



NBCI Adds Ranches, Plantations to Inventory

9.6 Million Acres of Quail Habitat, Management Recorded for 2012

This is the second annual published NBCI State Agency Bobwhite Habitat Inventory. As described in detail last year (pages 38-41), this is an effort to build range-wide capacity for measuring habitat management, and because of high variability in data collection among NBCI states it will take years to derive measurements that are comparable among years and among states. As such, the Inventory provides an index of annual NBCI-wide (25 NBCI states) habitat management and any comparisons should be made cautiously.

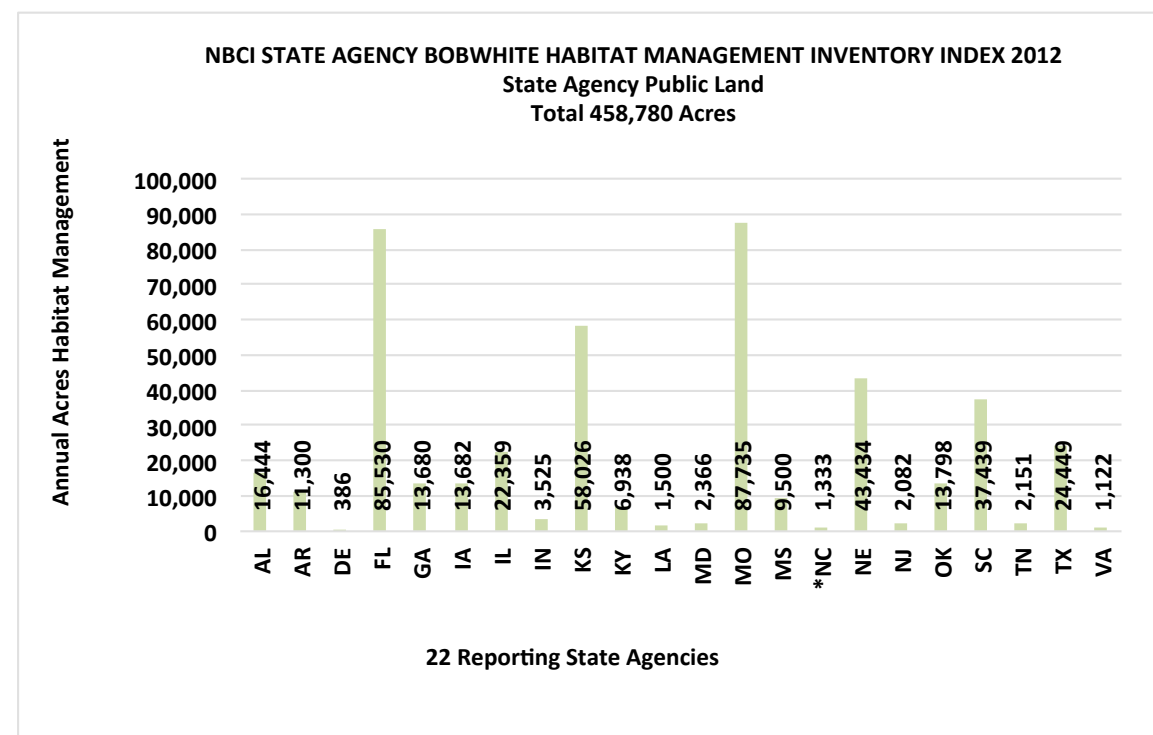
The quality of the data reported are self-graded by coordinators, with a key litmus test for each state coordinator being that acres of habitat management being claimed provide suitable habitat in the reporting year, or will in the near future. For many coordinators this litmus test occurs in communication with quail hunters. Coordinators also grade their data by choosing among 6 levels of confidence, providing a qualifier of expectations for the presence of bobwhites. This is particularly useful for large areas where bobwhites were known to exist and some kind of habitat program had been implemented, but there is no measurement of habitat quality or actual bobwhite abundance. During

years of drought expectations for an abundance of quail in normally suitable habitat should be low.

Habitat management in this year's report includes prescribed fire, disking, grazing, deferred grazing, spraying herbicide, cutting, planting, etc., during the reporting year (ranging from July 1, 2011 to December 31, 2012, depending on state fiscal or calendar year reporting period). Multiple management treatments on any one acre can be counted >1 time per year (e.g., burning, spraying and planting 1 acre in same year equals 3 acres of habitat management).

