Livestock as Land Managers: The Benefits of Sustainable Livestock Grazing on Florida Conservation Lands

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According to the latest inventory (2007) of U.S. major land uses, the U.S. land area totals nearly 2.3 billion acres, with grassland pasture and rangeland accounting for 614 million acres (27 percent). *See* U.S. Dep't of Agric. (USDA), *Major Uses of Land in the United States*, (2007). These lands are located throughout the country, and provide substantial economic and environmental benefits. For example, rangelands provide not only forage for beef cattle, dairy cattle, sheep, goats, horses, and other types of domestic livestock, but also provide food and habitat for many species of wildlife, ranging from big game, such as elk, to nesting song birds, such as meadowlarks. USDA, Natural Res. Conservation Serv., *Range & Pasture*, *available at* http://www.nrcs.usda.gov/wps/portal/nrcs/main/national/landuse/rangepasture. Rangelands also provide other benefits such as recreational opportunities and scenic, cultural, and historic value. *Id.*

Total grazing land includes grassland pasture and range, cropland used for pasture, and grazed forests. In 2007, total grazing land declined to roughly 243 million acres (a decrease of approximately 24 percent from 1949). Although the 2007 inventory has not yet been updated, there is no evidence that this downward trend has slowed since then. *Id.* The loss of rural land to development has generated nationwide concern. In response, the USDA has identified private rural land preservation as a top conservation priority in the United States. *See* Roslynn G. Brain, et al., *Why Do Cattle Ranchers Participate in Conservation Easement Agreements? Key Motivators in Decision Making*, 38 Agroecology and Sustainable Food Sys. 299 (2014). In order to conserve these rangelands and protect them from future development, it is important that federal, state, and local governments work in tandem with landowners to ensure that policies do not unnecessarily restrict the ability to preserve these environmentally and economically important lands.

The State of Florida, in particular, has seen both the number of ranches and the amount of rangeland decrease over the years, despite Florida's rich history of cattle ranching. *See* Martin B. Main, et al., *The Ecology and Economics of Florida's Ranches*, U. Fla., Inst. of Food and Agric. Sciences, WEC 187 (2004). Ranching is an important aspect of Florida's economy and environment. Florida's landscape was once a vast area of grazing lands. For almost 500 years, the cattle industry has contributed significantly to Florida's economy and natural resources. Fla. Dep't of Agric. and Consumer Services, *Florida's Cattle Industry*, (2012), *available at* www.freshfromflorida.com/content/download/17161/272486/P-00044.pdf. Multi-generational family ranches have cared for the land, provided employment for many residents, and contributed greatly to the local tax base. *Id.* The World Wildlife Fund has recognized that "when ranchers manage land for long-term health, wildlife and people, everyone wins." World Wildlife Fund, *Sustainable Agriculture: Beef, Overview* (2016), www.worldwildlife.org/industries/beef.

To protect the remaining rangelands from further loss and development, states such as Florida are increasingly turning to conservation easements because they are more cost-effective than acquiring fee simple title. Conservation easements allow lands to remain undeveloped while still permitting the property owner to continue ranching activities. These agreements benefit both the state and the property owner. The state benefits by increasing the amount of conservation lands without having to pay the full cost of the fee simple title and ongoing land management. The ranch owner benefits by receiving compensation in return for relinquishing the development rights, while still being able to raise cattle and maintain ownership of the land for future generations.

It is critically important that federal, state, and local policies recognize the benefits associated with allowing continued cattle and livestock grazing on lands subject to conservation easements and not unnecessarily restrict or prohibit such uses on these lands. This article discusses the various environmental and economic benefits associated with allowing well-managed cattle grazing on lands subject to a conservation easement, and why cattle grazing in particular can be a valuable land management tool that should not be unnecessarily restricted or prohibited by the regulatory policies of federal, state, or local governments.

