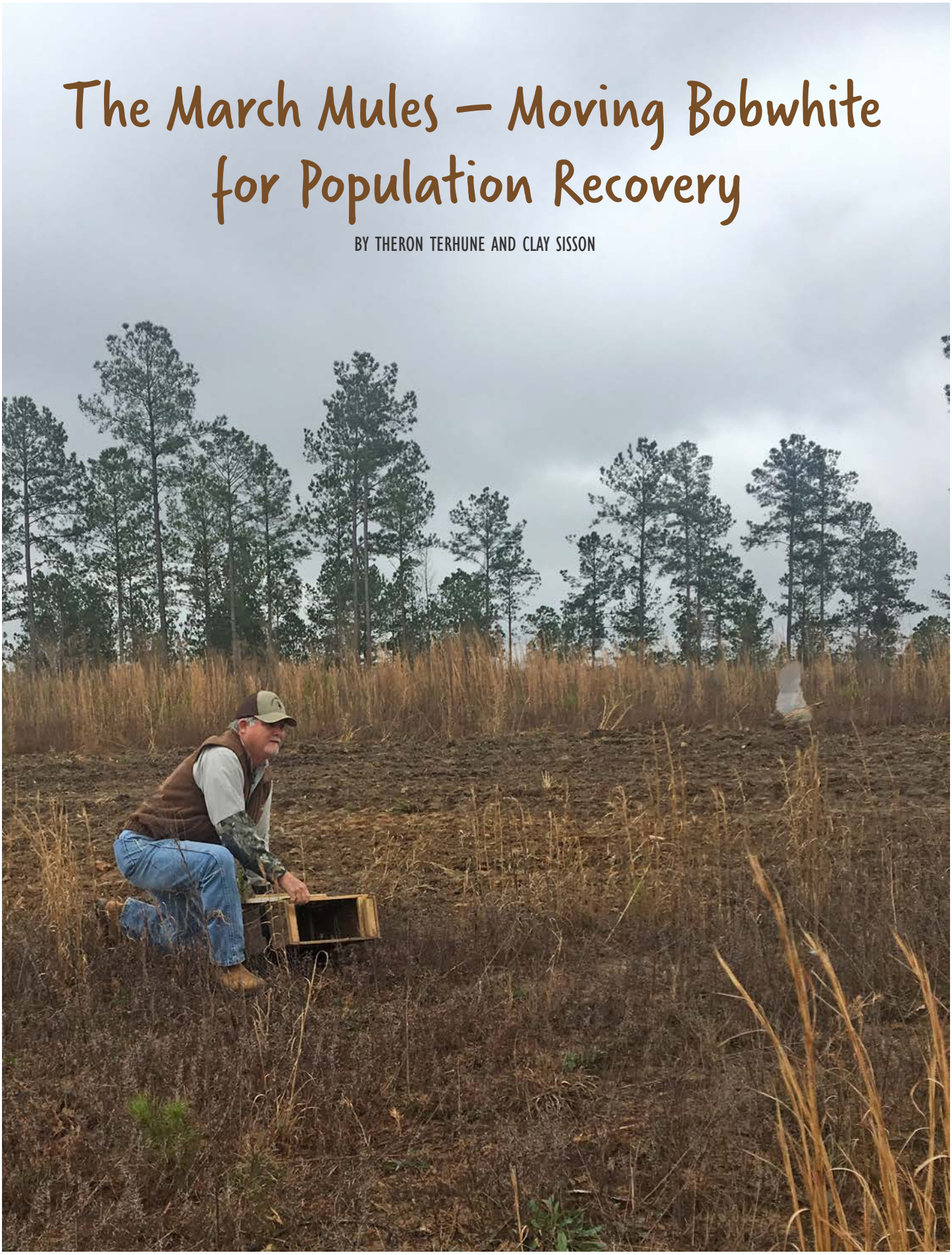
The March Mules – Moving Bobwhite for Population Recovery

BY THERON TERHUNE AND CLAY SISSON



The sleepy effect of sunrise feels as though lead weights are dangling from my eyelids, and my persistent head bobs may appear to driver's passing by that I am rocking out to Van Halen or Pink Floyd.

