

NBCI State Agency Bobwhite Habitat Inventory Index

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The NBCI Habitat Inventory is an index of the potential for bobwhite to occur on the landscape, now or in the near future, as identified by the state's quail coordinator. For 2017, 23 state agency coordinators reported 3,962,611 acres of bobwhite habitat management for 91 programs, a substantial increase in acreage over the previous 6 years of the inventory. Acronyms can be found on page 67.

Introduction

This is the seventh annual National Bobwhite Conservation Initiative (NBCI) State Agency Bobwhite Habitat Inventory (hereafter, Inventory), an index of habitat management over the past year as reported by state agency quail program coordinators. The Inventory fulfills part of the 2010 charge of the NBCI Management Board to document "all things being done to benefit bobwhites in each state."

The Inventory documents acres of management of plant succession (prescribed fire, disking, prescribed grazing, cutting, chemical application, etc.), planting vegetation, and protecting vegetation (deferred grazing and haying, leaving crop residue, leaving standing crops, etc.). Inventory management is for the 2017 reporting year, but actual dates vary across states and among years.

The Inventory is divided into three primary land categories based on a combination of ownership, leadership and funding source: (1) **State Agency Public Land**, includes management on the wildlife agency's land (Figure 1); (2) **State Agency-Based Private Land**, includes management on private lands that is funded, led or made possible by the wildlife agency, and is generally not reported in other private land categories (Figure 2); and (3) **USDA Farm Bill**, includes acres managed under the USDA Farm Bill program (Figure 3). The **Partner Private Land** (Figure 4) and **Public Land** (Figure 5) categories include programs administered by partner agencies, organizations and institutions, and are generally not featured in Figures 1-3. For the third year, most participating state agencies reported acres of habitat management on **NBCI Coordinated Implementation Program (CIP) Focal Areas** (see article on page 30).

Multiple management treatments on any one acre can be counted >1 time per year (e.g., burning, chemical treatment and planting one acre in same year equals three acres of habitat management). Less common and avoided when feasible, acres are sometimes counted more than once across land categories. For example, NBCI CIP Focal Area acreage might be also counted in Figures 1-3, and state coordinators sometimes lack a system for separating management jointly delivered by more than

one partner. Importantly, contributions by most partners are recognized.

Does existence of habitat management mean that wild bobwhites can be expected at a particular program's physical locations? Not necessarily. Inventory protocol specifies that habitat is suitable for bobwhites in the reporting year, or will be in the near future. It can take several years after initial management for some habitats to become suitable for bobwhites, followed by a bobwhite population response. Bobwhites occupy or increase in an area, based on survival and reproduction, which are affected by weather and other non-habitat factors, and by movement into an area, which is affected by distance from existing populations to the area (e.g., habitat fragmentation). Further, as described in detail in 2012 and 2013 *State of the Bobwhite* reports, because of variability among NBCI states and partners in ability to measure habitat, and because of recent frequent turnover in state agency quail coordinator positions, the NBCI Inventory is appropriately interpreted as an index of habitat management. As an index of the amount of habitat management beneficial to bobwhites, comparisons among years, states, partners, and programs should be made cautiously.

To better describe the amount of uncertainty in habitat data, coordinators grade their confidence in acreage they report by choosing among seven levels of confidence (Very Confident, Moderately Confident, Somewhat Confident, Neutral, Somewhat Uncertain, Moderately Uncertain and Very Uncertain). The highest confidence is often based on measurement of bobwhite abundance, and this aspect is a foundation of the NBCI CIP. Such detailed measurement, however, is not feasible at large scales, so the Inventory's coordinator confidence ratings provide a qualifier for expectations for bobwhite to occupy habitat and/or to be abundant. 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 (e.g., stage of plant succession) or actual bobwhite abundance.



