In Praise, and in Appraisal of, the Working Landscapes of the West

By Gary Paul Nabhan, with Ken Meter[1]

The simplest fact about Western ranches tends to be the one which most folks tend to forget: *raising range-fed livestock is one of the few economic activities that produces food -- and potentially ecosystem health and financial wealth-- by keeping landscapes relatively wild, diverse and resilient.*[2]

Only a small percentage of the foods eaten by humankind come from wildlands. Yes, livestock are given supplemental feed during drought, pregnancy, or just before slaughter, but the bulk of the calories they convert into meat come from wild, solar-powered native grasses, forbs and shrubs.

It was once possible to claim that fish and shellfish also came to us primarily from wild aquatic ecosystems, but that day has nearly passed. The bulk of the shrimp, salmon, catfish and trout we eat now come from farms of another sort.[3] In short, eating grass-fed and -finished beef, mutton and *cabrito* raised by local ranchers may be some of the surest means for keeping large wild landscapes intact and our rural cultures *in place*.

When we ponder the term *working landscapes*, we do not merely imagine lands where cowboys still find work driving and branding stock, mending fences, or breaking horses. Let us more fully imagine a land in which all the human residents are part of the cascade of solar energy through gramagrass and winterfat, through saltbush, buckbrush or greasewood, up through the mouths and guts of bull, ram, buck, cow or ewe, and on into human mouths, bellies, muscles and bones. In other words, rather than being nourished by something distant from us and from where we live, in working landscapes, if we commit ourselves to eating their bounty, we derive a good portion of our nourishment from the very ground on which we stand. We do not stand apart from the energy and water flows of our home ground. Instead, they work *through us*, and we work *because of them*. The land is not mere scenery suitable only for tourism and leisure. It is a functioning community in which we either live well or poorly, depending on how efficiently and conservatively we participate in the land's work. As Thoreau once said it so succinctly, perhaps we are here to "meet the expectations of the land" and not the other way around.[4]

Of course, it goes without saying that this vision of America's value as a working, food-producing landscape is one that is increasingly at odds with the vision (if there is one) of the dominant urban majority. For the first time in history, our continent's human population gains more of its sustenance from food produced in foreign lands than it does from its own.[5] In 1970, 4.1 percent of the vegetables eaten by Americans came from imported sources, but by the end of 2005, 14 percent of our vegetables came from other countries.[6] In 1970, 21 percent of the fruits eaten by Americans were grown in distant lands, but as 2005 came to an end, 40 percent of our fruits were imported.[7] The most fertile, productive continent on the face of the earth no longer grows most of the grain, beverages, fish or game consumed by its citizenry.

It does, however, continue to produce most of its own beef, between western wildlands, urban and rural feedlots, and Midwestern pastures. And yet, it can be easily argued that the West does not fully gain the nutritional and economic value of the meat produced from its own wildlands. A new case study from northern Arizona farms and ranches can painfully bring this point home.

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[2] G.P. Nabhan (2005), p. 21, in *Diablo Canyon Rural Planning Area: Evolving Traditions in a New Economy* (Coconino County Community Development Department, Flagstaff, AZ.)

[3] J. Clay (2004) *World Agriculture and the Environment* (Island Press, Washington D.C.).

[4] W. Jackson, B. Colman and W. Berry (1984) *Meeting the Expectations of the Land* (North Point Press, San Francisco CA)

[5] R. Pirog (2006) Leopold Center for Sustainable Agriculture, Iowa State University, Ames IA, pers. comm. See also K. Meter (2006). "U.S. about to become net food importer", posted on Grist Environmental News Service on February 9. See www.grist.org and www.crcworks.org/foodimports.pdf. Data drawn from www.ers.usda.gov/Data/FATUS. See also Janet Adamy, (2005). "Agriculture: What's for Dinner? Imports." *Wall Street Journal*, January 31, R6.

[6] R. Pirog (2006), ibid.

[7] R. Pirog (2006), ibid.

One of us --- Ken Meter of the Crossroads Resource Center --- has been looking at just how much food --- especially meat --- is produced in the northern Arizona counties of Coconino, Navajo and Yavapai relative to what is eaten there.[8]

In Coconino County, which surrounds Flagstaff and Hopi lands, 93 per cent of its $11.1 million crop and livestock sales in 2002 were livestock and its bi-products, but in that year only 0.5 per cent of food products were sold by ranchers and farmers directly to local consumers. Compared to the $10.3 million of livestock sales produced in Coconino County, the county's consumers purchase $37 million of meat, poultry, fish and eggs, so that local consumers could absorb virtually all the meat produced in the county if it were more directly available to them.

But as Ken has learned from comparing the county's production data compiled by the Bureau of Economic Analysis with food consumption data produced by the Bureau of Labor Statistics, *Coconino County lands are now more valuable to outsiders than to local residents.* The way the food economy is presently structured, Coconino County ranchers and farmers currently lose $10 million each year by selling the bulk of the food they produce into the national (or globalized) commodity marketplace. Further they spend another $6 million per year (as in 2002) buying outside inputs to raise some 33,000 cattle, and to harvest some 1,033 acres of crops, as well as other products. At the same time, Coconino County consumers buy only $53,000 of food products directly from their farming neighbors. As county ranchers and farmers struggle with losses, county consumers spend $21 million per year buying food from the outside. As Ken has summarized, this is a total loss to the region of $231 million of potential wealth *each year*. This loss amounts to 14 times the value of all food commodities raised in the county.

