Holistic Planned Grazing
Enhancing Biodiversity, Wildlife Habitat

by ABBEY & SPENCER SMITH

Editor’s Note: This is the first article in a four-part series on Holistic Planned Grazing. Look for part two in the June issue.

As holistic managers, we manage for biodiversity because we are thinking about how we want the land to be in the future for our children, grandchildren and beyond. We want them to know places abundant with communities of plants and animals, rich healthy soil, clean water and open spaces. We can participate in creating this landscape by using Holistic Management.

Holistic Management is rooted in a holistic context. This is a statement created by the decision-makers, or managers, of an entity (the whole under management), about the quality of life they desire and the future resource base (the land and behaviors) needed to support this. A whole under management may be a ranch, company or household.

There is an ethos in agriculture that loves order and predictability. Imagine neatly spaced rows of the same crop – lettuce, corn, strawberries, soybeans. Between the rows is bare soil – neat and organized and extremely susceptible to pest, disease, drought and flood.

Now imagine a pasture or field thick with vegetation. There are legumes hugging the ground, clovers swarming with bees and towering, verdant, perennial grasses. Flowering forbs are welcomed instead of weed-ed. This community is a polyculture. Pests may come, but the community is less likely to be wiped out because its diversity makes it more resilient.

FOSTER RESILIENCE

Biodiversity is an indicator of health and resilience in an ecosystem. All life in an ecosystem is doing its best to adapt and survive. Each plant in the community has its own superpower when it comes to self-defense. When one plant defends itself, it defends the entire community. This is possible because special fungi serve as the messengers of the community, warning of potential danger and helping to fight it. These fungi are called mycorrhizal fungi and they form a web of connections among plant root hairs. Through the mycorrhizal connection between each plant, antioxidants can be shared among the plants when a pest attacks, enabling the whole community to better survive.

According to the work of soil ecologist Dr. Christine Jones, in a biodiverse, healthy community mycorrhizal fungi connect 95 percent of all plants to one another. These connections help exchange nutrients and antioxidants among the plants.

WHOLE COMMUNITY

It is important to manage for all life on the land because it adds value to the whole. Consider the grassland biome. Many different forages, including nitrogen-fixing legumes, tap-rooted forbs, warm- and cool-season grass species, are part of the community. Just as mycorrhizal fungi and plants evolved together, larger species evolved with the grasslands. It was the large, cloven-hoofed grazers moving across the grasslands in vast herds that Allan Savory observed closely as he developed Holistic Planned Grazing. As herds moved, they knocked down vegetation and broke the soil crust. Pack-hunting predators aided the process by keeping the herds in tight bunches. These predators – lions, cheetahs, wolves and others – as well as the microorganisms in the soil, are just as critical to the community as plants and grazers.

Each species has an important role to play in the overall health of the community. In our linear thinking, humans have grossly simplified biological communities and weakened them. This is why we have both “invasive” and problem species, as well as coveted or endangered species. Both are symptoms of a community that is lacking in diversity and thus resilience. It is an incomplete and malfunctioning biome.

When managing endangered or species of concern, Holistic Management views them within the ecological community. This is how we mimic nature with our management to create habitat. In Holistic Management we use herds of livestock to create a
niches for the species of concern – or the species being managed for. If dominance of one undesirable species occurs the same management tools and decisions can bring the community back into balance.

The concepts described here are tied to two key insights that inform Holistic Management:

• A holistic perspective is essential in management.
• Large herds, concentrated and moving as they naturally do in the presence of predators, are vital to maintaining the health of the land.

Here’s how these concepts take form in everyday land management: When large herds are moving across a plant community, they are constantly dunging and urinating on their food supply. They don’t stay and feed on the vegetation that is fouled by dung and urine. Their natural inclination is to move off ground they have fouled. This movement ensures that plants aren’t overgrazed. Concentrated herds trample some forage to the ground where it provides soil-covering mulch, which is enriched with biologically dense dung and nutrient-filled urine. The mulch slows erosion and keeps soil temperatures steady and habitable for the many organisms that will turn the mulch into compost and rich soil.

At the 2017 No-Till on the Plains Conference in Salina, Kansas, farmer Chris Teachout, grazier Dr. Allen Williams and others, discussed the importance of cool soil. The way to keep soil cool is to keep it covered. The importance is clear when you consider:

• At 140°F, soil life dies.
• At 130°F, all soil moisture is lost to evaporation.
• At 100°F, 85 percent of soil moisture is lost.
• At 70°F, 100 percent of soil moisture is plant-available.