A diversity of other issues add complexity to the inventory process. Pennsylvania and West Virginia coordinators believe that wild bobwhite populations are inadequate for responding to habitat management, and thus are not submitting data. Per NBCI Inventory guidance, presence or potential presence (immigration or translocation) of wild bobwhite is a minimum criteria for claiming habitat. North Carolina measures acres of usable quail habitat, but not annual management, so their reported acres were divided by an estimated average (i.e., there is variability in actual management interval) 3-year management rotation to yield acres of

Figure 1. NBCI State Agency Bobwhite Habitat Management Index for 22 state public land programs. Index is acres of habitat managed by prescribed fire, disking, grazing, spraying herbicide, cutting, planting, etc., during the reporting year (ranging from July 1, 2011 to December 31, 2012, depending on state fiscal or calendar year reporting period). Multiple management treatments on any one acre can be counted >1 time per year (e.g., burning, spraying and planting 1 acre in same year equals 3 acres of habitat management).



**NC reported 4,000 acres of usable quail habitat, which was divided by an estimated average 3-year management rotation to yield 1,333 acres of habitat management per year.*

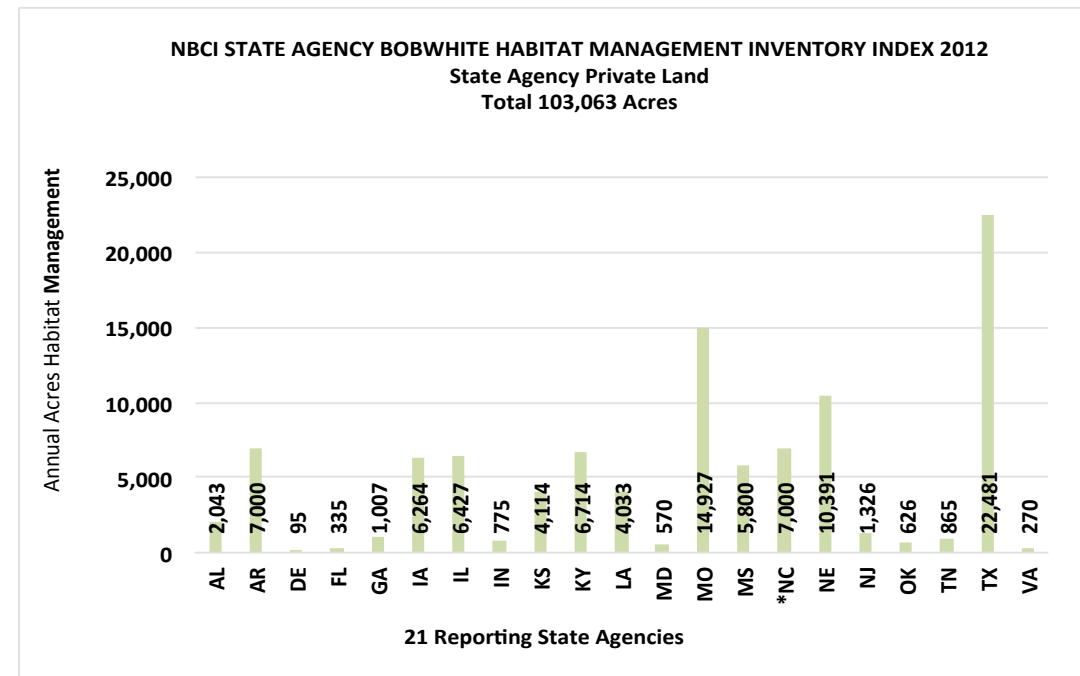


Figure 2. NBCI State Agency Bobwhite Habitat Management Index for 21 state private land programs. Index is acres of habitat managed by prescribed fire, disking, grazing, spraying herbicide, cutting, planting, etc., during the reporting year (ranging from July 1, 2011 to December 31, 2012, depending on state fiscal or calendar year reporting period). Multiple management treatments on any one acre can be counted >1 time per year (e.g., burning, spraying and planting 1 acre in same year equals 3 acres of habitat management).

habitat management per year. Similarly, for figure 5, amount of quail habitat, not the amount of quail habitat management, is depicted.

