scientific values—or for western "communities that are dependent upon productive, healthy public rangelands."[299]

Dr. Power has written extensively about the economic tradeoffs between commodity production and protection of natural landscapes. In the following pithy observation he captures the rationality of FLPMA's preferences for long-term over short-term interests, public over private benefits, and land uses that recognize the value of scarcity:

> Commodities are cheap and easily replaced, and additional increments produce little net economic value. Remnant natural landscapes are scarce, relatively unique, irreplaceable assets. In many cases, if we opt for extractive activity to keep the local econ-

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lation imposes no absolute requirement that the national forests be managed to promote local economies.

Id. Cf. supra notes 122-23 and accompanying text.

298. 43 C.F.R. § 4100.0-2 (2006).

299. *See id.*

> omy afloat, we will be sacrificing what is scarce and unique for what is common and cheap. [W]e as a people can no longer afford such irrational waste. Neither can the planet.[300]

B. FLPMA's "No Degradation" Requirement

Congress paired FLPMA's command to "manage the public lands under the principles of multiple use and sustained yield"[301] with another mandate, arguably the Act's most important provision: "In managing the public lands, the Secretary shall, by regulation or otherwise, take any action necessary to prevent unnecessary or undue degradation [UUD] of the lands."[302]

The only court that has parsed the UUD provision held that, plainly, "Congress intended to prevent 'unnecessary degradation' *as well as* 'undue degradation.'"[303] The court further interpreted the UUD provision (in the mining context) as vesting the Secretary "with the authority—and indeed the obligation—to disapprove of an otherwise permissible mining operation because the operation, though necessary for mining, would *unduly harm or degrade the public land*."[304] In contrast to holders of valid mining claims,[305] public-land grazing permittees possess no property right in public lands or in public-land resources. If a miner's vested property interest in public lands may be regulated to the point of prohibiting a "necessary" mining operation because it would "unduly harm" the

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300. *See* POWER, *supra* note 122, at 254.

301. FLPMA, 43 U.S.C. § 1732(a).

302. *Id.* § 1732(b). *See generally* Flynn, *supra* note 182 (discussing this provision of FLPMA and its interpretation in Mineral Policy Ctr. v. Norton, 292 F. Supp. 2d 30 (D.D.C. 2003)). Indeed, the Interior Secretary's authority to "preserve the land and its resources from destruction or *unnecessary injury*" caused by grazing dates to the 1934 Taylor Grazing Act. *See* 43 U.S.C. § 315a (emphasis added) (stating that the "objects" of grazing districts include "preserv[ing] the land and its resources from destruction or unnecessary injury"). The Taylor Act authorized the Secretary to establish grazing districts on lands which, in his opinion, were "chiefly valuable for grazing." *See* 43 U.S.C. § 315. The Act's legislative history is replete with evidence that Congress knew of the damage that inappropriate grazing had wrought, and that some western rangelands were simply unsuited to grazing. *See* DONAHUE, *supra* note 19, at 197-98.

303. Mineral Policy Ctr. v. Norton, 292 F. Supp. 2d 30, 42 (D.D.C. 2003) (rejecting a contrary interpretation by the Interior Solicitor) (emphasis added).

304. *Id.* (emphasis added). According to the BLM: "Land-disturbing activities must be conducted in a manner that *minimizes* ecosystem fragmentation and degradation . . . ." VEGETATION TREATMENTS PER, *supra* note 17, at ES-2 (emphasis added, no authority cited). I have argued that, under the UUD standard, resource conditions should "not be allowed to decline to a point that would interfere with the sustained yield of [any resource] or with realizing the land's values." DONAHUE, *supra* note 19, at 205; *see also id.* at 209-10 (discussing UUD standard as applied to livestock grazing).