In summary, the NBCI Inventory is an index of the potential for bobwhite to occur on the landscape, as identified by each state's quail coordinator. In addition to the differences in states' capacity to collect data and reporting strategies (e.g., conservative or liberal inclusion of habitat management), some states were constrained in 2017 by other factors. Similar to previous years, quail coordinators for Pennsylvania Game Commission and West Virginia Division of Natural Resources believe that wild bobwhite population abundance was inadequate for responding to habitat management and thus did not submit data for most habitat categories. Per NBCI Inventory protocol, presence or potential presence (immigration or translocation) of wild bobwhite are minimum criteria for claiming habitat management for an area. Pennsylvania reported habitat management under the focal area category, based on a plan to translocate wild bobwhite to the site.

Results

Twenty-three state agency coordinators reported 3,962,611 acres of bobwhite habitat management, 24% more than the 3.2 million acres reported last year. Management in 2017 included:

- 707,583 acres on state wildlife agency publicly owned lands (State Agency Public Land Management, Figure 1),
- 2,077,142 acres on private lands through state wildlife agency efforts (State Agency-Based Private Land Management, Figure 2),
- 765,972 acres on private lands through the USDA Farm Bill (Private Land US Department of Agriculture Farm Bill, Figure 3),
- 272,084 acres on Partner Private Lands (Figure 4),
- 107,424 acres on Partner Public Lands (Figure 5), and
- 32,406 acres on NBCI CIP Focal Areas (see article on page 30).

