

# Globalization Then and Now: Increasing Scale Reduces Local Sustainability

Joseph A. Tainter, Project Leader, Cultural Heritage Research, USDA Forest Service, Rocky Mountain Research Station, Albuquerque, NM

**Abstract**—One consequence of globalization is that parts of the world that were once remote and minimally influenced by broader political and economic developments now find themselves profoundly affected by forces beyond their comprehension. Communities that were once self-sufficient and resilient come to depend on larger systems, no longer control their own destinies, and confront adverse environmental changes. Such local consequences result from changes in the vertical scale of political and economic integration. While the term globalization is much used today, the processes and consequences of globalization have been evident in human history for some time. This paper presents case studies of the effects of distinct episodes of globalization on historical and contemporary societies. Analyses of Epirus, Greece, and northern New Mexico show how disjunctures in scaling between information and power reduce local resiliency and sustainability. Changes in the scale of problems affecting localities impose a requirement for corresponding changes in the scale of environmental information that local community's process.

Few matters seem more important today, or more urgent, than the issues of sustainability and resiliency in social and biophysical systems. One problem in addressing such issues is the change in scale that occurs when local people become embedded in larger systems at the national and international levels. Today we consider this to be part of the phenomenon termed "globalization," a process that has widespread and lasting consequences. Globalization is not, however, a recent phenomenon. It has been part of the human experience since people began long-distance trade, and it has influenced the evolution of ecosystems for an equally long time. Episodes of globalization have social and environmental repercussions that may last centuries. Globalization produces consequences so far dispersed that the connection of cause and effect may be difficult to perceive.

While material and economic flows are its essence, globalization subtly influences the flow of information. A periphery incorporated into a global economy experiences change in the scale of economic and political relations, but the information pool remains primarily local. Not only do local populations lose autonomy, they may not know that they have done so. Being unaware of larger forces that affect them, local societies lose control of their destinies. As local autonomy disappears, dependency and environmental deterioration follow.

This disjuncture of scale became apparent when I read Sander van der Leeuw's (1998; van der Leeuw and others 2000) and Sarah Green's (1995, 1997a, 1997b, Green and others 1998, 1999) descriptions of historical changes in Epirus in the northwest of Greece. In both structure and process, they could have been describing changes with which I was familiar in my home state of New Mexico. How could such distant and unrelated places have experienced changes so parallel that their descriptions are almost interchangeable? The answer, I suggest, lies in the disjuncture in scaling of economic, political, and informational relations in world systems. This disjuncture has implications for how the relationship between global and local processes may be managed in the future.



**Figure 1.** Location of Epirus, Greece. Illustration by Joyce VanDeWater.

## Epirus, Greece

Epirus has long been one of the most remote and inaccessible parts of Europe (fig. 1). This marginality derives from the mountain terrain that made travel difficult before paved roads. Epirus began to change substantially after World War II. In the aftermath of the civil war of 1946-49, upland cereal cultivation and most vineyards were abandoned. As gardens were abandoned, the fields were turned to pasture, and animal husbandry became dominant. Economic conditions forced workers to emigrate during the 1960s. Then from the late 1960s through the late 1970s many development projects were implemented, focusing on drainage, mechanized farming, electricity, paved roads, and irrigation.

Greece became a full member of the European Union in 1981, and thereafter the E.U.'s Common Agricultural Policy affected the region. Commercial agricultural

production has greatly increased on the plains, while economic production has declined in the mountainous areas. There has been a steep reduction in transhumant pastoralism, and subsistence farming has sometimes been abandoned. Many young Epirotes immigrate to urban areas for work. Mountainous regions now have small, ageing populations, who live substantially on government pensions. Many who work elsewhere maintain a house in ancestral villages, to which they go during festivals and holidays, or for retirement. Some of these returnees cultivate vegetable gardens in the villages, using the land in a manner that Sarah Green characterizes as "suburban" (Green and others 1999: 10).