Little do they know that a hundred or more bobwhite quail are covertly tucked away in wooden transport boxes in the back seat clandestinely "on the move" across state borders. Buuurrmph, buurrmph — it's during these times I am actually thankful for the obnoxious-sounding, washboard-grooved pavement located to the right of the white lines as they remind me time and again to stay awake and focused. Translocation seems akin to smuggling drugs across state lines late at night and early mornings attempting to get birds to their destination as soon as possible.

While we have yet to be pulled over translocating birds, scores of scenarios run through our minds as to how we would explain to an officer that he/she could not or should not open the boxes taped up with different colored duct tape, emitting a not-so-pleasant smell and labeled accordingly with property names. Jacked up on Mountain Dew, high on No-Dose, eyes dilated, dark circles under the eyes from sleep deprivation, cheeks red from slapping myself and chewing bubble gum like I own stock in Dubble Bubble the miles add up. Um, yes officer … here is my license, registration and scientific collection papers. Or, alternatively, just play it cool and act like everything is normal? And if he/she asks just recommend they carefully open the box in their own vehicle?! I doubt we'd get off with just a warning!! The things we do … for the love of bobwhite!

The process of translocation is indeed long, and one that is a year-round adventure for the Game Bird Program at Tall Timbers — from helping landowners and land managers meticulously whip habitat into shape for the receipt of birds, to securing permits for moving birds from one state into another, to locating adequate numbers of source birds for translocation, to assessing bobwhite and predator abundance on both source and recipient sites, to planning and coordinating pre-baiting, trapping and transport of wild birds. It is a tedious and painstaking process, but a worthwhile venture in the name of science and bobwhite conservation.

At left, Mark Sasser, Tall Timbers' Alabama Regional Quail Biologist releases quail translocated from Georgia to Triple Creek Farm in St. Clair County, Alabama, in March 2020. Photo by Clay Sisson. At right, male bobwhite. Photo by Shane Wellendorf.

What is translocation?

Translocation describes the physical processes of capturing, transporting, and releasing wild individuals (bobwhite) from designated donor sites to recipient sites, with the ultimate objective being a viable population that exists in perpetuity, and oftentimes equally important is sustaining a moderate recreational harvest.

Why is translocation needed for bobwhite?

We could write a dissertation on the scientific validity of translocation, in fact we have, but truly the reason we move birds all over the country is because we love this pint-sized bird, and without translocation some places simply would never again hear the distinctive 'bob-white' call echoing through the tall pines or reverberating atop the blades of grass in the prairie. The bobwhite is arguably the most romantic of game birds to hunt, with intricate rules of etiquette while hunting from horseback, with mule-drawn wagons and double-barrel shotguns, and behind pointing bird dogs.

There is something nostalgic about sneaking up behind a bird dog locked on point among the eerie silence of the woods — yet with the din of crunching leaves, scores of songbirds scuttling and calling about, and wind whirring through the treetops — knowing an explosion of plump-sized feathered rockets will erupt from the cover. Few, if any, other wildlife species bridges the social connection between people, dogs and the pensiveness of nature as does the Prince of Game Birds. How can someone not fall in love with such a magnificent bird?!



–Translocation continued on page 24

For many, though, having bobwhite return to their property it is not so much about the hunt but about restoring the bird and its long-lost call — reminiscent of their youth — to their property once again.

In the movies *The Patriot* and *The Gladiator*, Mel Gibson's and Russell Crowe's characters' scream, "HOLD THE LINE," with the intent to champion the troops and prevent a collapse of their armies and winning the battle. In a similar vein, translocation serves as a means to "holding the line" relevant to range creep or range contraction which bobwhites are experiencing along the northern periphery of their historic range.

In many places and some portions of most states, especially in the northeastern and midwestern United States, you commonly hear: "becoming scarce," "likely to be extirpated," "we used to see them all the time," "almost exterminated," "only a few left to breed," "hunting season should be closed," and "they were here everywhere, and then they were just gone," resound among landowners, old-time hunters, biologists and scientists throughout the bobwhite's range. Unfortunately, these phrases were all too common for species that no longer exist like the Dodo bird and the passenger pigeon; but, these words were also penned to describe the plight of the wood duck in the late 1800s and early 1900s, whose comeback is one of the greatest in history for a game species.