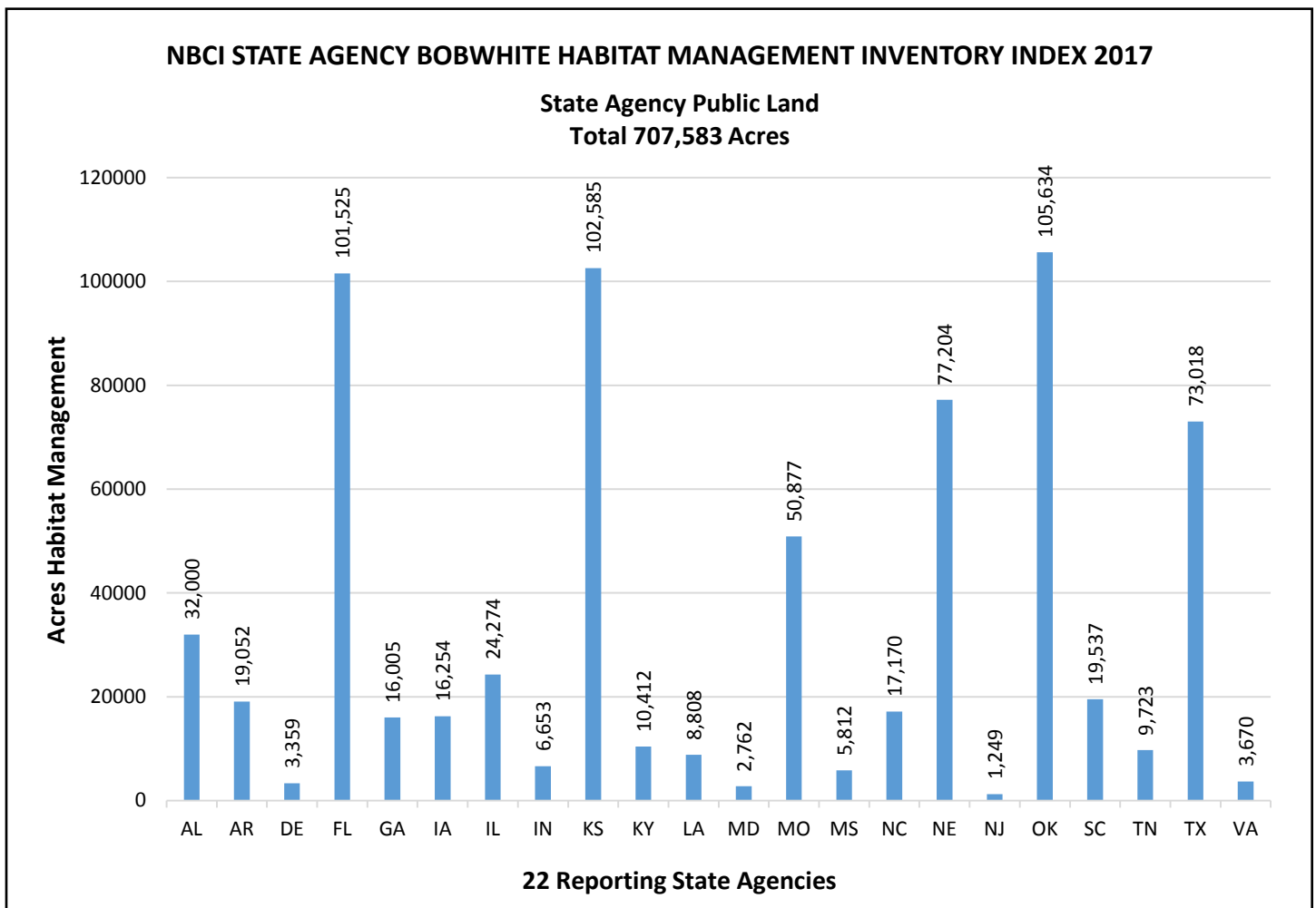


Figure 1. 2017 NBCI State Agency Bobwhite Habitat Management Index for 22 state public land programs. Index is acres of habitat managed by prescribed fire, disking, grazing, spraying herbicide, cutting, planting, etc., during the reporting year (ranging from July 1, 2016, to March 29, 2018).



The “reporting year,” 2017, included dates ranging from July 1, 2016, to March 29, 2018, varying with fiscal years, accounting systems, etc. Across all land categories, acreage for the 23 reporting states was as follows:

- 47,000 acres (AL),
- 46,101 (AR),
- 3,359 (DE),
- 274,702 (FL),
- 58,787 (GA),
- 64,666 (IA),
- 58,827 (IL),
- 13,189 (IN),
- 322,499 (KS),
- 17,856 (KY),
- 29,893 (LA),
- 3,574 (MD),
- 198,286 (MO),
- 11,442 (MS),
- 32,526 (NC),
- 140,844 (NE),
- 4,304 (NJ),
- 179,568 (OK),
- 632 (PA),
- 196,333 (SC),
- 12,098 (TN),
- 2,172,240 (TX), and
- 73,885 acres (VA).

State Agency Public Land Management