The transhumant pastoralist economy maintained mountain vegetation as a combination of woodlands and open meadows. With the decline in pastoralism and prohibition of burning, the mountain vegetation changed rapidly. Many areas have become overgrown with scrub

vegetation. The higher elevations are now largely closed off to herbivores. Epirotes consider this a degradation of their landscape.

Epirote villages were formerly isolated and closed, most corporate activities were consensual, and knowledge was homogenous. There were few social, economic, or technical differences among people. As one informant described the situation, "Everyone knows everything about everybody else..." (Green 1995: 271).

As Sander van der Leeuw (1998) has described, substantial changes occurred since roads were introduced after World War II. The information pool began to differentiate. Villages acquired headmen, who now serve as intermediaries with the external world. Wage-earning brought social and economic differentiation. Cash became increasingly important, and people are stimulated to acquire material goods. In such a situation, "progressive" and "conservative" factions inevitably develop. There are now conflicts between personal and social interests. No longer does everyone know everything about everybody else.

Upon joining the E.U., Greece became a candidate for development projects. Incorporation into the E.U. brought new directions with the development funds. One E. U. program concerns the preservation and development of "marginal" areas.

The E.U. approach has been to "...focus on protecting, conserving or preserving what was increasingly seen as a 'natural wilderness' containing 'traditional' village settlements" (Green and others 1999: 49). The E. U. sought to develop the cultural heritage of mountainous areas by emphasizing eco-tourism, attracting visitors to an area of "unspoiled" natural beauty.

The E.U. program, in turn, influenced the Greek national administration. There is now greater concern to protect the environments of remote areas. Several national parks have been established, including one in Epirus, and they bring new regulations. One cannot graze animals within the national park, nor can one dig, drill, or build outside village limits. There are further bans on camping or lighting fires within the forests, on swimming in the rivers, and on clearing areas for cultivation.

These new restrictions generate predictable conflicts between local people and administrators. Projects have become enmeshed in village factionalism, with some residents favoring conservation and others preferring the development of better facilities and services. Among the new regulations, houses must be built of "traditional" local materials. These materials are now expensive, but no longer freely available. Those who can afford to build in such materials are ex-residents who return seasonally to the villages with savings from urban employment.

Older residents did not see the landscape as an external, objective entity, but as the place in which they live, and of which they are a part. Now Epirus is presented dialectically as the converse of the urban environment. The environment is to have its architecture and cultural practices frozen in an "original" traditional form, while the landscape is to be kept, or even made, "natural" by removing the local people and their traditional activities. The people and the landscape are marketed to those who travel to experience "authentic," indigenous places.

Once initiated, E.U. projects become part of local social, political, and economic relations. On the local level, E.U. projects are not about heritage tourism or protecting the environment. A successful project from the Epirote perspective is one that has become enmeshed in social relations. It is important to involve many people, and have them benefit economically. This appears to Brussels as corruption.

In the urban ethos, culture happens in villages and during festivals, while nature is the wilderness outside villages. To the local opponents of E.U. projects, the "wilderness" that is to be preserved is seen as grazing lands, sources of wood, and fields, even if disused and overgrown. The removal of human activity from the landscape, in turn, diminishes cultural heritage.