While cattle move through an area and graze what they desire, small stock (sheep and goats) might be browsing the forbs and woody vegetation the cattle ignore. They also add nutrients and fertility back to the soil. Flocks of birds (think chickens) follow behind these four-legged animals, picking through and scattering dung, looking for tidbits of seeds, larva and food that made its way through the preceding animal’s stomach. These birds deposit their own form of fertility behind them — dung that is high in nitrogen and phosphorus. All of this nutrient-rich manure must reach the root zone of the plants to be useful and not simply run off (and be considered a pollutant). Worms, insects and dung beetles now take center stage.

In a healthy and balanced ecosystem, they work to make that nutrition available to plants. As an added benefit, the tunnels that they make are spaces for water to infiltrate and new roots to travel through in search of water and nutrients. Stronger, deeper roots hold more soil in place, preventing erosion. Thriving plant communities attract large herds and more insects and the whole community cycles toward greater diversity and stability.

**PLAN OF ACTION**

Holistic Planned Grazing uses a step-by-step planning process that enables you to manage for the whole community. The purpose of Holistic Planned Grazing is to create a plan that puts your livestock in the right place, at the right time, for the right reasons, with the behavior necessary to create the desired outcome in the community.

The planning process was derived from a British military planning procedure for plotting moves on the battlefields, which Allan Savory was familiar with from his Army days. Instead of men, in Holistic Planned Grazing, we plot livestock movement across a grazing area. Some of the calculations that go into creating the grazing plan include recovery periods (for plant re-growth), grazing periods to ensure animals don’t stay too long or return too soon and how much forage is required to feed your animals with enough left for the wildlife grazing the same area.

Some considerations include: social events that impact management, big events on the ranch such as livestock arriving in the spring, or the needs of target species. All of this is entered onto a large grazing chart with pencils and highlighters. Pencil is important because, as managers, we must “embrace the eraser,” as we tell students. Planning is important, but flexibility is crucial. The last part of the Holistic Planned Grazing process is to chart the grazing moves of the herd. This shows how many animals will be present in each grazing paddock for a certain number of days.

A key concept in Holistic Planned Grazing is recovery time. It is not about how many times cattle or other livestock are rotated through a pasture. This is too prescriptive. Plant re-growth matters. The pace of re-growth drives the entire grazing plan. Faster growth means faster moves. Slower growth means slower moves. This is why no two grazing areas, or ranches, are the same. The manager must observe, plan, adjust, monitor and re-plan, if needed. The diversity of the complex communities we desire requires managers to be observant, aware and flexible while moving the whole community toward greater diversity and health.

Every Savory Hub in the Savory Global Network provides a demonstration site as part of the ongoing Holistic Management education provided by the hub. The Jefferson Center is the hub led by us, Abbey and Spencer Smith. The demonstration site for the Jefferson Center is the Springs Ranch, owned by Steve and Pati Smith. It is a multi-generational operation in northern California. Spencer and Steve manage the ranch on a daily basis, with oversight from our daughter, Maezy Smith. As a family, we created a holistic context for the ranch. This informs the grazing plan we create together each year. As a family, we desire biodiversity on the ranch. This is expressed in our holistic context:

“The ranch will have abundant wildlife in the upland areas such as deer, elk, turkeys and quail. Biodiversity will increase across all areas of the ranch. People will be able to walk through our “food forest” and enjoy discovering and harvesting edibles. The soil life will improve so that we experience biodiversity above and below ground. All life will be supported by abundant water from the many natural springs on the ranch. The grasslands will be thick, with new grasses coming on at all times during the growing season. The ranch will be able to support a healthy herd of cattle. Two homes will be on the ranch, where families can live peacefully together and enjoy the natural wealth and diversity of the ranch. The ranch will feel wild and full of life. The water will be clean, clear and safe to drink and play in ...”
This context was created by the decision-makers (our family) managing the whole that is Springs Ranch. We have seen dramatic improvement in several species on Springs Ranch, including the dung beetle. We so admire the dung beetle and the role it plays in a healthy grassland community, that we made it part of the Jefferson Center’s logo.