Major changes this year to the inventory include addition of two habitat acreage charts, one for miscellaneous land ownerships such as United States Forest Service (Figure 4), and a graph for landowner partners of leading quail research institutes (Figure 5). Figures 1-3, agency public lands, agency private lands and Farm Bill, respectively, are consistent with last year's Inventory. Agency private land includes lands participating in state agency-led programs—the habitat management being claimed resulted from agency on-the-ground work or the agency was directly responsible for getting the work done through funding, contracting, grants, major leadership, etc.

State Agency Public Land Management

For the 2012 reporting year, state wildlife agencies accomplished a tremendous amount of bobwhite habitat management on their lands. The number of states reporting management increased from 19 last year to 22 this year, but acres of habitat management declined from 461,165 to 458,780. Missouri and Florida led management with more than 80,000 acres each (Figure 1). Coordinator confidence in the suitability of habitat acres claimed were as follows: Very Confident: DE, IN, LA, MS and NJ; Moderately Confident: AL, FL, GA, IA, MO, SC and TX; Somewhat Confident: AR, KS, MD, NC, NE, OK and VA; Somewhat

Uncertain: KY and TN; Moderately Uncertain: none; Very Uncertain: IL.

State Agency-Based Private Land Management

The number of states reporting management increased from 16 last year to 21 this year, but acres of habitat management declined from 137,309 to 103,063. Nebraska, Missouri and Texas led management with 10,391 to 22,481 acres (Figure 2). Coordinator confidence in the suitability of habitat acres claimed were as follows: Very Confident: GA, IN, MO, MS and TN; Moderately Confident: AL, DE, IA, KS, LA, NE, OK and VA; Somewhat Confident: AR, FL, IL, MD, NC and TX; Neutral: NJ; Somewhat Uncertain: KY; Moderately Uncertain: none; Very Uncertain: none.

Private Land USDA Farm Bill

The number of Farm Bill programs and practices reported increased from 15 last year to 23 this year, but acres of habitat management declined from 1.2 million to 959,064. The decline in Farm Bill acres coincides with drought (USDA CRP Emergency Haying Grazing) and steep declines in program participation and enrollment because of high crop prices. Kansas has many acres enrolled in USDA Farm Bill programs and reported by far the most quail-friendly management with 739,799 acres across 5 programs (Figure 3). Next in quantity of management were Missouri, Tennessee, Oklahoma and Texas with 28,366 (MO combined) to 57,021 acres. Coordinator confidence in the suitability of habitat