305. *See* Flynn, *supra* note 182, at 829-32 (discussing mining claims and FLPMA).

land, exercise of the grazing "privilege"[306] certainly may be prohibited for the same reason. Livestock grazing that "unduly harm[s] or degrade[s] the public land" is not "permissible" under FLPMA.[307] Discontinuing livestock grazing will be a *sine qua non* in stopping the ongoing degradation of public lands by invasive weeds and fire; therefore, it is clearly within the "any necessary action" called for by section 302(b).[308]

Furthermore, FLPMA's command to *prevent* land degradation counsels a proactive, precautionary approach to management. Section 302(b) should be construed as requiring managers to consider whether land uses and activities are likely, in the aggregate, to cause UUD. In other words, in determining whether to allow and how to regulate any activity, including grazing, land managers should consider whether it, along with other ongoing and reasonably foreseeable uses, could result in UUD, not whether the activity, considered alone, would have such effect.[309] Applying available ecological knowledge, for instance, regarding livestock impacts and the operation of thresholds in arid and semiarid ecosystems, is essential to this analysis.[310]

C. PRIA and "The Goal" of Rangeland Management

In the PEIS and PER, the BLM cited only FLPMA for its reservations about discontinuing livestock grazing.[311] But the Public Rangeland Improvement Act also warrants mention here.[312] PRIA was enacted just two years after FLPMA and signaled Congress's

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306. *See* Pub. Lands Council v. Babbitt, 529 U.S. 728, 735-36, 740-44 (2000) (consistently using the term "grazing privileges" from the Taylor Grazing Act, 43 U.S.C. § 315b).

307. *Cf. Mineral Policy Ctr.*, 292 F. Supp. 2d at 42 (referring to an "*otherwise* permissible mining operation").

308. 43 U.S.C. § 1732(b) ("[T]ake any action necessary to prevent unnecessary or undue degradation.").

309. A familiar model for such an analysis is the environmental statement required by NEPA, 42 U.S.C. § 4332(C) (2000), and the CEQ guidelines. *See, e.g.*, 40 C.F.R. § 1502.16(a), (b) (2006) (requiring discussions of direct and indirect consequences and their significance), *id.* § 1508.8 (defining "effects" or "impacts" to include "reasonably foreseeable" and "cumulative" impacts), *id.* § 1508.7 (defining "cumulative impacts" as the "impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions" including impacts that "result from individually minor but collectively significant actions taking place over a period of time").

310. Again the CEQ rules could provide guidance for this analysis. *See* 40 C.F.R. § 1502.22 (regarding the significance of incomplete or unavailable information, particularly regarding impacts that could have "catastrophic consequences").

311. *See supra* notes 262-63, 266-68 and accompanying text.

312. PRIA, like FLPMA's grazing provisions, applies to the Forest Service. Other statutes also bear on both agencies' duties and discretion to regulate or discontinue livestock grazing, but they are beyond the scope of this Article. For a discussion of some of these statutes, see DONAHUE, *supra* note 19, at 222-28 (addressing NEPA, ESA, and CWA); *see also* Blumm, *supra* note 187.

deepening concern about the unsatisfactory and declining condition of the public rangelands.[313] The Act neither modified the BLM's land management responsibilities nor limited the agency's authority to take action to address "unsatisfactory" range conditions, including, if necessary, discontinuing livestock grazing.[314] The Act does, however, reflect a heightened awareness of ecosystem services and an appreciation of the tradeoffs in managing public rangelands.

PRIA makes it absolutely clear that less-than-potential production of ecosystem services, namely, "wildlife habitat, recreation, forage, and water and soil conservation benefits," is evidence of rangelands' "unsatisfactory condition."[315] The Act defines "range condition" in ecological terms, relating the "the quality of the land" to its "productivity," and in turn to

> soil quality, forage values (whether seasonal or year round), wildlife habitat, watershed and plant communities, the *present state of vegetation* of a range site *in relation to the potential plant community* for that site, and the relative degree to which the kinds, proportions, and amounts of vegetation in a plant community resemble that of the desired community for that site.[316]

PRIA does not refer explicitly to invasive species. Congress demonstrated its cognizance of the issue, however, in the quoted language's juxtaposition of "present . . . vegetation" with "potential plant community," and in the Act's correlation of "healthy and productive range condition" with "*native* vegetation."[317]

Congress was well informed of the risks of letting range conditions stagnate or worsen, as PRIA's opening paragraph reveals:

> [U]nsatisfactory conditions on public rangelands present a high risk of soil loss, desertification, and a

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313. Pub. L. No. 95-514, 43 U.S.C. §§ 1901-1908.