Dung beetles are a keystone species in a healthy pasture system. They are vital to the nutrient cycle and increasing water infiltration rate in pastures. For the first 20 years that the Smiths owned the ranch, we had to drag meadows each spring to break up the old, oxidizing manure left by the previous year’s livestock. This took weeks of labor and costly diesel each spring to work in the organic matter and utilize the residual benefits of the manure. The ranch was transitioned to certified organic six years ago by Steve and Pati Smith, and the dung beetle population began to steadily return. Today, the dung beetle population is thriving. At the height of summer, dung piles are fully decomposed and incorporated into the soil in about four hours thanks to hard-working dung beetles. With this critical species healthy, increased levels of nutrients are available to plants; parasites are reduced; and heel flies are virtually nonexistent. Higher nutrients in plants and less flies make for happy cows. Elk and deer also enjoy the benefits.

Another application of managing for conservation values is managing for ground nesting birds. In western Nevada, near the Springs Ranch, it is the Greater Sage Grouse. Populations have steadily declined over the last 20 years due to habitat destruction by wildfire and improper public, private and government use.

The Fish and Wildlife Service recognizes that well-managed grazing can be compatible with long-term sage grouse conservation. This is an achievable goal with proactive management. The first step to reaching this goal is to add Greater Sage Grouse to the conservation or management plan for property, as a species of value. Second, identify the weak link in the sage grouse life cycle. The grazing plan then protects the Greater Sage Grouse during its most vulnerable stage. One of the biological weak links for the sage grouse is disrupted breeding and nesting grounds called leks. Livestock can be used to create beneficial leks for the grouse while mitigating fire danger and maximizing habit.

The grazing plan identifies grazing areas where beneficial ecosystem changes for the grouse need to occur. These pastures will be impacted with livestock at the desired time to enhance the birds’ habitat and food needs. The grazing plan will also have planned animal impact exclusions so that the grouse will be allowed to nest and breed in peace.

CONSERVATION GOALS

Once the managers know what landscape they want to create, it is time to commit to this vision by describing it in their holistic context. When creating a grazing plan, discuss the life cycle of valued species. When are they most vulnerable? What do they need? The key step is to make sure the future resource base of the Holistic Context is a true reflection of the decision-makers’ values.

If this step is tended to, then it is simply a matter of managing toward the desired outcomes on a daily basis. Holistic managers acknowledge that they are managing complex systems where an action may have unintended consequences. This means the manager must be constantly observing the land to watch for signs of change (negative or positive). Small tweaks or big re-planning sessions may be needed based on these observations.

The Fox Ranch is a property of the Nature Conservancy in northeastern Colorado engaged in the Holistic Management process in 2011, managing for conservation and production values. The management team created a grazing plan, financial plan, land planning and conducted ecological monitoring. These are the complete suite of Holistic Management procedures.

The Fox Ranch team managed for the Greater Prairie Chicken habitat as well as the health and gain of cattle on the ranch. The lessee on the ranch saw a 93 percent increase in stocking rate year over year, despite a drought in the second year, according to a report by the Savory Institute. The team established monitoring processes for vegetation and bird communities.
The process of creating the holistic context brings people together in new ways. It removes barriers and allows creativity to flow.

“Some folks might think it is obvious that there would be a big gap in understanding and goals between a private rancher and an owner like The Nature Conservancy, but it is my experience that many private owners and their lessees discover they have gaps in understanding and expectations just as big and that they learn just as much—and mutually benefit just as much—when they sit down and engage in Holistic Management through the planning process,” said Savory Institute Program Director Byron Shelton in the report.

Ecological monitoring is critical in Holistic Management because it shows the impact of management decisions. It focuses on the soil surface because that’s where the first signs of change will appear. Are these decisions moving us toward the future resource base described in our holistic context? Are we increasing bare soil or decreasing it? Ecological Monitoring is completed at the same time in the same transects each year. Photos are taken at the same points. A dart is thrown to identify a random point in the transect. That point is examined for litter cover, plant spacing, signs of small and large organisms and more.

Collecting data each year on the land usually creates a record of returning health under Holistic Management. The holistic manager can respond immediately to shifts toward bare soil by adjusting management decisions and actions. The soil surface can tell us if we are moving toward diversity and abundance, or toward barren land.

Holistic Planned Grazing takes upfront work. It is a planning process. The results it creates on the land are profound.

“Livestock, if properly managed, can be the most powerful tool for restoring grasslands, mitigating climate change, enhancing food and water security and contributing to the livelihoods and prosperity of pastoralists around the globe,” said Savory Institute CEO Daniela Ibarra-Howell.

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