Some regulatory agencies have adopted policies that unnecessarily prohibit or restrict owners of conservation lands from implementing managed grazing practices as a land management tool. For example, in Florida, the U.S. Army Corps of Engineers (Corps) has been hesitant, and in some cases has declined, to allow cattle grazing as part of a long-term management plan for compensatory mitigation lands placed under a conservation easement pursuant to a Clean Water Act (CWA) Section 404 dredge and fill permit. On December 15, 2015, the Corps' Jacksonville District (District) issued a guidance document assessing compensatory mitigation proposals that allow for managed cattle grazing within areas associated with required mitigation. *See* Memorandum from Michael G. Montone, Chief, West Permits Branch and Mining Team,

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U.S. Corps of Army Engineers, to Jacksonville District Mining Team, *Review of Permittee-Responsible Compensatory Mitigation Plans that propose Cattle Grazing as a Compatible Use* [hereinafter Grazing Guidance], Dec. 15, 2015 (on file with author). The Grazing Guidance appears to disregard the plain language of the Corps' own 2008 Mitigation Rule, 40 C.F.R. Part 230, Subpart J, setting performance standards and criteria for compensatory mitigation of lost wetland functions in CWA permits.

Under the 2008 Mitigation Rule, all mitigation plans, whether for a mitigation bank, in-lieu fee program, or permittee-responsible mitigation, must include provisions for site protection, long-term management, and adaptive management to ensure the long-term success and sustainability of the mitigation. *See* 40 C.F.R. § 230.97. The Mitigation Rule does not eliminate grazing as a management tool. It provides:

> The real estate instrument, management plan, or other mechanism providing long-term protection of the compensatory mitigation site must, to the extent appropriate and practicable, prohibit incompatible uses (e.g., clear cutting or mineral extraction) that might otherwise jeopardize the objectives of the compensatory mitigation project. *Where appropriate, multiple instruments recognizing compatible uses (e.g., fishing or grazing rights) may be used.*

40 C.F.R. § 230.97(a)(2) (emphasis added).

In contrast, the Grazing Guidance concludes that "[u]nless an applicant submits compelling case-specific evidence demonstrating that cattle grazing is consistent with the objectives of the proposed permittee-responsible mitigation plan, the Mining Team [Project Managers] will generally conclude that cattle grazing is incompatible with compensatory mitigation areas and will jeopardize the objectives of the compensatory mitigation project." Grazing Guidance, *supra*, at 9. The guidance also wrongly states that "[b]ased on the current scientific data available regarding the impact of cattle grazing on wetlands in Florida, it is unlikely that the [Jacksonville] District will determine that cattle grazing is consistent with the objectives of a permittee-responsible mitigation plan." *Id.* at 10.

The Grazing Guidance cites two articles as supporting its conclusions relative to the role of grazing on mitigation sites. One is a 2006 article claiming that "cattle grazing adversely impacts wetlands and streams in several ways." Reliance on that article is misplaced; the article distinguishes "controlled" from "uncontrolled" grazing (which admittedly can result in adverse impacts to waters), a distinction not identified in or recognized by the District Guidance. *See* William Giuliano, *Fencing Pasture Streams, Ponds and Wetlands*, U. Fla. IFAS-WEC 210 (2006). Second, the District cites a U.S. Geological Survey (USGS) Fact Sheet to support its claim that "[c]attle grazing can also provide opportunities for invasive plant species to become established in wetlands and riparian systems." Grazing Guidance, *supra*, at 3. The USGS Fact Sheet is not relevant to the District's conclusions; it pertains to a study of cattle grazing on one type of plant species habitat, a sedge meadow, and not a wetland ecosystem similar to that found in Florida.

The Natural Resources Defense Council (NRDC) and Earthjustice have come out in opposition to cattle grazing on publicly and privately-owned conservation lands. Their concerns can be legitimate when focused on overgrazing and poor land management. According to their joint publication, *Livestock Grazing and the Environment* (2014), authorized cattle grazing on federally owned lands has resulted in adverse impacts to vegetation biomass, causing erosion and destruction of rangeland soils, degrading water quality and damaging riparian areas, and competing with wildlife species for food and space. *See* http://vegetarian.procon.org/sourcefiles/livestock_grazing_and_the_environment.pdf. But the issues cited by this paper can be effectively addressed with modern range management practices, such as maintaining proper stocking rates, creating riparian pastures, establishing surface water buffers, and limiting grazing in sensitive areas. *See* Sheila Barry, *Public Lands Need Cattle to Meet Conservation Goals*, Bay Nature Inst., May 8, 2015, *available at* http://baynature.org/article/pro-public-lands-need-cattle-to-meet-conservation-goals/. Barry and other authorities document the benefits of well-managed grazing on lands subject to a conservation easement.

