



THE DONUT DIET

The Too-Good-to-Be-True Claims of Holistic Management

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One component of holistic management is a grazing system based on the theory that western arid lands require periodic heavy disturbance for ecological health. Stocking the land with larger cattle herds but with more frequent moves is a key component of this system. Ranchers and some government agencies have found holistic management ideas appealing, but the benefits promised often have not materialized in practice, particularly with regard to improvements in land condition.

No treatise on western ranching and its effects on the environment would be complete without a discussion of holistic management. Holistic management (HM) is billed as a plan that will “improve the quality of life . . . while restoring the environment that sustains us all.”¹ Although there is nothing in this statement about livestock production, the best-known application of HM occurs in livestock husbandry. HM doctrine defines the major problem facing rangelands as “overrest,” not overgrazing. HM founder Allan Savory maintains that “rest is probably the most destructive tool known to science.”² More cows, not less, say HM supporters, is the solution to a host of rangeland problems. It’s not surprising that this strikes a responsive chord in most ranchers.

Most HM doctrine has nothing to do explicitly with livestock production but instead focuses on goal setting and operating a business in accordance with widely accepted practices. The major area of contention and the focus of the remainder of this critique revolves around HM’s assertions that livestock are necessary to maintain healthy ecosystems and can restore biologically impoverished western ecosystems.³

Although HM advocates would claim otherwise, their solution to nearly every woe on western rangelands requires the use of livestock management to correct the perceived problem. They believe that without livestock (managed according to HM prescriptions, of course), rangelands would suffer desertification, declining productivity, and diminished biodiversity.⁴ Managed properly under

Ranch hand points to two sides of a fence. The area on the left is the Appleton-Whittell Research Ranch in Arizona, owned by the Audubon Society. It has not been grazed in over three decades. The ranchland on the right employs holistic management techniques. Many holistic management proponents point derisively at the Audubon land as an example of the disaster that befalls an area when cows are removed. Holistic management originator Allan Savory has said that the grasses on the Appleton-Whittell Ranch are “moribund,” with “bare spots opening up.” However, scientists conducting research on the Audubon land found that species richness increased from 22 species in 1969, one year after livestock grazing ceased, to 49 species in 1984. Plant cover increased from 29 percent in 1968 to 85 percent in 1984. In another study on the Appleton-Whittell Research Ranch, total grass cover was significantly higher on ungrazed than grazed sites.

HM guidelines, proponents assert, livestock can be used to reduce weeds and soil erosion, increase productivity of rangelands, improve water quality and wildlife habitat, increase biodiversity and water infiltration, and restore riparian areas, all while simultaneously enriching the rancher’s bottom line.⁵

If you think this sounds a bit like the magic elixir that snake oil salesmen once purveyed, you’re not the only one. Many activists and scientists question HM’s basic ecological assumptions.⁶

Many HM supporters assiduously deny they like livestock or even support the livestock industry; rather, they assert that they are only interested in ecosystem health.⁷ (Taking a cue from HM, most timber companies today advocate more logging, not to further their profits but out of their heartfelt concern for healthy forest ecosystems.) The need to restore and repair degraded landscapes through controlled livestock grazing, is, of course, a very happy coincidence for the livestock industry.

Some aspects of HM livestock management techniques are not in and of themselves flawed, and indeed have an ecological basis that is fundamentally sound—assuming that you want to graze livestock at all. HM doctrine requires confining large numbers of animals (that is, livestock) into relatively small areas, under tightly controlled conditions. Although the stocking rate is high, the duration of grazing in any one pasture is short. Ranchers monitor plant utilization and, at the time deemed proper, move their cattle to the next grazing site, allowing ample time for plant recovery.⁸ If followed meticulously—and that is the big *if*—such a grazing scheme has some merit from a livestock management perspective.

It is when HM doctrine strays beyond basic livestock husbandry and gets into ecological theory that it begins to elicit the ire of critics. For instance, HM proponents flatly declare that rest from livestock grazing is destructive; they claim that arid lands need more livestock grazing, not less.⁹ Related to these beliefs is the notion that livestock grazing promotes higher productivity of plant communities. In addition, HM advocates like to say that “hoof action” of livestock is necessary to incorporate organic matter into the soil, to push seeds into the

ground for germination, and to improve water infiltration into the soil.¹⁰ All of these assumptions will be challenged below.

Before taking up each of these claims in turn, it is important to discuss a key operating principle of HM, something that allows HM proponents readily to adopt a livestock management strategy that on the face of it, seems too good to be true. We might call this principle the “Donut Diet” phenomenon. That is, the Donut Diet, or HM, as the case may be, offers a counterintuitive, even shocking, but ultimately tantalizing solution to a perennial problem. The conventional wisdom about how to solve the problem is not very appealing—for example, you’re overweight, so eat fewer calories; your range productivity is diminished, so reduce the number of cattle on the range. Then some person or concept comes along that offers a way to solve the problem without requiring any sacrifice. In fact, you can have what you want—only more of it! Some people immediately scoff and will hear no more about this “revolutionary” approach. Others, however, are intrigued. Eat nothing but donuts, and lose weight! Put more cows on the range, and get more forage! Heck, why not?