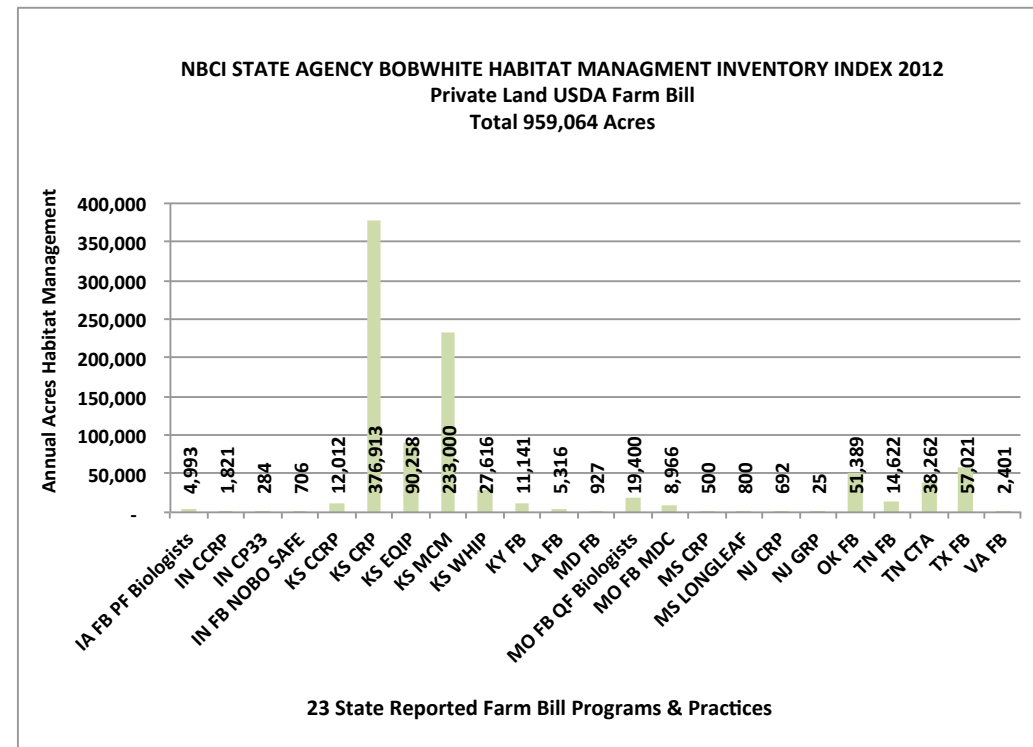
acres claimed were as follows: Very Confident: IN CP33, IN NOBO SAFE, MO FB MDC DELIVERED and MS LONGLEAF; Moderate Confidence: IA FB PF Biologists, KS CCRP, KY FB, LA FB, MO FB QF Biologists, MS CRP and TN FB (CRP, EQIP, WHIP and WRP); Somewhat Confident: KS CRP, KS WHIP, OK FB, TX FB and VA FB; Neutral Confidence: IN CCRP, MD FB AND NJ CRP/GRP; Somewhat Uncertain: KS EQIP; Moderately Uncertain: KS MCM and TN CTA; Very Uncertain: none.

Miscellaneous Lands and Issues

Over the past two years quail habitat management on United States Forest Service (USFS) land has been reported by Arkansas, Florida, South Carolina and Virginia. For the 2012 reporting year, USFS management approached 54,000 acres (and unknown amount of military land reported by Virginia) (Figure 4). Arkansas's Ouachita National Forest is well known for ecosystem management (shortleaf pine/bluestem) with substantial benefits for bobwhites (see pages 13-15 this report).

Also reported in Figure 4 is habitat management on private lands that is not directly funded by government habitat programs, including Kentucky's Shaker Village and lands reported by Missouri's Quail

Figure 3. NBCI State Agency Bobwhite Habitat Management Index for 23 USDA Farm Bill funded programs. Index is acres of habitat managed by prescribed fire, disking, spraying herbicide, cutting, planting, etc., during the reporting year (ranging from July 1, 2011 to December 31, 2012, depending on state fiscal or calendar year reporting period). Multiple management treatments on any one acre can be counted >1 time per year (e.g., burning, spraying and planting 1 acre in same year equals 3 acres of habitat management). Acronyms: CCRP-Continuous Conservation Reserve Program, CRP-Conservation Reserve Program, CP33-Habitat Buffers for Upland Birds,



and Upland Wildlife Federation. Both provide data similar to Figures 1-3, and make substantial and unique contributions to bobwhite conservation.

Summary of Management Activity

Across Figures 1-4, state agency quail coordinators reported 1,616,372 acres of habitat management this year, down from 1,806,431 acres last year. As described earlier, this is an *index* of the amount of habitat management for NBCI states, and comparisons across time and space are not straightforward. Regardless, this NBCI-wide accounting of quail conservation demonstrates substantial commitment to restore and manage the species.

Quail-friendly management reported for Kansas, 801,939 total acres, far exceeds other states. Although there is considerable uncertainty identified with Kansas acres, based on size alone the potential is tremendous. NBCI 2.0 (found at <http://bit.ly/17hm2SN>) predicts that HIGH ranked habitat in Kansas could add 609,170 coveys to the landscape; this figure is 26% of the predicted added coveys for the entire NBCI. Other large landscapes in the NBCI range, heretofore not accounted for, are examined in the new Bobwhite Legacy Landscapes section.

CTA-Conservation Technical Assistance, EQIP-Environmental Quality Incentives Program, FB-Farm Bill, GRP-Grassland Reserve Program, MCM-Conservation Reserve Program Mid-Contract Management, MDC-Missouri Department Conservation delivered, NOBO-northern bobwhite, PF Biologists-Pheasants Forever delivered, QF Biologists-Quail Forever delivered, SAFE-Conservation Reserve Program State Acres For Wildlife Enhancement, and WHIP-Wildlife Habitat Incentive Program.