Scientific Foundation to Support Livestock Grazing on Conservation Lands

According to the USDA, prescribed grazing can serve the following conservation purposes:

1. Improve or maintain desired species composition and vigor of plant communities;
2. Improve or maintain quantity and quality of forage for grazing and browsing animals' health and productivity;
3. Improve or maintain surface and/or subsurface water quality and quantity;
4. Improve or maintain riparian and watershed function;
5. Reduce accelerated soil erosion and maintain or improve soil condition; and
6. Improve or maintain the quantity and quality of food and/or cover available for wildlife.

See USDA, Natural Res. Conservation Serv., *Conservation Benefits Of Rangeland Practices: Assessment, Recommendations, and Knowledge Gaps, Executive Summary*, 2011 at 12.

A California study of concerns over livestock grazing on rangeland as a potential nonpoint pollution threat to water quality found that plant species composition in springs is controlled more by the vagaries of climate than by grazing intensities; it also found that along creeks, species composition can be manipulated by altering grazing intensity. *See* Barbara Allen-Diaz, et al., *Long-term Grazing Study in Spring-fed Wetlands Reveals Management Tradeoffs*, 58 Cal. Agric. 144 (2004). The study found that there were no changes in the relative amounts of native and nonnative species over time under any grazing treatment and that lightly grazed wetlands exhibited greater species evenness and diversity than either ungrazed or moderately grazed plots. Five years of data showed no changes in channel morphology due to grazing. Additionally, the study reported that nitrate levels in springs and streams increased with grazing removal (along with an increased accumulation of dead plant material), inhibiting plant production and resulting in stream-nitrate concentrations that far exceeded water quality standards.

In another study, The Nature Conservancy looked at the impacts of cattle grazing over a three-year period on native species diversity in ephemeral wetlands. *See* Jaymee T. Marty,

Effects of Cattle Grazing on Diversity in Ephemeral Wetlands, 19 Conservation Biology 1626 (2005). After three years, ungrazed pools had 88 percent higher cover of exotic annual grasses and 47 percent lower relative cover of native species than wetlands that were continuously grazed. Species richness of native plants declined by 25 percent, and aquatic invertebrate diversity was 28 percent lower in the ungrazed areas compared with the continuously grazed areas. The areas that were ungrazed also had the lowest number of invertebrates compared to areas that were continuously grazed, dry-season grazed, or wet-season grazed. *Id.* The article concludes by stating that for the wetland areas studied, livestock grazing played an important role in maintaining species diversity, and the removal of grazing resulting in significant negative effects on the native plant community, wetland hydrology, and aquatic invertebrate community. According to the study's author, grazing should be considered among a variety of important tools for land managers interested in the maintenance of biodiversity. *Id.*

These two case studies provide overwhelming scientific support that properly managed livestock grazing can be environmentally beneficial in maintaining conservation lands and an important long-term management tool. In addition, other scientific studies have found that livestock grazing (and cattle grazing in particular) can enhance plant and wildlife diversity, provide invasive species control, and help improve water quality on conservation lands.

Plant and Wildlife Diversity

Despite claims to the contrary, managed cattle ranching and grazing has not been shown to cause adverse impacts to native plants or wildlife populations. In fact, the mix of native habitats found within and among ranches—such as marshes, swamps, woodlands, and others—is crucial to providing food and cover that supports a diversity of species, each with its own particular needs. Even improved pasture provides benefits to some species of wildlife, particularly when wetlands and other native habitats are present. *See* Martin B. Main, et al., *The Ecology and Economics of Florida's Ranches*, U. Fla., IFAS-WEC 187 (2004).

