



Thad Box

From Cows to Captured Carbon

Fifty-eight years ago I returned from the Army knowing the world was bigger than my Texas hills. The GI Bill made kids like me active players in recovering from war and serving our nation as a world leader. Our country offered me an opportunity to better fit into in my broad new world.

I searched for a way to make a difference. Dreams of designing bridges and dams drew me to engineering. Public service and politics, both highly respected in those days, nudged me toward law.

One afternoon I sat above a winding stream. I tried to imagine myself in a hard hat or blue suit. White-faced cows watered in the creek below. Calves frolicked beside them. A great blue heron stalked fish. A doe and twin fawns slipped from the brush. As I watched the sun set, I knew I would never be an engineer or a lawyer.

That night I read a magazine with a picture of chairs around an empty table on its cover. The featured article asked “Who will feed a hungry world?” It had charts and graphs of world diets, food shortages, and opportunities for improving food production, preservation, and distribution. That fall I entered college to study agriculture. There I discovered ecology and range management. Three degrees later I was eager to produce beef and improve ranges—a Texas cows-and-grass guy.

Fortunately, I was offered a job in a college dedicated to multiple use management—Utah State University’s College of Forest, Range, and Wildlife Management. I joined a unique group of people in three academic departments held together by a mission of producing goods and services for humankind while keeping the land healthy for uses we could not then imagine. Foresters argued with wildlife biologists. Both argued with us range folks. But our real job was to keep the land healthy rather than grow trees, deer, or cows.

Understanding the interrelationships in ecosystems and managing them required physical, biological, and social scientists working together to give land managers tools for keeping communities sustainable. Working together changed us all from scientists seeking increased commodity production to teams searching for sustainability. Quests for sustainable systems led me from cows and grass to projects for providing other land services.

This issue of *Rangelands* has papers about ecological services from rangeland. Ecological, or ecosystem, services generally are considered benefits accrued to humans from land managed sustainably. In 2004, the United Nations grouped ecosystem services into four broad categories: *provisioning*, such as the production of food and water; *regulating*, such as the control of climate and disease; *supporting*, such as nutrient cycles and crop pollination; and *cultural*, such as spiritual and recreational benefits.

In its most basic form, providing ecosystem services is about managing land as a sustainable system. If a range manager, forester, or farmer manages land where the system is healthy and sustainable, he produces a number of services, some of which can accrue income to the

landholder. Many, however, are public benefits that are hard to relate to private ownership.

Keeping land systems sustainable clearly is the role of land-care professionals. Whether benefits from sustainability are public rights or private goods, the flow of ecosystem services become muddled when we try to maximize a given use or product of the land. This situation has plagued our society from its beginning.

We formed the American Society of Range Management 63 years ago. Our goal was to improve rangeland health. Thirty years later, I summarized our accomplishments and speculated about our future in my presidential address¹:

We, as a Society, speak for about 40% of the earth's surface. We are the major professional group that must produce the food, fiber, fuel, fun—all the goods and services—that society wants from rangelands ... many people still consider range as a use and not land itself. They equate range with livestock grazing. Even some agencies managing rangelands discuss the multiple uses of the land as timber, water, range, recreation, etc. Timber, water, and recreation are all goods or services from land. Range is the land itself.

I also said:

The nature of the land and ecological principles dictate that rangelands are grazing lands. They evolved concomitantly with grazing and browsing animals and, for the foreseeable future, grazing land they will remain ... We as a professional Society should not simply react to the demands of the public ... we need to develop and constantly maintain a professional image. We must at all times be scientifically credible. We must speak from a position of strength backed by sound data and research. It is inevitable that the demands placed on the rangelands of the world will change and change rapidly in the next few years. If our Society can anticipate and direct those changes, then we will be successful. If we only react to them, we will slowly fade away and my guess is that our absence will be noticed by no one.

Thirty-three years later, we have not yet faded away. We can take pride in improving the health of rangelands. And healthier rangelands, those reaching sustainability, produce more ecosystem services.

But we still are seduced to produce a product or a service rather than maintain health of land itself. Healthy rangeland captures more carbon, harbors more pollinators, stores more water, and has other characteristics often called ecosystem services.

Some want to sell these as commodities. Our job is not to market products, but to keep the system healthy. Our role is further complicated by those who want to acquire wealth through trading bundled derivatives of services they neither produce nor own, using poorly regulated markets and untested marketing schemes.

Greed, calculated derivatives, bundled services, and ignored risks contributed to the crash of our financial industry.

Thousands of homes are in limbo because no one can prove ownership of mortgages. If that can happen in a well-established industry such as housing, think what might happen trying to enforce agreements of bundled derivatives and captured carbon on rangelands.

Whether ecosystem services, such as carbon sequestration, scenic beauty, or improved biological diversity, are public or private is a policy question best answered by voters in a democracy. But how each service affects system health and sustainability involves questions for science. And science has a role in correcting damages from poor policies.

By the time the United States entered WWI, range scientists had established that overstocking led to plant community deterioration, and that proper stocking could improve plant communities. But in WWI, and even more so in WWII, public policy was to overstock rangeland to produce for the “war effort.” And, following each war, scientists shifted from production to rehabilitation.

Although people might set poor policies, the role of land care professionals is to understand and direct land communities toward sustainability. When policies regulating a service causes systems to lose sustainability, and indeed some will, we must have science ready to reach sustainability again.

One of the most-needed ecological services still is feeding a hungry world. Gwynne Dyer, in his book “Climate Wars,”² argues that drought will trigger massive conflicts over scarce food and water. US Secretary of State Clinton recently said:

... one-sixth of the world's population suffers from chronic hunger. Without enough food, adults struggle to work and children struggle to learn. Global food supplies must increase by an estimated 50 percent to meet expected demand in the next 20 years ... The question is not whether we can end hunger, it's whether we will.³

We must. We live in a world where the poorest die of starvation, the crowded are sick from pollution, and the rich want hamburgers and clean air. Our dog in this fight is not representing cows or captured carbon. We speak for the land. If we help communities reach sustainability, we serve all of the above, even the crazies.

References

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