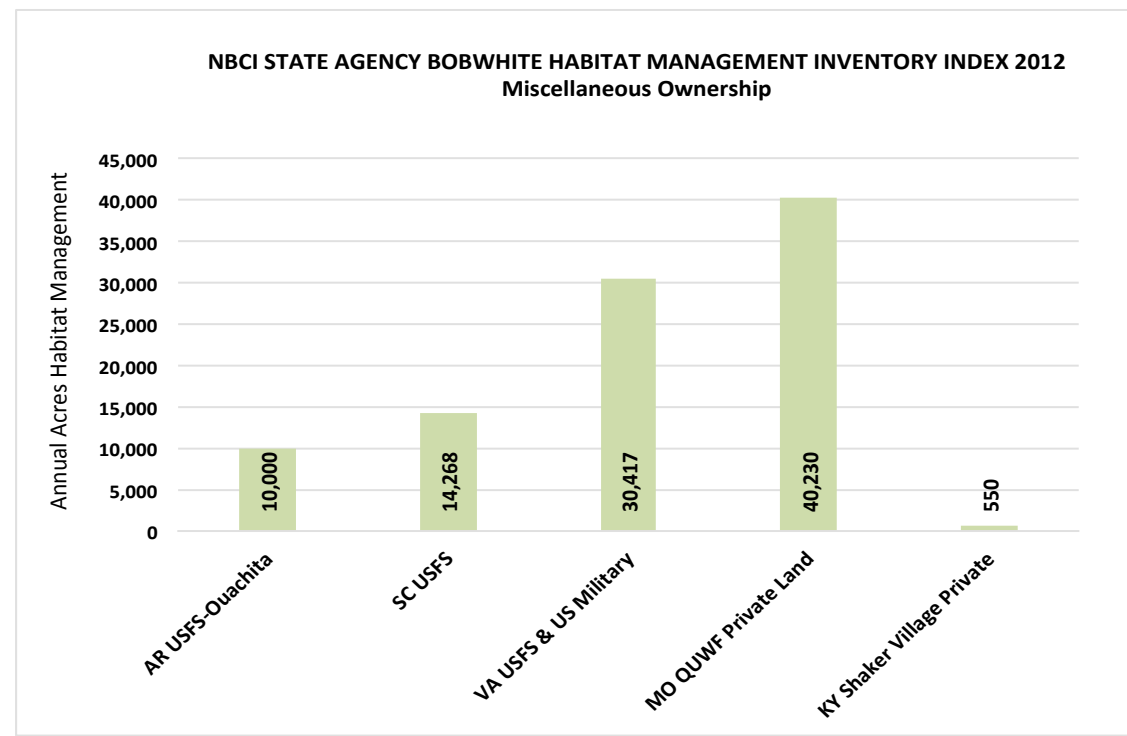


Figure 4. NBCI State Agency Bobwhite Habitat Management Index for miscellaneous public (USDA United States Forest Service and US Military, in Arkansas, South Carolina and Virginia) and private lands. These private lands do not receive direct government funding for habitat programs, and thus their management is not captured by most state- or federal-based programs. These private lands include Kentucky's Shaker Village, in close partnership with Kentucky Department of Fish and Game, and for Missouri, numerous properties managed under the guidance of the Quail and Upland Wildlife Federation (QUWF delivered).

Bobwhite Legacy Landscapes

In the midst of several NBCI states are large privately-owned landscapes with an abundance of high quality habitat supporting thriving bobwhite and wildlife

See these articles for more detailed information about these landscapes:

Audubon Magazine
Ready, Aim, Fire
<http://bit.ly/13WOj24>

Garden & Gun
Tall Timbers: In Search of the Wild Flush
<http://bit.ly/LWreOD>

Texas Monthly
Git Along, Lonesome Ranchers
<http://bit.ly/16OA90Y>

populations and world-renowned quail hunting. As the pressure to manage and develop lands for food, fiber and energy increases, these lands have an increasingly important role in conservation. Privately-funded conservation landscapes are critical because there is not enough government money to achieve the nation's conservation goals (Lerner et al., 2007, What's in Noah's

Wallet? Land Conservation Spending in the United States. *BioScience* 57:419-423).