For 2017 management of state wildlife agency public lands, 22 state agencies reported 707,583 acres of bobwhite habitat management (Figure 1). State coordinator acreage reports (state, coordinator confidence) included the following:

- 32,000 (AL, Somewhat Confident),
- 19,052 (AR, Moderately Confident),
- 3,359 acres (DE, Moderately Confident),
- 101,525 (FL, Very Confident),
- 16,005 acres (GA, Moderately Confident),
- 16,254 acres (IA, Moderately Confident),
- 24,274 acres (IL, Moderately Uncertain),
- 6,653 acres (IN, Somewhat Confident),
- 102,585 acres (KS, Moderately Confident),
- 10,412 acres (KY, Moderately Confident),
- 8,808 acres (LA, Very Confident),
- 2,762 acres (MD, Somewhat Confident),
- 50,877 acres (MO, Moderately Confident),
- 5,812 acres (MS, Very Confident),
- 17,170 acres (NC, Somewhat Confident),
- 77,204 acres (NE, Very Confident),
- 1,249 acres (NJ, Very Confident),
- 105,634 acres (OK, Somewhat Confident),
- 19,537 acres (SC, Moderately Confident),
- 9,723 acres (TN, Moderately Confident),
- 73,018 acres (TX, Moderately Confident), and
- 3,670 acres (VA, Moderately Confident).