Since 2002, the Game Bird Program at Tall Timbers has translocated a total 6,554 birds resulting in restoring wild birds to harvestable population levels on more than 86,000 acres. The estimated economic value of this wild bird resource is $4,822,368!

Despite some similarities between wood duck and bobwhite quail in terms of their downward population trajectories, several differences make an equally epic comeback for bobwhite a much more difficult row to hoe. Not only are bobwhite non-migratory, but they require early-successional plant communities, which in much of their range is created and maintained largely through the proper application of prescribed fire — a practice that incites fear for many, and as a result has been suppressed or excluded over much of the country. The different and rapidly-changing landscape of today (rapid human growth and urbanization, for example), compared to that of the early 1900s is a more permeable landscape that's less than favorable to population persistence and natural recolonization for a non-migratory species like bobwhite, especially in light of resistance to management actions such as prescribed fire. The results have not only impacted bobwhite, but harmful human activity on the landscape impacts scores of songbirds, invertebrates and mammals.

Whereas bobwhite have declined precipitously (>80%) since the 1960s, research has also demonstrated that insects have declined by more than 76% during the last 2 decades while grassland songbirds have declined by nearly 55% since 1970. Put another way, our human-influenced world makes it easier for many species and especially birds like bobwhite to disappear and fall through the holes in the landscape than to reappear naturally given the porous habitat available to wildlife. As a result, the once abundant bobwhite whom appeared as a natural byproduct of land-use practices many decades ago is now a limited commodity that requires substantial dollars and intentional effort to produce and maintain. And, given this permeability of the landscape combined with the highly fragmented and isolated habitat patches, natural recolonization is very unlikely in many areas. Consequently, translocating wild bobwhite provides a means to artificially disperse birds for recolonizing areas that have recently been restored and where quality habitat management is in place to ensure long-term success. In spite of the challenges to population recovery, we have had major success using translocation to augment, bolster, and even reintroduce bobwhite along the east Coast.

We began dabbling with moving bobwhite and attempting to study individual and demographic response following translocation in 1997. Since that time, we have continued to implement, investigate with experimental studies, and monitor population responses pre-, during and post-translocations, to advance the needle in reintroduction science, as well as to facilitate bobwhite conservation and population recovery.

Translocation Success Stories

This has led to dozens of bobwhite restoration success stories over the years, from population supplementation and augmentation to complete reintroduction. It has been our experience that when implemented correctly — that is, under the right conditions and right timing — translocation is an exceptional conservation tool to restore and recover bobwhite with a high probability of success. To date, we have translocated birds to 19 different properties located in 8 different states (see Figure 1).

