

Buck Island Ranch: Forging a Way to Sustainable Ranching – 2018

Among the challenges of the 21st century is doing agriculture in a way that supplies enough food for a burgeoning global population, while also sustaining natural biodiversity, nature's services, and economic viability. Cattle ranching is a key industry for developing these sustainable practices, and is especially relevant to Florida. Florida is one of the oldest and largest cattle-producing states in America, dating back to five hundred years ago when cattle was introduced by Spanish explorers. Ranching remains a vibrant part of Florida's economy, culture, and heritage.



Buck Island Ranchers herding cattle. Photo by Carlton Ward.

With a strategic mindset, Archbold Biological Station has invested in the advancement of sustainable ranching since 1988 on the 10,500-acre Buck Island Ranch, establishing the MacArthur Agro-ecology Research Center. Since then, Buck Island Ranch has developed an intense and successful history focused on “hands-on” agro-ecology research and conservation, all of which fits into the overarching mission of Archbold that is integrated research, education, and conservation.

Jim Handley, executive director of Florida Cattlemen's Association says, “Once Buck Island Ranch became aligned with Archbold, it became a valuable partner in helping the cattle industry understand and embrace sustainable ranching practices. They have built a wonderful communication bridge between us and the non-ranching community.”



A prescribed fire within a patch-burn grazing pasture, which is one of the alternative management practices the MacArthur Agro-ecology Research Center studies on Buck Island Ranch. Photo by Jaide Allenbrand.

Buck Island Ranch, a fully operating production with 3,000 cows, boasts some impressive numbers that contribute to and are a result of conservation efforts. It has conservation easements across 3,763 acres, is home to more than seven hundred plants and vertebrate animals, of which six are listed as federally threatened or endangered.



The Crested Caracara, a federally threatened bird that prefers pastures and open land, is found commonly on Buck Island Ranch. Photo by Alex Calzadilla.

These efforts are made possible by Archbold scientists and collaborators from universities and government organizations. Temperince Morgan, executive director of The Nature Conservancy Florida Chapter, explains that “Agricultural, conservation, and governmental organizations look to Archbold’s Buck Island Ranch as the ‘true north’, trusted repository of dependable science that will solve tough environmental issues we face. We are fortunate to have this natural laboratory in the northern Everglades watershed.” The agro-ecology research conducted in this “natural laboratory” has led to more than 150 scientific publications and 33 graduate theses or dissertations that span multiple ecosystems, from pastures to wetlands to water.



Advanced instrumentation called Eddy flux towers are one of the ways greenhouse gas cycling is studied on Buck Island Ranch. Photo by ABS.

The agro-ecology research addresses multiple perspectives of sustainable practices, evaluating which solutions lead to the best possible impact on ranching and the ecosystem at large. These solutions include conserving biodiversity, maintaining ecosystem processes, enhancing land management, addressing invasive plants and animals, and anticipating climate change. Archbold's MacArthur Agro-ecology Research Center also ensures that this knowledge will be fostered in future generations by providing intensive research internships for those who have finished their undergraduate degrees lasting between 6 months and a year. These interns are the scientists of tomorrow that will help solve some the most pressing environmental issues, including the development of sustainable agriculture.



Betsey Boughton, MacArthur Agro-Ecology Research Center Director, collecting water in one of Buck Island Ranch's wetlands. Photo by ABS.

Buck Island Ranch has been recognized across the state for promoting innovations in the ranching industry, for protecting Florida's heritage and for outstanding environmental stewardship. Archbold is also working to improve agricultural sustainability on a national and global level by being selected as a site within the U.S. Department of Agriculture Long-term Agro-ecosystem Research Network. Greg Hendricks, who is retired from the U.S. Department of Agriculture, Natural Resources Conservation Service, says that, "For more than 30 years, the USDA NRCS and our private landowner clientele, have benefited greatly from our relationship with Buck Island Ranch and Archbold □ whether it be working on grazing lands, conservation, wetland restoration, water quality, invasive plant species control, or the protection of threatened and endangered species."



An aerial view of an old grove on Buck Island Ranch that is now used as a flow-through treatment area for a water quality improvement project. Photo by ABS.

The research conducted at Buck Island Ranch will continue to produce positive impacts on ranching practices, while creating trusted communication channels among ranchers, conservationist, and governmental agencies. All forging a path forward to shared solutions with the power to affect the lives of millions of people in Florida and around the world.