314. *See supra* notes 155 and 267, *infra* note 327 and accompanying text.

315. *See* 43 U.S.C. § 1901(a)(1) ("[V]ast segments of the public rangelands are producing *less than their potential* for livestock, wildlife habitat, recreation, forage, and water and soil conservation benefits, *and for that reason* are in an unsatisfactory condition.") (emphasis added)).

316. *See id.* § 1902(d) (emphasis added).

317. *See* 43 U.S.C. § 1902(d), (e) (emphasis added) (defining "native vegetation" as "those plant species, communities, or vegetative associations which are endemic to a given area and which would normally be identified with a healthy and productive range condition occurring as a result of the natural vegetative process of the area."). Surprisingly, the term "native vegetation" does not appear elsewhere in PRIA.

> resultant underproductivity for large acreages of the public lands; contribute significantly to unacceptable levels of siltation and salinity in major western watersheds including the Colorado River; negatively impact the quality and availability of scarce western water supplies; threaten important and frequently critical fish and wildlife habitat; prevent expansion of the forage resource and resulting benefits to livestock and wildlife production; increase surface runoff and flood danger; reduce the value of such lands for recreational and esthetic purposes; and may ultimately lead to unpredictable and undesirable long-term local and regional climatic and economic changes . . . .[318]

Section 4(b) of PRIA sets forth what Professor Coggins referred to as the "most important provision in all of the range management statutes": Congress's pronouncement that "*the goal* of [public rangeland] management shall be to improve the range conditions of the public rangeland so that they become as productive as feasible [for all rangeland values]."[319] This section is important for another reason. It controverts the BLM's assertions that FLPMA limits restrictions on livestock grazing and that a decision to discontinue grazing may be made only at the local level.[320] Because the text of section 4(b) is a bit muddy, and its messages of utmost importance, I quote it in full:

> Except where the land use planning process required pursuant to [FLPMA, 43 U.S.C. § 1712] determines otherwise *or the Secretary determines*, and sets forth his reasons for this determination, *that grazing uses should be discontinued (either temporarily or permanently)* on certain lands, *the goal* of such management shall be *to improve the range conditions* of the public rangelands so that they become as productive as feasible in accordance with the rangeland management objectives established through the land use planning process, and consistent with the values and objectives listed in sections 1901(a) and (b)(2) of this

318. 43 U.S.C. § 1901(a).

319. Coggins, *Public Rangeland Management IV*, *supra* note 188, at 115–16 (emphasis added).

320. *See supra* note 62; text accompanying note 63.

title.[321]

The "objectives" to which this section refers are to "manage, maintain and improve the condition of the public rangelands so that they become as productive as feasible for all rangeland values,"[322] namely, "livestock, wildlife habitat, recreation, forage, and water and soil conservation benefits."[323]

By indicating that it might be necessary or desirable to "discontinue[ ]" grazing, "either temporarily *or permanently*," Congress acknowledged the major ecological role of livestock, and it effectively prioritized rangeland values, subordinating "livestock" to others, specifically, "wildlife habitat, recreation, forage, and water and soil conservation benefits." Section 4(b) recognizes not only that discontinuing grazing temporarily may be necessary to improve range condition and productivity, but that ending grazing permanently may be advisable. The latter authority is consistent with Congress's understanding that some lands are simply incapable of livestock production.[324] For these lands, being "as productive as feasible" does *not* include supporting livestock. To put it another way, some lands will *become* "as productive as feasible" *only if* livestock grazing ends.[325]

The second important message of section 4(b) is that authority exists to discontinue grazing, whether temporarily or permanently. The authority resides in the Secretary of the Interior, whether exercised by the BLM field manager via FLPMA's planning process,[326] or by the Secretary directly, acting outside the planning process.[327] The only prerequisite for the latter is that the Secre-

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321. 43 U.S.C. § 1903(b) (emphasis added).