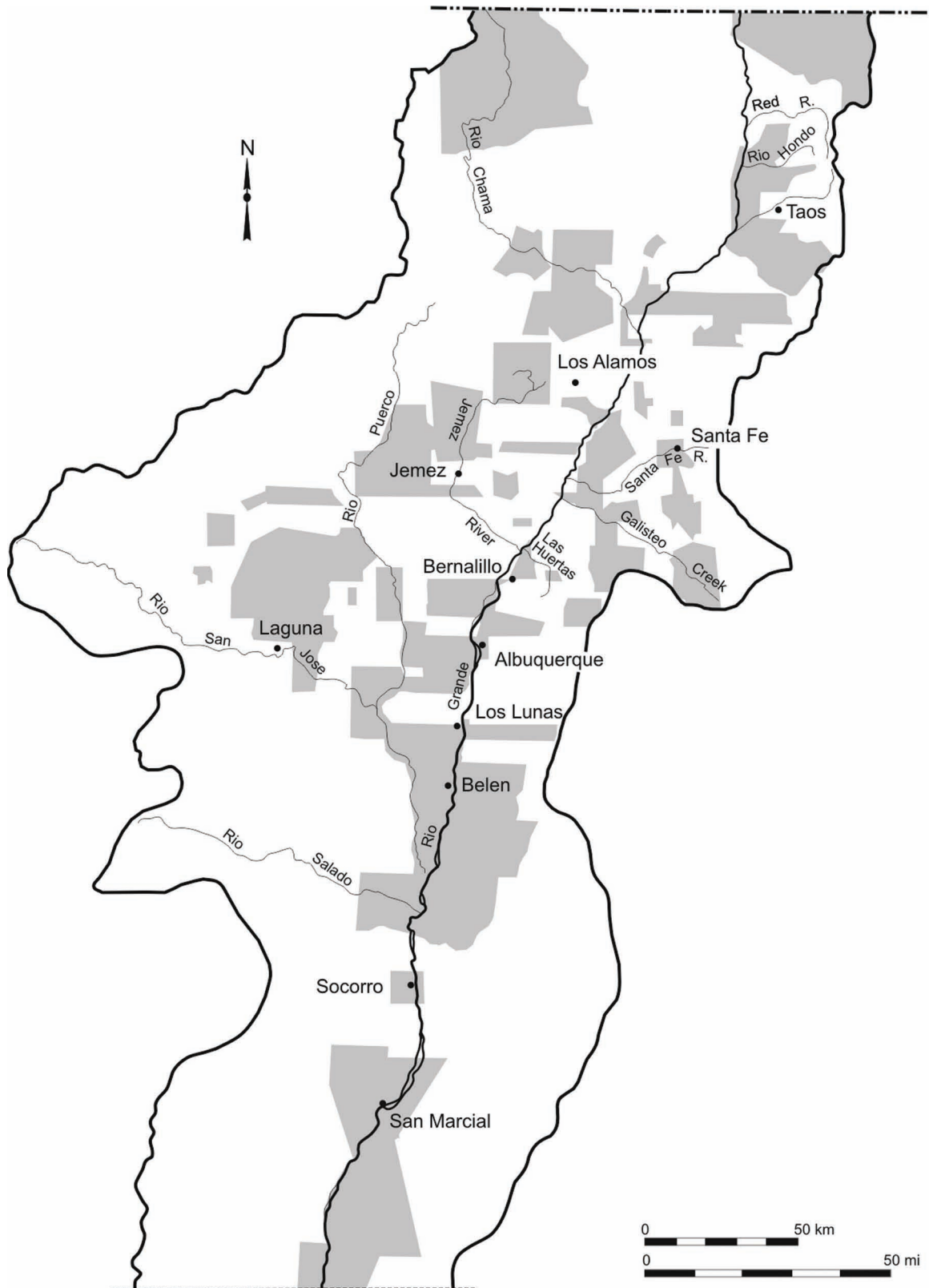
As local self-sufficiency declined, the region has become dependent on the commercial economy and the government. Becoming embedded in larger systems has meant a transformation from autonomy and self-sufficiency to dependency and environmental deterioration.

## Northern New Mexico

Spanish explorers of New Mexico found Indians living in settled villages they labeled "pueblos." These were soon joined by Hispano farmers. The last to arrive is the group known locally as Anglo-Americans. This discussion emphasizes the Hispanic settlers of New Mexico, and the consequences of their absorption into the United States.

Beginning in the 17th century, the economic basis of colonial New Mexico was provided by a system of granting lands to both Pueblos and Hispanos (fig. 2). New Mexico was administered stingingly as a missionary obligation. There was little money and few firearms. Priests were in short supply, and visitors commented adversely on the way that ceremonies were performed.

Colonial New Mexico was one of the most distant outposts of the Spanish world empire. Metal was so scarce that plows were tipped in wood. Archaeological sites show that some colonists experimented in making stone tools, at which they were not adept (Chapman and



**Figure 2.** Land grants of the middle and northern Rio Grande basin (after Scurlock 1998: 111). Illustration by Joyce VanDeWater.



others 1977). Houses contained no furniture except that produced locally. Books and schooling were rare. As early as 1776, a visiting priest found the local language to be full of archaisms and hard to understand. During the period of Mexican independence, New Mexico was referred to as Mexico's Siberia (de Buys 1995).