State Agency-Based Private Land Management

For 2017 on private lands where management was based on state agency work, and not a part of the USDA Farm Bill, 20 state agencies reported 2,077,142 acres, (Figure

2). State coordinator acreage reports (state, coordinator confidence) included the following:

- 15,000 acres (AL, Neutral),
- 1,552 acres (AR, Very Confident),
- 1,444 acres (FL, Moderately Confident),
- 23,779 acres (GA, Moderately Confident),
- 18,273 acres (IA, Moderately Confident),
- 6,536 acres (IN, Moderately Confident),
- 6,451 acres (KS, Moderately Confident),
- 7,444 acres (KY, Moderately Confident),
- 7,287 acres (LA, Moderately Confident),
- 520 acres (MD, Somewhat Confident),
- 32,060 acres (MO, Moderately Confident),
- 4,000 acres (MS, Moderately Confident),
- 11,481 acres (NC, Somewhat Confident),
- 63,082 acres (NE, Very Confident),
- 585 acres (NJ, Moderately Confident),
- 62,034 acres (OK, Somewhat Confident),
- 127,187 acres (SC, Moderately Uncertain),
- 200 acres (TN, Somewhat Confident),
- 1,686,832 acres (TX, Moderately Confident), and
- 1,395 acres (VA, Moderately Confident).

Private Land Enrolled in US Department of Agriculture Farm Bill

For 2017, on private lands where management was based on USDA Farm Bill programs, eight state agencies reported on 12 programs, practices and management delivered by partners, for a total 765,972 acres of bobwhite habitat management (Figure 3). State coordinator acreage reports (state, program/practice/delivery, coordinator confidence rating) included the following:

- 1,032 acres (AR, CRP, Somewhat Uncertain),
- 13,519 acres (AR, EQIP, Moderately Uncertain),
- 18,213 acres (GA, Farm Bill - State Agency Delivered, Moderately Confident),
- 28,653 acres (IA, Pheasants Forever Farm Bill Biologists, Somewhat Confident),
- 28,922 acres (IL, CRP, Moderately Confident),
- 4,100 acres (KS, CRP/CCRP, Very Confident),
- 195,063 acres (KS, EQIP, Somewhat Uncertain),
- 44,096 acres (MO, Farm Bill - State Agency Delivered, Moderately Confident),
- 17,035 acres (MO, Farm Bill - QF Delivered, Moderately Confident),
- 412,390 acres (TX, Farm Bill programs, Moderately Confident),
- 1,143 acres (VA, Farm Service Agency, Somewhat Confident), and
- 1,806 acres (VA, NRCS, Moderately Confident).



Among states, Texas and Kansas reported by far the most quail-friendly management through USDA Farm Bill programs, followed by Missouri, Illinois, Iowa, Georgia, Arkansas, and Virginia. Although general CRP acreage has declined considerably, states have worked with the USDA to increase focus on bobwhites and other wildlife in remaining practices.

Partner Private Land

For 2017, 11 state agencies reported on 15 partner private land programs that contribute to quail management, for a total of 272,084 acres (Figure 4). This category of habitat management continues to recognize the important contributions in Legacy Landscapes (e.g., Tall Timbers Research Station and Land Conservancy) and by quail non-government organizations, such as Quail Forever and Quail and Upland Wildlife Federation. State quail coordinators are increasingly recognizing partner management, resulting in a more diverse picture of quail conservation, including programs of the USDA Farm Bill that specifically

target quail restoration, such as in South Carolina’s focus areas (Figure 4).