322. *Id.* § 1901(b)(2).

323. *Id.* § 1901(a)(1).

324. Congress understood this in 1934 when it authorized the Interior Secretary to establish grazing districts and to regulate grazing on the public domain. *See* DONAHUE, *supra* note 19, at 198.

325. Significantly, nothing in PRIA suggests a need to discontinue *any other* land use in order to pursue the productivity objective.

326. *See* 43 U.S.C. § 1712(a) ("The Secretary shall . . . develop, maintain, and, when appropriate, revise land use plans which provide by tracts or areas for the use of the public lands . . . ."). This authority has been delegated to BLM officials. *See* 43 C.F.R. § 1601.0-4 (2006) (specifying planning duties at the national, state, and field levels). BLM field managers are responsible for preparing and amending, and state directors for approving, land use plans. *Id.* § (c).

327. This is not new authority. PRIA states that its "policies" are to be "construed as supplemental to and not in derogation of the purposes for which public rangelands are administered under other provisions of law." 43 U.S.C. § 1901(c). The same paragraph indicates that PRIA's "policies . . . shall become effective only as specific statutory authority for their implementation is enacted." *Id.* The authority to cancel grazing permits or to eliminate grazing had already been conferred by Congress in FLPMA. *See* 43 U.S.C. §§ 1712(e)(2), 1752(g).

tary "set[] forth his reasons."[328] It is this authority upon which the future of the Great Basin likely rests.

Plainly, the BLM cannot rationalize the continued degradation of public rangelands on the specious ground that grazing is "*allowed under FLPMA.*"[329] PRIA reinforces the conclusions reached based on FLPMA: Congress intends public lands to provide a broad array of goods and services and to do so sustainably into the future. Agency decisions about land use should favor values whose supply is limited, which cannot (readily) be provided or realized elsewhere or by other means, *and* which will serve long-term, public interests. The BLM has the power to discontinue or eliminate livestock grazing and, in fact, has a *responsibility* to do so where necessary to prevent "unnecessary or undue degradation of the lands" and to achieve the goal of improving range condition.[330]

IV. CONCLUSION

Reading about the western weed problem, one cannot escape the sense of urgency. Dire warnings pervade the scientific literature, popular press, government publications, and congressional hearings.[331] A botanist, among the most knowledgeable on the

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328. 43 U.S.C. § 1903(b). When canceling grazing permits "to devote the lands . . . to another public purpose," the Secretary (or his delegee) also must give two years notice or declare an emergency, and permittees would be entitled to "reasonable compensation for the adjusted value . . . of [their] interest in authorized permanent improvements" on the allotment. *See* 43 U.S.C. § 1752(g). A BLM regulation provides:

> When the authorized officer determines that the soil, vegetation, or other resources on the public lands require immediate protection because of conditions such as drought, fire, flood, insect infestation, or when continued grazing use poses an imminent likelihood of significant resource damage, after consultation with, or a reasonable attempt to consult with, affected permittees or lessees, the interested public, and the State having lands or responsible for managing resources within the area, the authorized officer shall close allotments or portions of allotments to grazing by any kind of livestock or modify authorized grazing use . . . .

43 C.F.R. § 4110.3-3(b). The rule provides that the closure shall remain in effect during any appeal. *Id.* Ample evidence should be available in any case to withstand a challenge, brought under the Administrative Procedure Act, that permit cancellation was "arbitrary, capricious, [or] an abuse of discretion." 5 U.S.C. § 706(2)(A) (2000).

329. *See supra* note 62 and accompanying text (emphasis added).

330. 43 U.S.C. § 1732(b).