In Florida, more than 400 species of birds have been documented, many of which utilize habitats found on ranchland during part or all of the year. Some bird species, such as sandhill cranes and swallow-tailed kites, seek Florida as a seasonal destination. Others, including many songbirds and shorebirds, depend on habitats found on ranchland to provide important resting and feeding stops during migration to and from South and Central America. *Id.*

Large ranches in particular provide critically important wildlife habitat for many plants and animals that are endangered, threatened, or species of concern. Many of Florida's rarest species, such as the Caracara and the endangered Florida panther, depend upon undeveloped ranchland for their continued survival. For example, the Florida Fish and Wildlife Conservation Commission estimates that more than 50 percent of habitat used by Florida panthers exists on privately owned land, most of which supports cattle ranching. Land management practices, such as cattle grazing, are routinely used by cattle ranchers to reduce shrubby understory, stimulate plant growth, and maintain habitat productivity that benefits both livestock and wildlife. *Id.*

Invasive and Non-Native Plant Species Control

Invasive plants can negatively impact wildlife by reducing food and habitat availability. Prescribed cattle grazing is also a proven land management tool for controlling invasive and non-native plant species on conservation lands. The key difference between prescribed grazing and other invasive plant management strategies is that it can be affordably used on an annual basis to reduce invasive plant and biomass production in many situations. *See* USDA Natural Res. Conservation Serv., *Conservation Benefits of Rangeland Practices: Assessment, Recommendations, and Knowledge Gaps*, (D.D. Briske ed. 2011). In contrast, mechanical and chemical treatments, may be less effective because the control they provide is ephemeral and expensive. *Id.*

Water Quality, Nutrient Impacts, and Best Management Practices

Scientific studies have concluded that cattle ranches generally are not a major source of nutrients to surface water, especially when compared to more intensive agricultural or urban uses. The primary source of nutrient loading associated with cattle ranching is fertilizer used on improved pasture and not animal waste. However, a majority of rangelands and other lands sought for conservation are typically not the types of land maintained as improved pasture. Ranchers typically do not use fertilizer on unimproved pasture and never use it on native range. *See* Main, et al., *supra*. In addition, data from the Lake Okeechobee watershed has shown that retaining water in beef cattle pastures can be an effective method for reducing nutrient runoff volume as well. *See* Maria L. Silveira, et al., *The Cow-Calf-Industry and Water Quality in South Florida, USA: A Review*, 89 Nutrient Cycling in Agroecosystems 439, 440 (2011).

In 2013, the University of California, Davis, conducted a survey of water quality conditions associated with cattle grazing on U.S. Forest Service (USFS) lands in northern California as part of a larger public lands grazing and water quality project. The survey reached comparable conclusions to those cited above for Florida: cattle grazing on public lands does not degrade surface waters. In particular, the survey found that mean and median nutrient concentrations observed across the study area were well below eutrophication benchmarks and background estimates. In addition, the results of the survey did not support concerns that excessive nutrient pollution was degrading surface waters on the studied USFS grazing lands. *See* Leslie M. Roche, et al., *Water Quality Conditions Associated with Cattle Grazing and Recreation on National Forest Lands*, PLOS ONE 8:6, e68127 (2013).

In contrast, removing cattle grazing on rangelands that come under a conservation easement has been shown to actually have a negative impact on water quality. As discussed above, the removal of livestock grazing from wetlands can allow dead plant material to accumulate, thus inhibiting plant production, resulting in an increase in nutrient concentrations. Some degree of grazing is desirable from an ecosystem function perspective, as long as the grazing is properly managed and over-grazing is not permitted. *Id.*

Agricultural best management practices (BMPs) are practical measures that producers can take to reduce the amount of

fertilizers, pesticides, animal waste, and other pollutants entering water resources. The Florida Department of Agriculture and Consumer Services (DACS) is responsible for establishing agricultural BMPs in Florida and has adopted a BMP manual specifically for cow/calf operations in the state and to protect imperiled species. In general, implementation of BMPs is voluntary in Florida, except that Florida law requires agricultural operators, such as ranch owners, that are within a basin management action plan (BMAP) area and identified as a source of pollution to demonstrate compliance with appropriate BMPs. *See* Fla. Stat. § 403.067(7).

The cow/calf BMPs are designed primarily to improve water quality while maintaining agricultural production. *See* FL Dept. of Ag. and Cons. Serv., *BMPs at a Glance*, *available at* http://www.freshfromflorida.com. In particular, the BMP manual covers key aspects of water quality and water conservation, including nutrient management practices, irrigation management practices, water resource protection practices, prescribed grazing, erosion control, and wetland and spring protection. *See Water Quality Best Management Practices for Cow/Calf Operations*, Fla. Dep't Agric. & Consumer Services, DACS-P-01280, 2008 edition, *available at* http://freshfromflorida.s3.amazonaws.com/Bmp_FloridaCowCalf2008.pdf. The cow/calf BMP manual also includes provisions to educate ranchers on ways to better manage pesticide use, pharmaceuticals (antibiotics and hormones), and ranch waste.