These landowners often do not work directly with state or federal government agencies to manage bobwhites, instead they are served by widely-recognized 'quail institutes' that provide management expertise, population evaluation and research. Support for quail institutes includes individuals, endowments and organizations, e.g., Quail Coalition (Texas).

To better define the bobwhite "conservation estate," NBCI and state agency coordinators Greg Hagan (Florida), Reggie Thackston (Georgia) and Robert Perez (Texas) have begun work to expand the NBCI State Agency Inventory to include these important conservation lands. This initial accounting of bobwhite habitat involved partnering with Drs. Leonard Brennan (Caesar Kleberg Wildlife Research Institute, CKWRI), Dale Rollins (Rolling Plains Quail Research Foundation Research Partners, aka RPQRR), William Palmer (Tall Timbers Research Station and Land Conservancy, TTRS), Brad Dabbert (The Quail Tech Alliance—Texas Tech University, aka Anchor Ranches, QTA), Kelly Reyna (UNT-Quail—University of North Texas, aka North Texas Quail Corridor Initiative, UNTQ) and Georgia's Jones Ecological Research Center at Ichuaway (JERCI).

As an initial approximation of Bobwhite Legacy Landscapes for the NBCI Inventory, area of suitable quail habitat reported by collaborating institutes is depicted



**NBCI STATE AGENCY BOBWHITE HABITAT INVENTORY INDEX 2012
BOBWHITE LEGACY LANDSCAPES
Total 7.5 Million Acres**

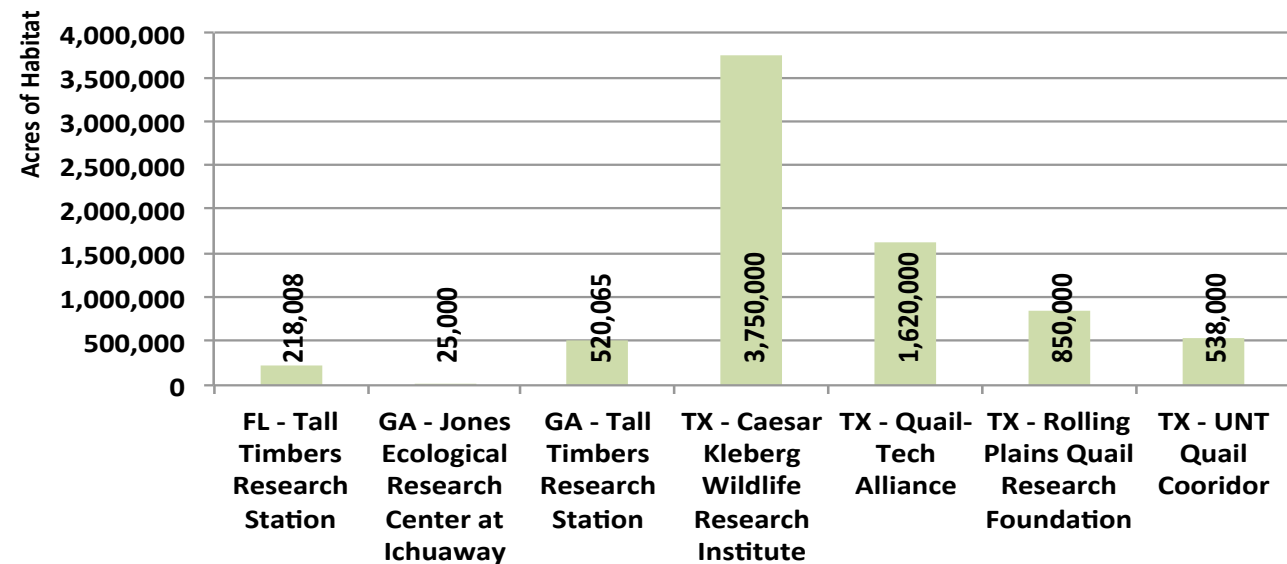


Figure 5. NBCI State Agency Bobwhite Habitat Index for private land owners in relatively large areas of suitable bobwhite habitat (legacy landscapes). These landowners are generally not enrolled in government habitat programs, and thus state agency quail coordinators and NBCI partner with quail institutes to identify the extent of suitable bobwhite habitat.