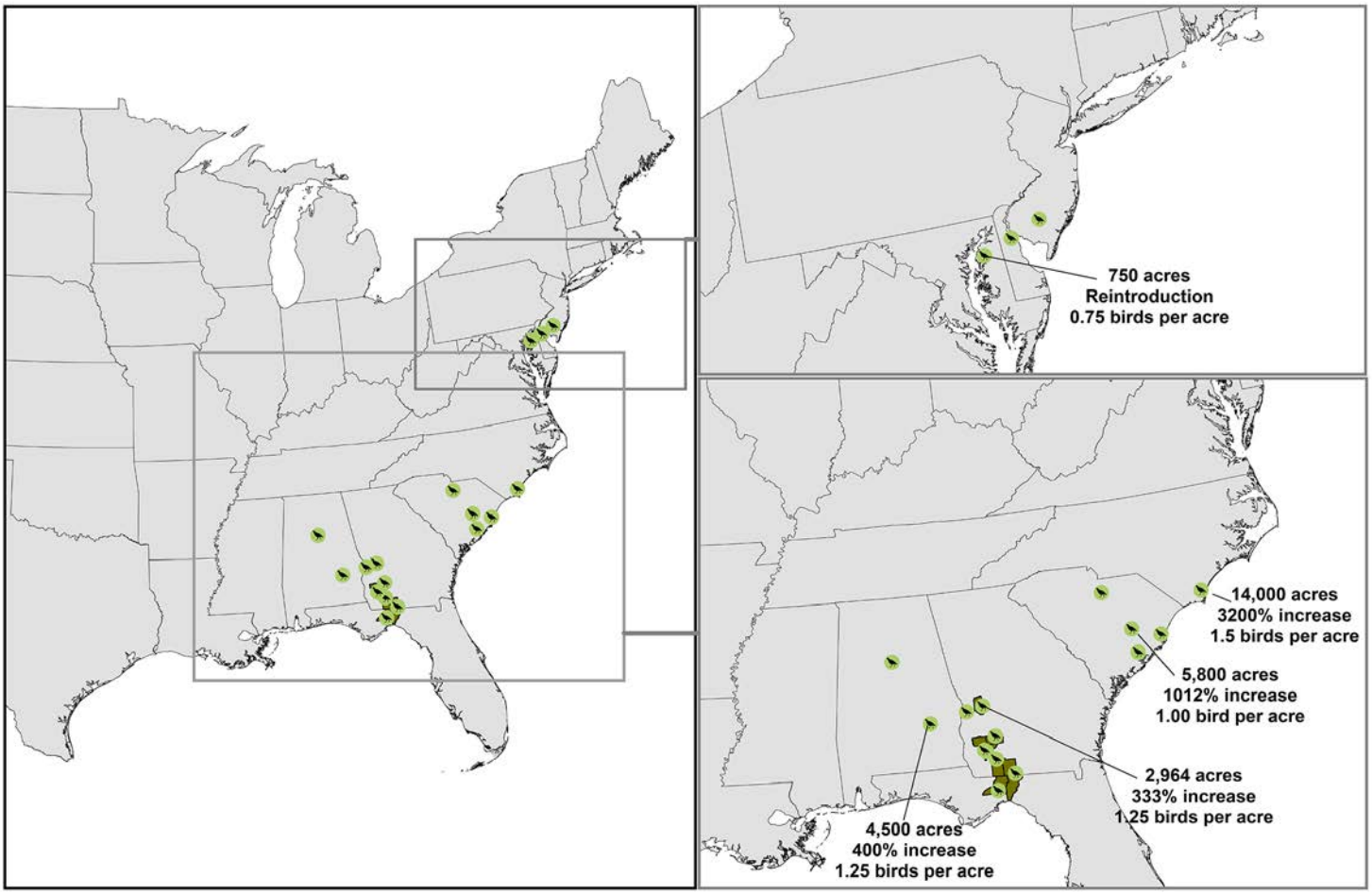


Figure 1. Recipient sites (indicated by the quail inside green circles) for translocations conducted along the east Coast by the Tall Timbers Game Bird Program since 2002. Observed population increases ranged from 333% to 3200% as well as served as a reintroduction on sites where quail were extirpated.

Translocation Success Story in Georgia

Our first major success story began in 2003, on a private property (2,964 acres), located in Marion County, Georgia. This marked our first large-scale research study where we compared translocated birds to resident birds to understand the genetic and demographic response associated with translocation. We found that introgression (hybridization) of translocated and resident bobwhites was high, and the reproductive potential of translocated birds was equal to or greater than resident birds. This study also provided some of the initial parameters, such as site fidelity and minimum property size (>1,500 acres), required to achieve success with translocation.

In a 3-year timeframe, the population density on this property increased 333%, and has maintained an average bird density of 1.25 birds per acre or greater since. Bobwhite have been hunted on this property for more than 15 years now, and this property also became the first translocation recipient site to donate birds for translocation to another site.

Translocation Success Story in North Carolina

A large property (>14,000 acres) located near Wilmington, North Carolina is not only infused with rich family history and culture, but renders a unique perspective on the efficacy of translocation. Thanks to funding by The Moore Charitable Foundation in 2013, we were able to begin an intensive, long-term research project (still ongoing), to understand vital rates on a property with soil nutrient limitations, to investigate the need for repeatability (recurring injections of translocated birds) to achieve population targets, and the first study to evaluate chick ecology and survival of translocated birds compared to resident birds.