State coordinator acreage reports (state, program/practice/delivery, coordinator confidence rating) included the following:

- 9,295 acres (AR, Quail and Upland Wildlife Federation, Somewhat Uncertain),
- 198 acres (AR, Quail Forever, Somewhat Confident),
- 171,733 acres (FL, Tall Timbers Research Station and Land Conservancy, Very Confident),
- 5,631 acres (IL, Illinois Department of Natural Resources, ILDNR, Recreational Access, Somewhat Uncertain),
- 14,300 acres (KS, Quail and Upland Wildlife Federation, Somewhat Confident),
- 292 acres (MD, Chester River Research Station, Very Confident),
- 45,655 acres (MO, Quail and Upland Wildlife Federation, Very Uncertain),

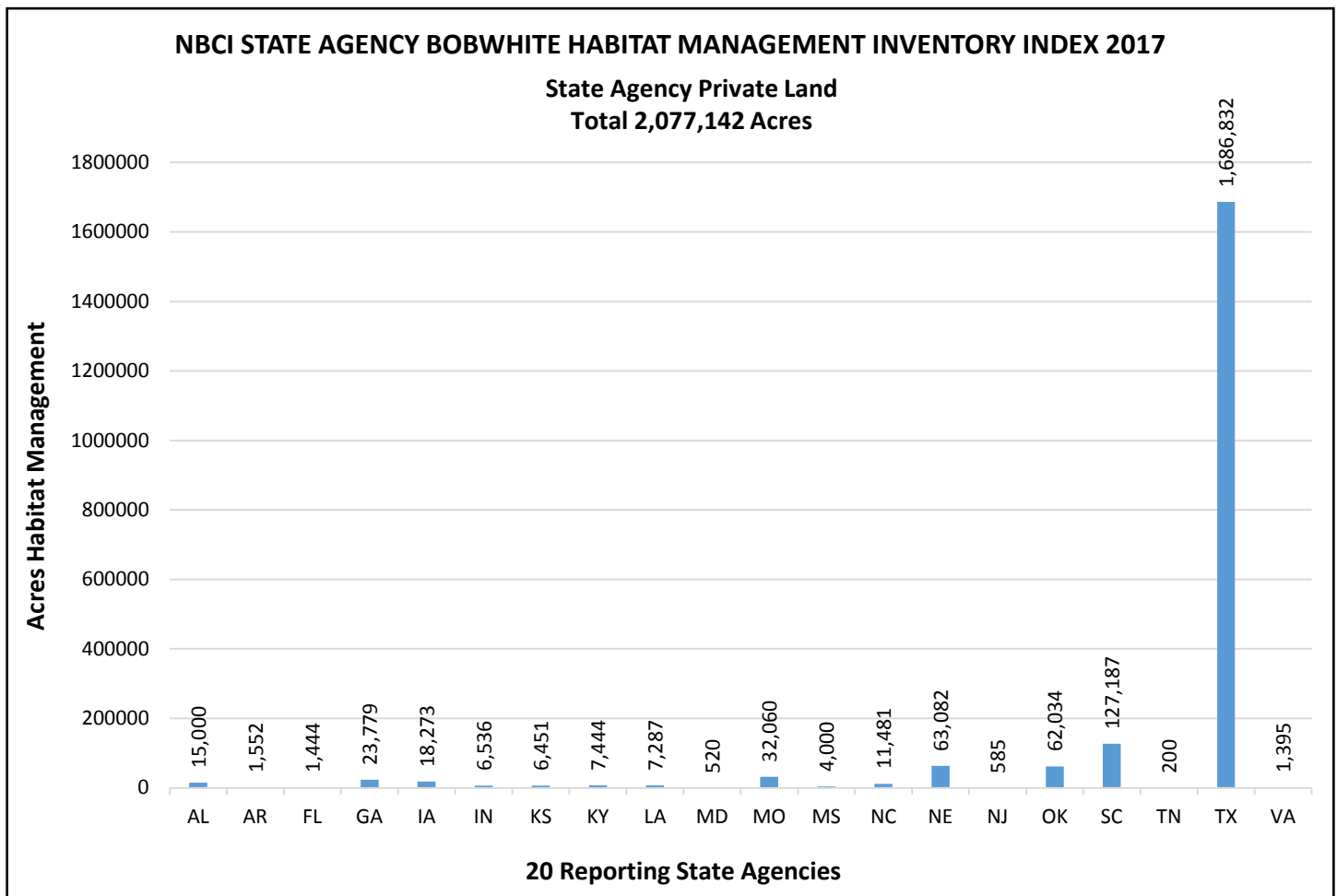


Figure 2. 2017 NBCI State Agency Bobwhite Habitat Management Index for 20 state-led private land programs. Index is acres of habitat managed by prescribed fire, disking, grazing, spraying herbicide, cutting, planting, etc., during the reporting year (ranging from July 1, 2016, to March 29, 2018).



- 8,205 acres (MO, Quail Forever, Moderately Confident),
- 1,630 acres (MS, Quail and Upland Wildlife Federation, Moderately Confident),
- 3,875 acres (NC, Quail and Upland Wildlife Federation, Moderately Confident),
- 1,500 acres (NJ, New Jersey Audubon, Neutral),
- 398 acres (NJ, South Jersey Quail Project, Very Confident),
- 3,333 acres (SC, NRCS Oak Lea FA, Somewhat Confident),
- 973 acres (SC, NRCS Webb FA, Somewhat Confident), and
- 5,066 acres (VA, Quail and Upland Wildlife Federation, Somewhat Confident).

land programs that contribute to quail management, for a total of 107,424 acres (Figure 5). State coordinator acreage reports (state, program/practice/delivery, coordinator confidence rating) included the following:

- 790 acres (FL/GA, FL/GA Quail Coalition, Very Confident),
- 2,387 acres (SC, SC Parks, Recreation, and Tourism, Somewhat Confident),
- 6,533 acres (SC, USFS – Enoree District, Somewhat Confident),
- 36,106 acres (SC, USFS – Francis Marion, Somewhat Confident),
- 105 acres (TN, Bark Camp Barrens Focus Area, Very Confident),
- 1,554 acres (TN, Bridgestone/Firestone Focus Area, Very Confident),
- 141 acres (TN, Lick Creek Focus Area, Moderately