331. A science advisor to then-Secretary of the Interior Gale Norton described the weeds problem as having "a long fuse and a big boom. In some cases, [as with cheatgrass], we are approaching the boom. The fuse is getting very short . . . ." H.R. 1462, TO CONTROL OR ERADICATE HARMFUL NON-NATIVE WEEDS ON PUBLIC AND PRIVATE LAND, HEARING BEFORE THE H. SUBCOMM. ON NATIONAL PARKS, RECREATION, AND PUBLIC LANDS, 107th Cong. 25 (2001) (statement of Dr. James Tate, Jr.). *See also* HEALING THE LAND, *supra* note 1, at Letter to Reader ("75 million acres of public land in the Great Basin are at stake and the

western weeds problem, admitted that he was "scared to death."[332] "I think that we have weeds on the scene now that we aren't going to be able to contain," Dr. Stephen Monsen warned. "I think we have a window of time right now. We may be able to prevent these weeds that are displacing cheatgass."[333] That was six years ago.

Monsen recommended taking weedy lands out of livestock production and either "aggressively" replanting and restoring native vegetation or allowing natural recovery, depending on range condition.[334] The latter, he advised, is "'the best way to allow [the lands] to heal, and it's the cheapest thing for us to do.'"[335] His proposed treatment addresses the causes of the disease whereas the BLM treats only the symptoms and only on some lands.[336] Faced with a metastasizing cancer, the BLM rejects the best and cheapest antidote and falls back on palliatives that are expensive and environmentally risky but politically expedient.[337]

The law requires that public land goods and services be produced sustainably, in perpetuity, and in the combination that will best meet the needs of the American people.[338] Weeds are capable of transforming entire ecosystems, shutting off or reducing to a trickle future streams of ecosystem goods and services. Management that promotes weeds contravenes the law.

The BLM knows—all informed persons know—that livestock is a major cause of the weed problem. We know that rangelands are deteriorating as grazing continues. We also know that removing livestock would not cause range conditions to worsen.[339] Granted, uncertainties remain—about thresholds, which lands have potential for natural recovery, how long recovery will take, etc. Never-

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clock is ticking. The time for us to move forward is now."); *see also supra* note 21 and accompanying text.

332. *See* Jones, *supra* note 107 (describing the views and concerns of now-retired Forest Service botanist and range restoration expert Stephen Monsen).

333. *Id.* In the same year the BLM exhorted: "Restoration work must begin now . . . ." HEALING THE LAND, *supra* note 1, at 36.

334. *See* Jones, *supra* note 107. Monsen also recommended compensating ranchers. *Id.*

335. *Id.* (quoting Monsen). Elsewhere, Monsen has written about the potential for "natural recovery" on lands where some native plant species persist, at least where livestock are removed. *See supra* note 77 and accompanying text.

336. *See generally supra* notes 43-45, 88 and accompanying text.

337. One million cattle per month (or the equivalent) overrun the public lands, carrying billions of weed seeds on their coats and in their digestive tracts. *See* VEGETATION TREATMENTS PEIS, *supra* note 11, at 3-42, 3-62 (reporting fiscal year 2004 livestock use of BLM lands as 12.7 million animal unit months (AUMs)). But instead of recommending reductions in livestock use, the BLM, astonishingly, suggests that public land visitors groom their "*pets* . . . to remove weed seeds prior to entering public lands"! *See* VEGETATION TREATMENTS PER, *supra* note 17, at 2-16 (emphasis added).

338. *See generally supra* Part III.

339. The only suggestion to this effect that I have encountered is the argument that *not* grazing will increase annual weed fuel loads. *See supra* note 102 (emphasis added).

theless, every day brings better scientific understanding of the long-term, potentially irreversible impacts of weeds and livestock on arid and semiarid lands and more evidence that removing livestock is an essential part of the cure on these lands. According to Monsen: "'We know what we should be doing, but we don't have the wherewithall [sic] to do it.'"[340] Unless that changes very soon, cheatgrass (and its virulent cousins) *will* win the West.[341]

340. Jones, *supra* note 107 (quoting Monsen, who was referring to an inadequate native seed supply and "land managers who don't accept the transition" of de-stocking and using native plants, rather than introduced forage grasses, for range rehabilitation).

341. Recall that Pellant called cheatgrass *The Invader that Won the West. See* Pellant, *Invader*, *supra* note 93. *Cf.* Quammen, *supra* note 30, at 65 ("Nature won't come to an end, but it will look very different.").