Within land grants, individual houses and fields were privately owned. If the grant contained suitable river valley, each settler would have a strip of land extending linearly from the river to the main ditch. These lands were divided among a farmer's sons, so that Hispano fields became renowned for their narrowness. Beyond the cultivated lands lay the commons, used for grazing or timber cutting. Depending on terrain, there might be high mountains beyond the common lands.

With independence, Mexico opened its borders, and American traders descended on Santa Fe. They brought manufactured goods, which soon began to transform New Mexico. To obtain such goods took surplus production and cash. When war broke out in 1846, New Mexico quickly became part of the United States.

Two institutions united rural New Mexico: the church and the irrigation system. Since colonial New Mexico lacked governing institutions at the local level, ditch associations are to this day often the only local government. Villages were organized by kinship and cultural uniformity. Many villages are isolated, gaining paved ingress only in the 1960s, and telephones and television in the 1970s. Everyone in a community had personal knowledge of everybody else (Harper and others 1943, Horvath 1979, Kutsche and Van Ness 1981, Rivera 1998).

Hispanic villages' poverty shielded them initially from the full force of the Anglo-American economy. Without schools, English penetrated slowly. Village land, however, was vulnerable. Land grants had to be confirmed in American courts. At first the villagers understood little of the new judicial requirements, and were unaware that their lands might be in jeopardy. Soon lands started to be lost for failure to pay taxes that villagers did not know they owed. Sometimes Hispanos continued to occupy these places, unaware that they had lost ownership years before. Lawyers who were retained to establish the claim to a grant could only be paid with part of the same land. Lands beyond the grants that had been available for anyone's use became public domain.

As the land base shrunk, Hispanos lost the ability to produce sufficient food. They were pushed off large tracts of pasture. Men had to leave villages to work on the railroads or in Colorado mines. More and more became dependent on contractual sheep-raising (de Buys 1985, Rothman 1989).

Loggers cut the timber from thousands of hectares of forests, with no thought for regeneration. These lands

became an early target for scientific management when the Forest Service was established in 1906. The largest timber-cutting operation exemplified how quickly New Mexico had become integrated into the world economy. It was undertaken in response to the building of the Panama Canal. To remain competitive, the railroads decided to increase speed and efficiency by laying a second set of tracks. The operations to produce the 16 million railroad ties logged every suitable stick up to the tree line.

Anglo-American ranchers soon overstocked the grasslands. Drought in the 1890s precipitated erosion that is still underway. An area such as the Rio Puerco Valley was largely abandoned when the Rio Puerco itself became deeply entrenched. Topsoil was washed away, and grasses could not grow as quickly as they were grazed. Woodlands extended downward in elevation, into former grasslands (de Buys 1985, Rothman 1989).

As the environment and traditional economy of New Mexico deteriorated, the Hispanic and Indian cultures and the area's natural beauty attracted artists and intellectuals. In small, communal villages they believed that they would find to antidote to urban life. The artists and intellectuals understood that Hispanic village culture could not be preserved without an economic basis. Their solution was that Hispanos would become artisans and craftsmen. They would produce "traditional" arts and crafts for a burgeoning tourist market. An idealized version of traditional architecture became the norm in Santa Fe and elsewhere. "Traditional" festivals were created anew for Santa Fe and Taos.

In the Great Depression, many New Mexicans survived on government relief. Today many Hispanos rely on government subsidies, commute to jobs in cities, or have moved to cities. They may return to the home village for weekends and holidays. For those who remain in the villages, or maintain close ties to them, there is perpetual struggle. Many keep small cattle herds, which must have a permit to graze on the Forest Service land that Hispanos still consider theirs. The Forest Service regulates access to all resources on its lands, including the timbers needed for traditional construction. The region continues to receive funds for development, but projects become socially embedded, and part of both kin relations and local politics. Contracts are frequently given to relatives, qualified or not, leading to charges of corruption.