The devil is in the details, of course, which is where HM and a “Donut Diet” start to break down. To implement HM properly, one must monitor range condition very closely. This requires a great deal of self-discipline, is labor intensive, and is often expensive. Success, of a kind, is possible in theory but often is very difficult to realize in practice. The same principles hold for a diet that would allow one to dine on donuts and other junk food; one *can* lose weight, but only with greatly restricted caloric intake.

Sustaining programs such as these is extremely taxing, and the temptation to slack off or cut corners is extremely high. Nonetheless, many people keep on trying, despite their own setbacks and despite outside evidence that what they are doing will not work. They want the program to succeed very badly. They do not blame the method, but their own failings. As an HM practitioner is quoted as saying, “After 13 years I can say it is still the hardest thing I have ever tried to do. The lack of success we have had in some areas has not been because holistic management doesn’t work; it is because we haven’t practiced it properly.”¹¹

Yet there *are* ranchers who testify that they have measured improvement in range condition and/or livestock production under HM, just as some people may indeed lose weight eating nothing but donuts. How can this be? One answer is fortuitous timing. In some instances, the positive results observed by ranchers occurred during periods of above-average precipitation, when grass production was naturally higher.¹² However, the main reason that some livestock operators see a change for the better after switching to HM is that they begin to pay close attention to something—livestock husbandry—to which they formerly gave little thought.

Under traditional grazing schemes, most ranchers dump their cattle out on rangelands to fend for themselves. Both the cattle and the rangelands are left unmonitored for weeks or even months at a time. HM, on the other hand, requires intense and frequent monitoring, and regardless of its other aspects, this is a good thing. (It is worth noting that researchers comparing HM techniques with other grazing strategies have found no inherent superiority to HM techniques. Indeed in some cases, greater improvement in range condition, at lower cost, is realized under other traditional grazing schemes, if live-

stock operators give the same strict attention to stocking rate and monitoring range condition.¹³) Ranchers, with greater awareness, can become more responsive to the condition of the land as well as that of their animals. Intensive grazing can also force livestock to use more efficiently the forage in an area. It is not so different from any weight loss diet that gets the dieter to become more conscious of the act of eating and the food’s caloric value. No matter what’s on the menu, if one carefully observes what is being eaten, chances are that sensations of satiety will be felt sooner, and, correspondingly, fewer calories will be consumed. It’s not the donuts that help one lose weight but the discipline and restrictions of the diet.

Just as nutritionists would argue with anyone who asserted that donuts were necessary for a healthy diet just because someone managed to lose some weight consuming them, ecologists and livestock activists object to HM’s assertions that livestock grazing is necessary for arid land health.¹⁴ Numerous studies of both livestock-grazed and livestock-free lands provide scientific evidence supporting opposition to HM.

One major assumption of HM is that plants *need* to be cropped. This assumption is based on the observation that plants regrow new leaf material to replace that removed by herbivores. Yet plant responses to the loss of aboveground biomass can more properly be considered a coping mechanism to plant material losses, rather than a positive response to a beneficial event.¹⁵ This is not unlike the documented ability of coyotes to breed at a younger age and produce more pups in the face of predator control. One would be remiss to conclude that coyote populations’ tolerance of exploitation translates into coyotes’ “need” to be shot, poisoned, and trapped for health.

Areas protected from livestock grazing offer the most telling evidence that munching cattle are not a prerequisite to ecosystem health. Forest Service researchers recently published a study of Dutchwoman Butte in Arizona. This isolated mesa top had never been grazed by livestock yet was “striking in the diversity, density, and vigor of the grasses” and remarkably free of plants such as curly mesquite and snakeweed, which are undesirable forage plants and quite common on sites grazed by livestock. The amount of forage on the butte was four times that found in similar livestock-grazed areas despite the occurrence of a severe drought at the time of the study.¹⁶ There are other livestock-free places throughout the West—though rare due to the ubiquity of livestock—that further make the case that plant communities thrive in the absence of grazing domestic animals.¹⁷

Another basic ecological problem with the HM livestock bias is that it ignores the evolutionary history of entire biotic regions. Although some parts of the Great Plains were grazed by mobile herds of large herbivores, most plants west of the Continental Divide evolved in the absence of large herding animals such as bison—the native species that HM advocates suggest their cows mimic. Except for small areas along the western fringe of their natural range, bison were not found during historic times in the Southwest, the Great Basin, California, the Pacific Northwest, or in the higher subalpine and alpine mountains of the Rockies. Plants across this vast region lack mechanisms to cope with significant grazing pressure from large herbivores.¹⁸ Yet HM proponents argue that these very dry regions would benefit the most from livestock grazing and trampling effects, even though there was no native analogue to domestic cattle.¹⁹ Some also question the claim that trampling can increase herbage production.²⁰

“Overrest” is another term HM proponents use frequently to describe areas not sufficiently grazed by livestock.²¹ They warn that with too little grazing, or too much rest, plants become “overmature” and “decadent,” and areas of bare, eroding soil increase in size over time.²² These words may be familiar to conservationists since they reflect the same attitude that foresters have held toward old-growth forests. Today, we appreciate that so-called “overmature” and “decadent” trees are essential to the ecological health of forests.