These results are typical of the three counties that make up Northern Arizona. Let us look at the combined picture for Navajo, Coconino and Yavapai counties. Together, only $343,000 of the food products in these three counties is sold directly to the region's consumers, while $635 million of food is annually bought from outside sources. Roughly $700 million of potential wealth that could be captured by the ranchers and farmers of Coconino, Yavapai and Navajo counties now drains away to other regions, impoverishing our own.[9] One goal for these counties should be to replace imported inputs and food products with homegrown equivalents.[10]

The good news, as we make this shift, is that by creating a vibrant local economy we create new livelihoods for local residents, who will build new social bonds and new wealth from the land by raising, processing, and trading food. But let us turn from a way of valuing our land that shows the potential income-generating value as well as current losses in not having a fully health local food system, to one that values the intrinsic ecosystem services for their potentially valued gains. Of course, there are ways to value the working landscapes of the West other than by measuring how much nutritious food they can potentially produce to generate wealth for our rural communities.

One increasingly popular means of valuing working landscapes is by performing an inventory of the ecological services they provide to humankind, directly or indirectly, that benefit our health and well-being --- while minimizing the risks of environmental hazards, catastrophes and contamination.[11]

If we had to choose just one of nature's services to value that is provided by working landscapes in Coconino, Navajo and Yavapai counties, we would select the ecosystem value of regenerating clean water for users in the Colorado River/Gulf of California watershed. These three counties high in the headwaters of Colorado River tributaries have over 10 million acres of soil and natural vegetation that rain and snow fall upon, filter through, and move across. Although the rainfall in this region may vary from four inches to forty inches annually, depending on elevation and other factors, let us assume for a moment that the average acre receives ten inches of precipitation, six of which is either immediately "shed" or infiltrates through shallow channels, later to be discharged into the region's streams. In essence, let us assume that each of those ten

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[8] Northern Arizona county summaries are posted at www.crcworks.org/locales.html. For methodology, see K. Meter (2001) *Finding Food in Farm Country* (Crossroads Resource Center, Minneapolis, MN; www.crcworks.org/ff.pdf; and www.crcworks.org/rural.html

[9] Data from three county summaries cited above. See also G.P. Nabhan (2006) *Import Replacement to Benefit Northern Arizona's Food Security: A White Paper* (NAU Center for Sustainable Environments, Flagstaff AZ).

[10] G.P. Nabhan (2006) How much difference does purchasing locally-produced foods make in your community? *Canyon Country Fresh News,* July. www.ewnvironment.nau.edu

[11] Gretchen Daily, ed. (1997). *Nature's Services* (Island Press, Washington D.C.).

million acres of working landscape provides a reasonable average of one-half acre-foot per year of water (calculated from average annual rainfall) that generates services such as natural waste treatment through slow infiltration, disturbance regulation through perennial vegetative cover, riparian habitat use by wildlife and by recreationists, etc. These five-million acre-feet annually provide such "nature's services" between the ranches where they are shed and the Colorado River delta, where they have historically spilled into the sea.

Recently, Karl Flessa of the University of Arizona has estimated that each of these acre-feet, as it flows across the Colorado River delta, generates $200 of natural services.[12] This is a total value of $1 billion.

Flessa further notes that this value used to be greater. Prior to the damming and diversion of the Colorado, the ecosystem services of the water reaching the delta totaled $2.7 billion per year. However, they have since decreased by an order of magnitude to about $262 million since dams went in on the Colorado that disrupted ecosystem services on the delta.

Compare the $200 per acre-foot of natural services with current U.S. agricultural water prices for Colorado River water. Farmers and some industries pay only $16 to $32 per acre-foot for water, while municipal users pay $300 to $880 per acre-foot. Whatever dollar value you choose to place on the water generated and cleansed by these ranchland ecosystems, it is clear that the cumulative societal value of large, intact working landscapes is underappreciated at this point in time. We have begun to value these ecosystem services more as a result of recent studies by ecological economists, but there is much more to be done in this domain technically, and in terms of educating our society about these values.

If our society did indeed *fully* value the food and ecosystem services provided by these working landscapes, would we be so prone to let them "fall out of work", to let pavement and asphalt roofing absorb the sunshine which cascades down upon them, instead of letting plants capture that solar energy? Would we have so easily let 10 percent of Yavapai County's farms and ranches become converted to residential and commercial retail development between 1997 and 2002? Was any land use planner calculating the value of the food as well as the ecosystem services lost *for good* when some 77,212 acres of the county's working landscapes were put "out of work" in just five years time?

We need a new benchmark by which to make decisions regarding land use and conversion costs in the West. Is the long-term value of the food and ecological services provided by large intact working landscapes ultimately of greater societal value than the income generated by a strip mall? For each mall, the bulk of profits flow back to distant corporate headquarters, while local authorities absorb water, sewer, fire and police costs. Are we willing to admit that we take for granted the many amenities which are imbedded within each working landscape that surrounds our cities? Don't planners still treat ranches more like "open, developable space" rather than "already-productive places"? Until we change such perceptions, we will inevitably continue to lose much of what currently "works" in the landscapes of West.

"Working Landscapes of the West" is being published in January, 2007.
For more information, please visit the CSE website at
http://home.nau.edu/environment/pubs.asp

[12] K. Flessa (2004). $200 per acre-foot: nature's services and the natural value of water in the Colorado River delta and estuary. *Proceedings of the Gulf of California Conference* (Arizona-Sonora Desert Museum, Tucson AZ), p. 58