

Livestock Grazing: Replies to Brown and McDonald

Imagine for a moment that a strange new beast, say a bacterium, was introduced into western North America and rapidly came to inhabit three-quarters of the region. The wily bacterium displaced native species, altered the structure of ecological communities, disrupted nutrient cycles, and affected the course of water flow; in short, it caused enormous upheaval of the native biodiversity. Without question, the conservation biology community would be up in arms, united against this ecological threat that endangers all we hold dear. Let us also imagine that a few people in the region were raising these bacteria on public lands and insisted upon their right to do so. Especially vocal supporters declared that "Bacteria farmers *must* be allowed to continue their lifestyle."

Now, if just for a moment you grant that domestic livestock have had and continue to have an impact analogous to that of our fictitious bacterium, you might think that conservation biologists would be concerned. You might even expect conservation biologists to protest—loudly and decisively—that our culture has a responsibility to biodiversity, not just to particular human lifestyles.

As a recent spate of letters in *Conservation Biology* demonstrates, conservation biologists are decidedly not united on such an issue when biology intersects with fondness for cultural icons like cowboys. Discord among conservation biologists in such a scenario has two possible causes: (1) scientific disagreement over the facts—in this case, is livestock really causing negative ecological effects? and (2) agreement that livestock damage exists but emotional differences of opinion on how we should respond to it. Brown and McDonald's (1995) critique of my review (Fleischner 1994) demonstrates how deeply emotional

is the issue of livestock grazing in western North America. They bundle together a critique of my methods and a subjective sympathy for rural lifestyles; the latter I share but consider ultimately irrelevant in answering scientific questions about grazing ecology.

My article concluded that whether or not livestock grazing has a sustainable future in the American West "ultimately is a question of human values, not science." Do we or do we not want grazing to continue, even if at the expense of native biodiversity and important ecological processes? Brown and McDonald walk both sides of the fence: they want grazing to continue (clearly stated), and they don't think it diminishes biodiversity (implied, but not clearly stated).

I provided abundant evidence—largely culled from researchers sympathetic to grazing—that livestock grazing entails serious ecological costs. I did not say that all grazing is terrible, that ranchers are bad people, or that all grazing must be eliminated—Brown and McDonald inaccurately portrayed my words. I did, I hope, make clear that livestock cause numerous effects of precisely the sort that conservation biologists profess to be deeply concerned about.

Brown and McDonald offer several lists: "concerns" with my article, "facts," and "opinions," the latter two being liberally mixed. Brown and McDonald offer scant support for their assertion that my work overestimates the negative impact of livestock. They complain that a few cited works suffer from poor experimental design. Even if this were true, what about the other 160-plus references? Furthermore, enclosure studies, even though they're the best tool we have, probably *underestimate* grazing impact because they cannot judge the original, most severe impact.

Brown and McDonald's concern that I neglected to describe the

ecological effects of removing native herbivores seems extraneous at best. I agree that removal of rabbits, prairie dogs, and probably any other herbivore has ecological consequences. Similarly, adding a large herbivore changes ecosystems. The studies they cite could, in many cases, be interpreted as support for my point: Because livestock alter species composition (Brown and McDonald agree), native herbivores can be excluded (prairie dogs are an excellent example), with the effects that Brown and McDonald point out. Their statement that I "repeat the fiction" that pre-Columbian America represented "a natural and inherently desirable state" is irresponsible; I do not believe this and never wrote any such thing.

Brown and McDonald's critique is somewhat confusing because even as they toss out a smokescreen of irrelevant false dichotomies and busily nitpick at details, they agree with my major point that livestock are one of "the most important ecological conditions" (their words). Brown and McDonald bundle facts with opinions: statements such as "should be possible" are included as facts. This reflects a bias toward utilitarian land users and contradicts their claim of scientific objectivity; this is particularly ironic in light of the discomfort of Brown and McDonald with what they call advocacy (in only some cases accurately). Statements such as "livestock ranching *must* be both ecologically sustainable and economically viable" [emphasis added] indicate wishful thinking and do not deserve the mantle of "scientific objectivity and rigor."

Brown and McDonald's comments on the coevolution of grasslands and large herbivores are largely immaterial for two reasons. First, the majority of land used by livestock in the 11 Western states is not grassland. Second, natural selection works at the population level; ecological communities do not evolve as intact

units. We simply do not know enough to invoke these sorts of evolutionary arguments and they should not be used to support or refute livestock grazing.

I still believe what I wrote before: Livestock impose serious costs on ecosystems of western North America, and society must grapple to make value judgments about the ecological and social consequences of our choices. This work requires good science and great humility. Let's keep talking. (I encourage conservation biologists to become familiar with the position statement of the Society for Conservation Biology on livestock grazing on public lands in the United States of America, published in the SCB Newsletter **1(4)**:2-3. I would be happy to provide copies.)

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Literature Cited

- Brown, J. H. & McDonald, W. 1995. Livestock grazing and conservation on southwestern rangelands. *Conservation Biology* 9:1644-1647.
- Fleischner, T. 1994. Ecological costs of livestock grazing in western North America *Conservation Biology* 8:629-644.