Overall, we discovered that managing cover in poor soils, while challenging, can be successful when providing additional resources such as: supplementing brood fields with nutrient-rich material (cured hog manure, or decomposing debris); leaving vegetation along drains or lowlands to provide much needed structure for escape cover and brood-roosting cover; supplemental feeding; and intensive

meso-mammalian predator control. In addition, while chick production was similar for translocated and resident birds, chick size, growth, and survival were slightly lower for translocated birds than for resident birds — potentially indicating that stress of translocated adult birds could be manifested in their progeny.

This property experienced population growth upward of 3200% in a 4-year period, growing from less than a bird per 20 acres to more than 1.65 birds per acre. The landowner is now hunting this property regularly and moving 3–4 coveys per hour, on average, and some days moving greater than 5 coveys per hour.

An interesting twist to this restoration success story is that during 2018, the second year removed from translocation, this property was hit by a category 4 hurricane (Hurricane Florence), high winds (130+ mph) and abundant rainfall (>35 inches) pummeled the study site causing severe damage to trees, habitat and the birds themselves.

Fortunately, we were able to monitor the effect on bobwhite using radio-telemetry as part of our long-term research efforts. We lost ~20% of our adult radio-tagged birds during the hurricane event. Bobwhite chick loss was even greater with nearly 100% of bobwhite chicks <4 weeks old succumbing to the impacts of the storm. We also observed ~55% loss of chicks ages 4-8 weeks old, while chicks greater than 8 weeks of age fared much better — similar to adult birds (~25% loss).

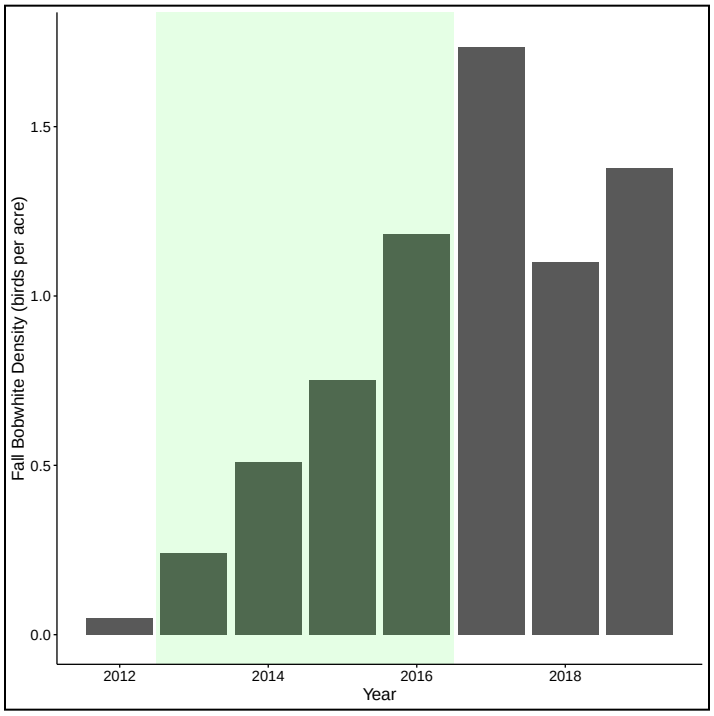


Figure 2. Fall bobwhite density increased by ~3200% in a 4-year period (green highlighted section) as a result of translocation on a property in North Carolina.

The good news is that despite this devastating blow to the population — about a 45% decrease in fall abundance — the population rebounded within 1 year following the hurricane event (see Figure 2). And this is without additional translocation, indicating that translocation can help to obtain population targets (e.g., 1 bird per acre), and with the proper habitat management and adequate resources, the population can withstand natural random weather events like hurricanes.

Translocation Success Story in Alabama

From 2013–2015, we conducted the first ever interstate translocation of wild birds from Georgia to Alabama onto 4,500 acres of an historic quail property near Union Springs, Alabama.

This property had been managed for quail hunting for decades, but had been liberating pen-raised birds prior to the season, for many years in recent history. The new owner stopped this "cold turkey," and contracted with Tall Timbers to move 100 wild quail per year onto this site for 3 consecutive springs, after allowing the property to be "cleansed" of pen-raised birds for an entire year.