Cow/calf BMPs are widely adopted throughout Florida. As of June 30, 2015, there were approximately 1,450 enrollees in the cow/calf BMP program covering over 2,538,606 acres. *See* www.freshfromflorida.com/content/download/25962/500103/file/OAWP_Statewide_Enrollment_Map.pdf. In the Lake Okeechobee Watershed alone, there are approximately 996,571 acres under the cow/calf BMP program. *Id.* at 10. Other states around the United States have similar BMP programs in place.

Recently, DACS and the Florida Fish and Wildlife Conservation Commission (FWC) developed Wildlife BMPs in order to promote sound, responsible practices that foster agricultural land use, promote natural resource conservation, and reduce the potential for incidental take of threatened and endangered species. Both DACS and FWC recognize that agricultural lands provide a valuable benefit to the conservation of fish and wildlife, including many of the state's listed species. Recognizing this, the Wildlife BMP Manual was developed to enhance agriculture's contribution to the conservation and management of freshwater aquatic life and wildlife in the state. *See* Fla. Dep't Agric. & Consumer Services, *Agriculture Wildlife Best Management Practices for State Imperiled Species*, 2015 edition, *available at* www.freshfromflorida.com/content/download/61100/1270718/WildlifeBMP_final.pdf.

Practical Examples in Florida

Several Florida state agencies that administer conservation lands use cattle grazing as a management tool. For example, Florida recently acquired two conservation easements from the owners of the Horse Creek Ranch and Limestone Ranch near the town of Wauchula. In each of these conservation projects, the property will continue to be managed by the landowner, and cattle grazing will be allowed. Despite the continuation of cattle grazing on the ranches under the conservation easements, the two projects are projected to

1. Increase the protection of Florida's biodiversity at the species, natural community, and landscape levels;
2. Protect, restore, and maintain the quality and natural functions of land, water, and wetland systems of the state;
3. Ensure that sufficient quantities of water are available to meet the current and future needs of natural systems and the citizens of the state; and
4. Increase the amount of forestland available for sustainable management of natural resources.

See Fla. Dep't Envtl. Prot., *Horse Creek Ranch*, *available at* www.dep.state.fl.us/lands/FFAnnual/Horse_Creek_Ranch.pdf , and FDEP, *Annual Limestone Ranch*, *available at* www.dep.state.fl.us/lands/FFAnnual/Limestone_Ranch.pdf.

Local governments have observed the same benefits from cattle grazing on conservation lands. Alachua County, Florida, uses cattle grazing to manage lands acquired for conservation purposes. The county has found that continuing to allow grazing on lands actively ranched prior to acquisition by the county can be an important management tool, providing multiple benefits, such as maintaining the current ecological quality and conservation values, reducing land management costs, generating revenue, reducing wildfire risk, improving site security, and preserving the county's rural heritage. *See Alachua County Forever Cattle Grazing Business Plan*, Jan. 2012 at 7. It can also be good for the local economy. While Florida law provides a complete exemption from ad valorem taxes on land dedicated in perpetuity to, and used exclusively for, conservation purposes, land dedicated in perpetuity for conservation purposes but used for compatible commercial uses (e.g., cattle grazing) is exempt from ad valorem taxation to the extent of 50 percent of the assessed value of the land. Fla. Stat. §196.26 (2015). Cattle grazing on conservation lands thus enables counties to collect at least some taxes, an important matter in a rural area.

Conclusion

The use of managed cattle grazing on lands subject to a conservation easement can provide substantial environmental benefits and is a proven, cost-effective land management tool that should be promoted, not prohibited or unduly restricted. The endorsement of livestock grazing by regulatory agencies as a means of managing lands under a conservation easement could also result in more private ranch owners offering to enter into conservation easements instead of selling their land to developers. This, in turn, could lead to an increase in the conservation of these environmentally, culturally, and economically important rangelands, reducing the amount of open land lost to development or to more intensive agriculture practices. The environmental and economic benefits associated with well-managed and BMP-compliant cattle and livestock grazing on lands under a conservation easement are supported by sound science and constitute good public policy.