It’s worth noting that almost no plant communities are really “overrested,” since all rangelands are grazed whether a cow steps foot on them or not. A host of native herbivores, from grasshoppers to jackrabbits to elk, consume plants even in the most isolated meadows and mesas. Even the focus on large mammals may be misguided. In livestock-free Yellowstone National Park, researchers have found that grasshopper biomass on the northern range exceeds that of all ungulates combined (bison, elk, pronghorn, moose, deer, and bighorn sheep) by three times and that grasshoppers are a major consumer of above-ground biomass.²³ Thus, what HM advocates really mean when they talk about “overrest” is not whether an area is grazed, but whether it’s grazed by livestock.

HM advocates assert that livestock grazing increases plant productivity, often using “forage production” as a gauge of ecosystem status when it is really a reflection of the economic concern ranchers have for quantity of livestock forage. Scientists readily acknowledge that many plants compensate for injuries by producing new growth. This regrowth is often higher in nitrogen and other nutrients, and hence more palatable to herbivores. But regrowth of a plant is not evidence that the plant has benefited from being eaten. Indeed, grazing has a cost to plants. After losing its leaves to an herbivore, a plant must redirect energy from seed or root production toward production of above-ground photosynthetic material. In other words, those who claim that grazing “increases” forage production are correct in a limited sense, but such increased production interferes with other plant functions, such as root development, making plants far more vulnerable to drought and other stresses.²⁴

Research has shown that grazing cannot increase overall plant biomass production, except under growth chamber or cultivated conditions.²⁵ Furthermore, regrowth is dependent on moisture, and in many parts of the West, if grasses are intensively grazed, they may not have access to sufficient moisture to regrow in the same season, or even in subsequent seasons.²⁶ Yet even using forage productivity as a measure, HM techniques are not inherently superior and often fail to produce as much forage per acre as other grazing techniques.²⁷

HM advocates claim that the hooves of livestock are necessary to integrate organic matter into the soil and improve soil fertility. Yet research has shown that soil fertility is not the limiting factor in most western ecosystems—water is. And with regard to soil fertility, livestock actually interfere with nutrient cycling. Since livestock tend to reduce soil moisture—by removing shading vegetation and by compacting soil so water cannot penetrate as deeply—they limit microbial decomposition, which is moisture-dependent.²⁸ One study in Alberta found that short-duration grazing reduced soil organic matter and nitrogen when compared with ungrazed controls. Trampling by hooves played a limited role in this decomposition.²⁹ In fact, in a review of the literature, one range scientist stated, “In our search of the literature we could find no studies that substantiate Savory’s claims on the benefits of hoof action on range soils.”³⁰

HM doctrine claims that hoof action will enhance water infiltration through trampling of the ground. This, according to HM proponents, breaks up the soil surface so that runoff is slowed and the rain is better able to soak into the ground. But research has shown that cattle hoof action actually impairs soil health in two ways. First, it compacts the soil’s upper layers, which reduces water infiltration and increases runoff.³¹ At the same time, the destruction of the living soil crusts, known variously as biological crusts, cryptogamic crusts, and so forth, further accelerates erosion by making the surface soil more easily washed away.³² The loss of cryptogamic crusts is also considered one of the factors that favor the spread of weeds such as cheatgrass.³³

Finally, the way that HM measures and defines success needs to be examined closely. For instance, HM purports to improve biodiversity.³⁴ Typically HM supporters consider any increase in species numbers an improvement in biodiversity. But conservation biologists use very different and more complex measures of biodiversity and improvement in biodiversity. To conservation biologists, biodiversity is not just about having a lot of different species on any particular site or even an increase in a few key species; rather the goal is to preserve or restore native species to something approaching their historic distribution and numbers as well as to preserve the important ecological processes that direct species’ evolution.³⁵ Under such a definition, an increase in the number of species may actually signal a departure from the goal of biodiversity preservation, if many of those species are exotic or were historically rare or absent.

Livestock production is destructive to biodiversity. The resource pie is only so big. The majority of the West’s water, forage, and space cannot be going toward domestic livestock production and *not* significantly reduce the biological potential of native species, from grasshoppers to trout to elk. HM, by its single-minded reliance on, and advocacy of, livestock as the cure for just about every woe on western rangelands, contributes to the destruction—not the enhancement—of biodiversity and wildlands ecosystems.

HRM [holistic resource management, now shortened to holistic management] promotes the dangerous philosophy that humans are capable of, and should be, managing a planet. It does not recognize the integrity of the natural environment, its right to free existence, or humans’ place in it.

—Lynn Jacobs, *Waste of the West*, 1991