A covey census, the fall prior to the first release, indicated a population of wild birds of only .25 birds/acre. After modifications to the management program, 300 wild birds were translocated over 3 years. The covey census 3 years later indicated a density of 1.25 birds/acre, a 400% increase. The wild bird hunting on this site has been good since then, and the landowner is happy.

This site also hosts the National Shooting Dog Championship field trial each year in February, where in 2020, several dogs had 5-6 finds and the winning dog had 9 finds on wild birds in 1.5 hrs. In 2018, this landowner expressed his gratitude and displayed his conservation ethic by in turn becoming a donor of wild birds for translocation to another newly developed site in Alabama.

Translocation Success Story in Maryland

A property (~750 acres) located on the Eastern Shore of Maryland was the first situated in an ag-dominated landscape; a complete design and implementation of habitat was required. An additional challenge with this property was that no quail were known to exist there or known to exist within 50 miles of the property. When we started working on this property <2% of the habitat was quality year-round cover for bobwhite. Therefore, our 5-year management plan prior to translocation involved establishing

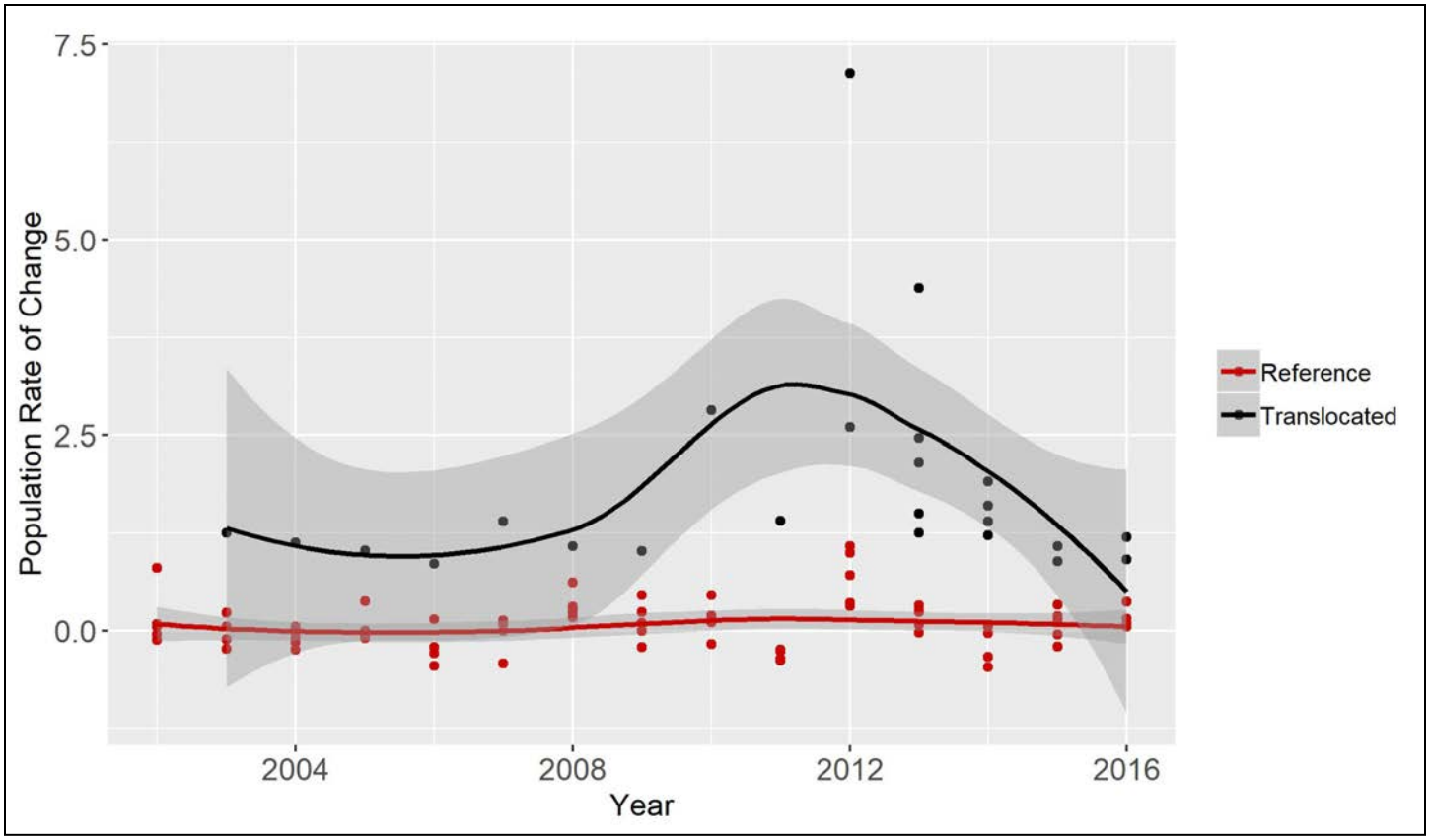


Figure 3. Population growth rate for translocation sites (black) during years of was 1.5 to nearly 5 times greater than reference areas (red) not receiving translocation.

from the ground up quality year-round cover for bobwhite on 25% of the farm. Now, more than 10 years later, with intensive habitat work and 4 years of translocation beginning in 2015, this property has approximately 0.75 birds per acre, and bobwhite are consistently being seen and heard on this farm being intensively managed, as well as on adjacent farms.

This is a true bobwhite reintroduction success story! While still recent since the translocations, we will continue to monitor the population on this property for the next several years, to evaluate its long-term success since the translocation plug has been removed.