Institutes	Acres of Habitat Management					Acres of Quail Habitat
	Total	Prescribed Fire	Disk	Thin Forest	Herbicide	
TTRS GA	377,047	312,039	39,005	26,003		520,065
Jones Center GA	13,200	12,000	1,000		200	25,000
TTRS FL	158,055					218,008
Total	548,302	324,039	40,005	26,003	200	763,073

Table 1. Area of suitable bobwhite habitat and management during 2012 for Georgia and Florida partners, Jones Ecological Research Center at Ichuaway and Tall Timbers Research Station and Land Conservancy (TTRS).

in Figure 5. Seven million, five hundred thousand acres were reported, ranging from 25,000 acres (Georgia's JERCI) to 3.75 million acres (Texas's CKWRI). These data were estimated from the institutes' partner lands and direct service to landowners, and from research projects. For example, CKWRI research by Tri et al. on ranches in 16 counties of South Texas (Journal of Wildlife Management 77:579) established relationships with private landowners, and a basis for estimating acres of suitable habitat.

As large as some of these bobwhite landscapes appear, CKWRI's Dr. Brennan has evidence that the amount of suitable bobwhite habitat is much greater. Initial estimation by the CKWRI-MoRAP South Texas Quail Habitat Assessment (originating with Texas Ecological Systems Classification) identifies 11.6 million acres of potential suitable bobwhite in the South Texas Ecoregion (ca. 20 million acres). Similarly, in central Texas, the UNT-Quail program includes a focal area of 5 million acres, and Tall Timbers Research Station has partners in states other than Florida and Georgia that were not reported on this year. As both private and public (e.g., USFS) lands are increasingly connected to the NBCI Inventory, the extent of the "bobwhite conservation estate" will grow.

The bobwhite legacy land data in Figure 5, acres of suitable habitat, is not equivalent to the acres of management reported by state quail coordinators in Figures 1-4. The foundation of bobwhite conservation in much of the species' range is management of plant succession, with education, programs and practices tailored toward this end. As discussed in last year's SOTB, however, management activity per se is a biased measure of bobwhite habitat. On a per-acre basis, western rangelands that require less frequent management compared to more fertile eastern ecosystems are no less suitable for quail. Further, the drought in Texas rendered analysis of habitat management activity for the NBCI Inventory problematic, and it was recognized that deferred grazing was an appropriate measurement. In this analysis, most of the acres identified in Figure 5 for Texas were subject to deferred grazing, i.e., they were managed in a way that benefits bobwhites.

A long-term goal of the NBCI Inventory is to eventually add amount of suitable habitat to the current accounting of management activity—both are essential for determining net changes in bobwhite conservation. This will be relatively easy in states where extent of documented habitat is relatively low, and is in fact operational in North Carolina as described elsewhere; however, it will be exceedingly difficult to classify suitable bobwhite habitat for large landscapes such as USFS lands and USDA supported lands, for example, in Kansas.

Across the Institutes identified in Figure 5, southeastern locations have focused on management of plant succession, and this provides data comparable to acres of management reported by state quail coordinators in Figures 1-4. Acres of management reported by institutes in Georgia were 377,047 for TTRS and 13,000 for Jones Ecological Research Center at Ichuaway, and in Florida 158,055 for TTRS (Table 1).

Conclusion

The 2012-13 NBCI Inventory is another step toward meeting the desire expressed by state agency directors at the March 2010 NBCI Management Board meeting to document "all things being done to benefit bobwhites in each state." Adding Bobwhite Legacy Landscapes and partner habitat management in Figure 4 are major additions to the foundation of habitat management being captured by state agency quail coordinators. The total acres of habitat and habitat management benefiting bobwhites for the 2012 NBCI Inventory was 9,685,747 acres with 959,064 acres for state agency-reported Farm Bill lands, 561,843 acres for state agency-reported public and private lands, 95,465 acres for state agency-reported miscellaneous lands, and 7,521,073 acres for state agency-reported institute bobwhite legacy landscapes.