There is conflict with a new adversary, environmentalists. This conflict concerns the environmentalist value of using forested lands little or not at all, and the Hispanic tradition of using forest resources as necessary. Affluent environmentalists know how to impede agencies such as the Forest Service. The villagers, who still depend on the forests for such vital needs as winter firewood, are

reduced to asserting heritage, identity, and traditional rights (de Buys 1985, Forrest 1989, Rodriguez 1987, Raish 2000).

## Summary and Discussion

Epirus and New Mexico are separated by history, geography, and tradition. Yet they display congruence in structure and process, in form and substance, and even in such minute details as the encroachment of woodlands into former grasslands, and the relationship of traditional architecture to national land management policies (table 1).

In both regions, formidable terrain and economic marginality kept villages isolated, closed, autonomous, and self-sufficient. The pool of information was homogenous, and everyone knew everything about everybody else. Environments were maintained to support the subsistence regime. In both areas, the end of isolation brought manufactured goods, so that self-sufficiency declined and cash became increasingly important.

Life within villages began to differentiate. Men emigrated to find work. People acquired new information about the larger world, and about opportunities and ways of doing things. Village information pools lost homogeneity. It was no longer possible to know everything about everybody else. Communities bifurcated into “progressive” and “conservative” factions. Personal and group interests began to conflict.

As traditional subsistence practices declined, the biophysical environment lost the capacity to support such practices. Fire stopped being used to control vegetation. In both places there has been growth of undesirable woody plants, and increased erosion.

Many people now survive on government subsidies. Traditional cultural practices have become difficult to

maintain in the face of “modernity,” and without an adequate economic base. Upland forests and lands are now controlled by national governments. There is frequent conflict between villagers and land managers. Traditional resources are now regulated or proscribed by national policies. Traditional architecture is either encouraged or mandated, yet there is no longer free access to the raw materials that it requires, and many cannot afford to buy such materials. In both regions, émigrés return for holidays and other special occasions, and use ancestral villages in a manner than can be labeled “suburban.”

Outsiders are concerned to preserve the natural beauty and cultural traditions of both regions. External organizations promote projects to integrate economic development with preservation. The natural beauty and cultural heritage of both areas are now marketed by urban residents to other urban residents. The landscapes are to be managed to match an urban conception of nature. Heritage is to be preserved rather than lived. Divorced from its connection to land use, cultural heritage is to be expressed as craft products and performances. Development projects become socially embedded within each region, which outsiders consider corruption. In response to outside pressures, both regions are developing explicit manifestations of cultural identity that mobilize local people even as they reinforce stereotypes.

The parallel transformations in Epirus and New Mexico arose from these regions becoming enmeshed in commercial systems, and controlled by national governments that are themselves embedded within larger systems. For places like Epirus and New Mexico, the scale of their economic and political contexts has grown from the locality to the national government, and to the international community. The scale of information has not kept pace with these developments. In this regard, Epirotes and New Mexicans are like people everywhere. Their scale of information is local. The information that

**Table 1.** Aspects of Convergent Evolution in Epirus and New Mexico.

1. Remote areas incorporated into world economy.
2. Villages differentiate socially, economically, and in information pool.
3. Emigration for work.
4. Progressive and conservative factions develop.
5. Traditional subsistence practices decline.
6. Environment loses capacity to support traditional economy due to decline in human maintenance.
7. People depend on government subsidies.
8. Traditional culture becomes difficult to sustain.
9. Upland forests controlled by national governments.
10. Traditional resource use limited or proscribed.
11. Young adults return to villages for holidays.
12. External organizations promote preservation of landscapes and cultural practices.
13. Culture divorced from land use; fossilized as crafts and performances.
14. Natural beauty and cultural heritage marketed by urban residents to other urban residents.
15. Landscapes managed to match urban conception of nature.
16. Development projects socially embedded.
17. Increasing expression of ethnic identity.

matters is that which pertains to local affairs: community, politics, employment, government services, and the like.