All of these properties have several attributes in common aligning the stars for translocation success including being intensively managed, and having dedicated resources and staff necessary to establish and maintain high-quality habitat prior to, during and post-translocation.

When implementing intentional and intensive habitat management, we have observed regular population increases of 182% –343% (see Figure 3), over a 3–4-year time period. When comparing this to a backdrop of long-term regional population declines, these are staggering numbers and reflect the potential success of translocation to recover bobwhites when conducted properly.

These success stories are contingent on donors of wild birds. Since 2002, the Game Bird Program at Tall Timbers has translocated a total 6,554 birds resulting in restoring wild birds to harvestable population levels on more than 86,000 acres. The estimated economic value of this wild bird resource is $4,822,368! This is a significant contribution by private landowners to bobwhite conservation! Without the generous contribution of birds by the plantation communities each and every year, especially in the Red Hills and Albany regions, our translocation and population recovery efforts simply would not be possible.

What is the key to successfully translocating bobwhite?

Translocation is not a panacea, but requires the right conditions and the right timing to be successful. First and foremost, the success of ANY translocation is predicated on having good HABITAT! Without the proper quantity and quality of habitat, producing adequate resources to meet the daily requirements of bobwhite, translocation will most definitely fail. In each of the success stories presented above, a common thread is a large enough property (minimum of 750 acres, preferred >1500 acres), with contiguous high-quality habitat, dedicated resources to managing that

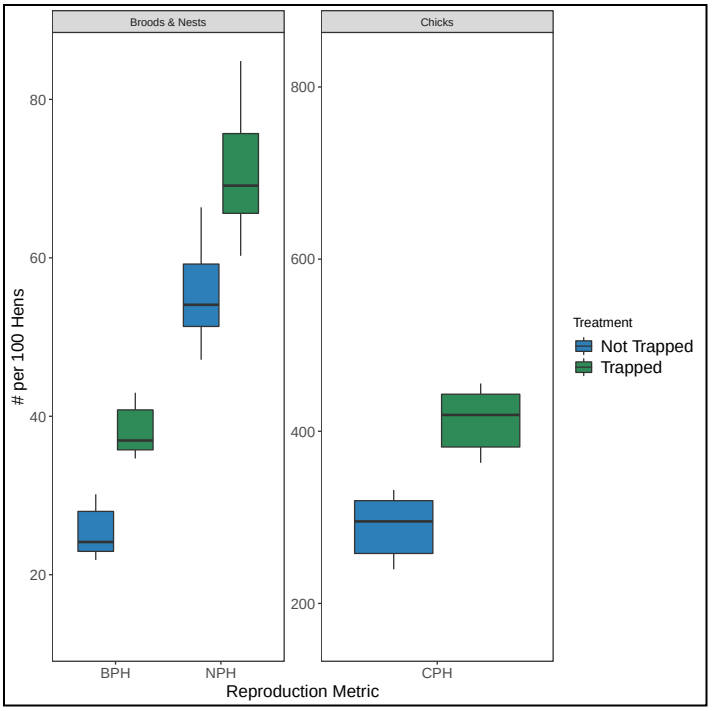


Figure 4. The number of nests produced per hen (NPH), broods produced per hen (BPH), and chicks produced per hen (CPH) on trapped sites was higher than non-trapped sites on our study sites, indicating that trapping can improve reproductive output, which is especially important to for population growth, restoration and translocation success.