In an age of globalization, this inclination to value local information conflicts with the scale of events and processes that affect localities. There is, for example, much concern in New Mexico about water. In 1998 I challenged participants in a conference to consider the connection between irrigation agriculture in the Rio Grande Basin and the East Asian economic crisis that was then underway. The connection is through Intel Corporation's chip manufacturing plant near Albuquerque, which uses great quantities of water. To the extent that the East Asian economic crisis might cause Intel to reduce its output of chips, and thus to use less water, it could be possible to perpetuate irrigation as well as the cultural traditions that are linked to it (Tainter 1999). Today, in updating this analysis, we would wish to explore the connections among irrigation agriculture, Intel's manufacturing output, and the SARS virus. The lesson is that unless New Mexicans, Epirotes, and other local people become knowledgeable about the full range of factors that affect them, they will continue to be vulnerable to distant processes, and to those who profit from their ignorance.

One implication of this discussion is that local social and environmental problems that arise from processes at the national and international levels must in part be addressed at those same levels. If globalization is the source of a local problem, then addressing only the local manifestation will likely prove ineffective and frustrating. Land managers, and land-managing agencies, who address only the local manifestations of large-scale problems, will probably fail. The broader context will simply continue to generate the problem.

A common exhortation of the environmental movement is to think globally but act locally. The problem we encounter is that most people do not think globally. In our history as a species there has never been selective pressure to do so. The question facing those affected by globalization is: How do we change a behavior pattern that is so ingrained, and that previously conferred survival value?

Perhaps a radical change in how people think could be accomplished through the education system. There would need to be programs to teach children, starting at a young age and continuing through all levels, to think about systems and interconnections at all scales. Students would be trained to consider global processes that affect local viability, whether a new virus, the economy of far-off lands, or distant political upheavals. They would be taught to think at all scales, to be curious about things that are distant in space and time, and to sense

connections that are not obvious. It would be an attempt to make thinking about the connection of the global to the local so ingrained that, within a generation or two, it becomes normal and unremarkable. As the populace comes to think more broadly, politicians, business leaders, and managers would learn, and be expected, to do so as well. Journalists, sensing new needs and new opportunities, would also explore global connections.

This proposal is, of course, not a panacea. Not all people would be inclined to pursue global analysis, although it is still worthwhile that they be familiar with it. Among those who are so inclined, the understandings they develop will often not be accurate. Yet all that would be required is for enough persons to implement their training in global thinking to lead the rest. Intermediaries would emerge who would facilitate the transmission of global information to local communities. Books, magazines, and television broadcasts, showing the connection between global and local, would expand in response to an increased market.

This idea is radical, utopian, and perhaps unrealistic. Yet today's globalization demands that we attempt something like it. The only certainty is that failing to try such a course will condemn many places to follow Epirus and New Mexico down a bewildering slide into poverty, dependency, and environmental degradation.

## Acknowledgments

I am pleased to express my appreciation to Joyce VanDeWater for preparing figures 1 and 2, to Sander van der Leeuw for making the Epirus research materials available to me, and to Sander and Carol Raish for comments on parts of this research.

## References

- Chapman, Richard C.; Biella, Jan V.; Schutt, Jeanne A.; Enloe, James G.; Marchiando, Patricia J.; Warren, A. H.; Stein, John R. 1977. Description of twenty-seven sites in the permanent pool of Cochiti Reservoir. In Chapman, Richard C; Biella, Jan V; with Bussey, Stanley D., eds. Archeological investigations in Cochiti Reservoir, New Mexico, volume 2: excavation and analysis 1975 season. Albuquerque, NM: Office of Contract Archeology, Department of Anthropology, University of New Mexico: 119-359.
- DeBuys, William. 1985. Enchantment and exploitation: the life and hard times of a New Mexico mountain range. Albuquerque: University of New Mexico Press.
- Forrest, Suzanne. 1989. The preservation of the village: New Mexico's Hispanics and the New Deal. Albuquerque: University of New Mexico Press.
- Green, S. 1995. Contemporary change in use and perception of the landscape in Epirus: an ethnographic study. In