habitat with the implementation of a proper burn program, feed program and predation management program.

Whereas food supplementation and predator control are often considered "optional" management practices, we consider them absolutely "necessary" to provide the best opportunity for success during translocation. Research clearly demonstrates the effectiveness of trapping to reduce meso-mammal predators and increase reproductive capacity of bobwhites (see Figure 4).

Similarly, previous and on-going research projects indicate the survival and reproduction on nutritionally supplemented sites is much higher than areas without supplementation (Figure 5). Since the success of translocation hinges both on birds surviving and reproducing, supplemental feeding, and predator control are no-brainer management actions that can tip the scale in the right direction.

Of course, there are numerous other details to hammer out and pay attention to beyond getting the habitat and resources right, such as matching the appropriate source of birds to ensure genetic integrity, site similarities, and stocking densities—all of which our research has helped or shed light. Finally, the timing of translocation is critical to ensuring that optimal capture of an adequate number of source birds, while minimizing exposure time prior to reproduction. For most properties in the Southeast, we have found that the first 2–3 weeks of March are ideal to achieve this balance, but on more northern sites, like the Mid-Atlantic states, this timing may be too early. In this case, greater numbers of translocated birds may be required to yield enough founders and elicit similar reproductive output, as compared to more southern translocation sites.

While there are naysayers about the efficacy of translocation, we have experienced firsthand that under the right conditions and the right timing, translocation is highly successful with the potential to bolster population levels to sustainable moderate annual harvest in as few as three years! This in most cases is more than half the time required through natural recolonization. For each property gained, more acres are added back to the landscape, and our goal of "holding the line" for wild bobwhite is extended for yet another year.

Like a phoenix rising from the ashes, the first quail explodes from a wooden transport box filling the void of bobwhite on a newly restored site. The sight of these birds pouring out of transport boxes never gets old to us! So, the Bobwhite Cartel will forge ahead and the March Mules will continue to deliver the goods to partners and properties that put in the effort—doing their part to restore habitat for bobwhite conservation.

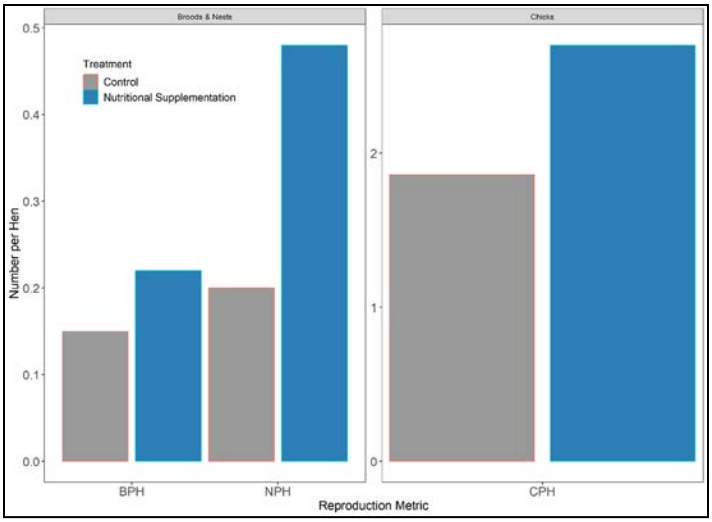


Figure 5. Reproductive output for translocated birds, measured in broods produced per hen (BPH), nests produced per hen (NPH), and chicks produced per hen (CPH), was higher on areas receiving supplemental feed compared to a control area not receiving feed. Supplemental feed provides translocated birds easy access to food, reduces home range size and movements, and increases reproductive success.

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