- van der Leeuw, S. E., ed. Understanding the natural and anthropogenic causes of soil degradation and desertification in the Mediterranean Basin, volume 1: land degradation in Epirus. Brussels: Draft Report to Directorate General XII of the European Commission.
- Green, S. F. 1997a. Pogoni, Epirus (Greece). In Winder, N.; van der Leeuw, S. E., eds. Environmental perception and policy making: cultural and natural heritage and the preservation of degradation-sensitive environments in southern Europe, volume one: perception, policy, and unforeseen consequences: an interdisciplinary synthesis. Brussels: Draft Report to Directorate General XII of the European Commission: 45-64.
- Green, S. F. 1997b. Environmental perception and policy making: cultural and natural heritage and the preservation of degradation-sensitive environments in southern Europe, volume three: notes on the making and nature of margins in Epirus. Winder, N.; van der Leeuw, S. E., eds. Brussels: Draft Report to Directorate General XII of the European Commission, Brussels.
- Green, S. F.; King, G. P. C.; Nitsiakos, V.; van der Leeuw, S. E. 1998. Landscape perception in Epirus in the late 20th century. In van der Leeuw, S. E., ed. The Archaeomedes Project: understanding the natural and anthropogenic causes of land degradation and desertification in the Mediterranean Basin. Luxembourg: Office for Official Publications of the European Communities: 329-359.
- Green, S. F.; Servain-Courant, S.; Papapetrou, V.; Nitsiakos, V.; King, G. P. C.. 1999. Policy-relevant models of the natural and anthropogenic dynamics of degradation and desertification and their spatio-temporal manifestations, volume 2: negotiating perceptions of fragile environments in Epirus, northwestern Greece. Brussels: Draft final report of the archaeomedes ii Research Project, submitted to Directorate General XII of the European Commission.
- Harper, Allan G.; Cordova, Andrew R.; Oberg, Kalervo. 1943. Man and resources in the middle Rio Grande valley. Albuquerque: University of New Mexico Press.
- Horvath, Steven M., Jr. 1979. The social and political organization of the genízaros of Plaza de Nuestra Señora de los Dolores de Belén, New Mexico, 1740-1812. Ph.D. dissertation, Department of Anthropology, Brown University.
- Kutsche, Paul; Van Ness, John R. 1981. Cañones: values, crisis, and survival in a northern New Mexican village. Salem, Wisconsin: Sheffield Publishing Company.
- Raish, Carol. 2000. Environmentalism, the Forest Service, and the Hispano communities of northern New Mexico. *Society and Natural Resources* 13: 489-508.
- Rivera, José A. 1998. Acequia culture: water, land, and community in the Southwest. Albuquerque: University of New Mexico Press.
- Rodriguez, Sylvia. 1989. Land, water, and ethnic identity in Taos. In Biggs, Charles L.; Van Ness, John R., eds. Land, water, and culture: new perspectives on Hispanic land grants. Albuquerque: University of New Mexico Press: 313-403.
- Scurlock, Dan. 1998. From the rio to the sierra: an environmental history of the middle Rio Grande basin. Fort Collins: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, General Technical Report RMRS-GTR-5.
- Tainter, Joseph A. 1999. Rio Grande Basin and the modern world: understanding scale and context. In Finch, Deborah M.; Whitney, Jeffrey C.; Kelly, Jeffrey F.; Loftin, Samuel R, eds. Rio Grande ecosystems: linking land, water, and people. Ogden, UT: U. S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Proceedings RMRS-P-7: 7-11.
- van der Leeuw, S. E. 1998. Main building blocks of our approach. In van der Leeuw, S. E., ed. The Archaeomedes Project: understanding the natural and anthropogenic causes of land degradation and desertification in the Mediterranean basin. Luxembourg: Office for Official Publications of the European Communities: 43-112.
- van der Leeuw, S. E.; archaeomedes Research Team. 2000. Land degradation as a socio-natural process. In McIntosh, Roderick J.; Tainter, Joseph A.; McIntosh, Susan Keech, eds. The way the wind blows: climate, history, and human action. New York: Columbia University Press: 357-383.