Partner Public Land

For 2017, four state agencies reported on 10 partner public

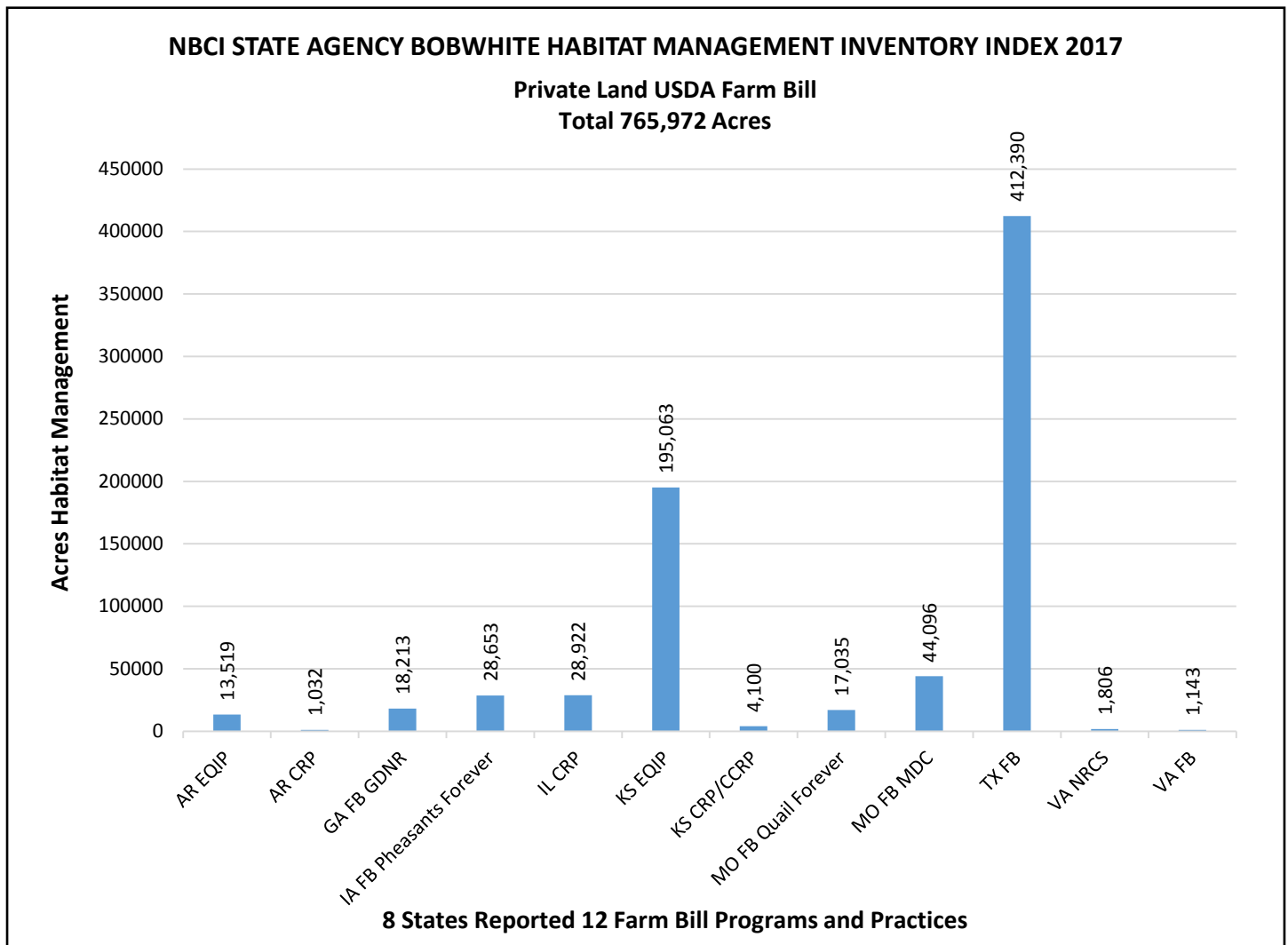


Figure 3. 2017 NBCI State Agency Bobwhite Habitat Management Index for 8 states and 12 US Department of Agriculture Farm Bill funded programs. Index is acres of habitat managed by prescribed fire, disking, grazing, spraying herbicide, cutting, planting, etc., during the reporting year (ranging from July 1, 2016, to December 31, 2017).



Confident),

- 1,299 (VA, VA Department of Conservation and Recreation, Moderately Confident),
- 39,961 acres (VA, Department of Defense, Somewhat Confident), and
- 18,548 acres (VA, US Forest Service, Moderately Confident).

Focal Areas

The Focal Area category identifies habitat management by state agencies and partners (e.g., National Park Service, USDA Farm Bill, etc.) on areas enrolled, or working toward enrollment, in the NBCI CIP. Twelve coordinators reported 32,406 acres of habitat management for 12 of the more than 20 NBCI CIP Focal Areas. NBCI CIP progress and a

habitat chart are described in feature article on page 30. For the first time, the Pennsylvania Game Commission (PGC) was eligible to report habitat management for the NBCI Inventory for Letterkenny Army Depot Bobwhite Quail Focus Area, based on the agency's plan to translocate wild bobwhites to the area in the near future. PGC and US Army staff are rapidly bringing the area up to CIP's nation-wide habitat management standards (e.g., at least 1,500 acres of habitat) to prepare for the translocation. Across all areas reported, acres of management include the following (CIP name—public or private land, acres of habitat management, coordinator confidence rating, state agency/partner):

- AR NPS Pea Ridge—public land, 1,453 acres, Moderately

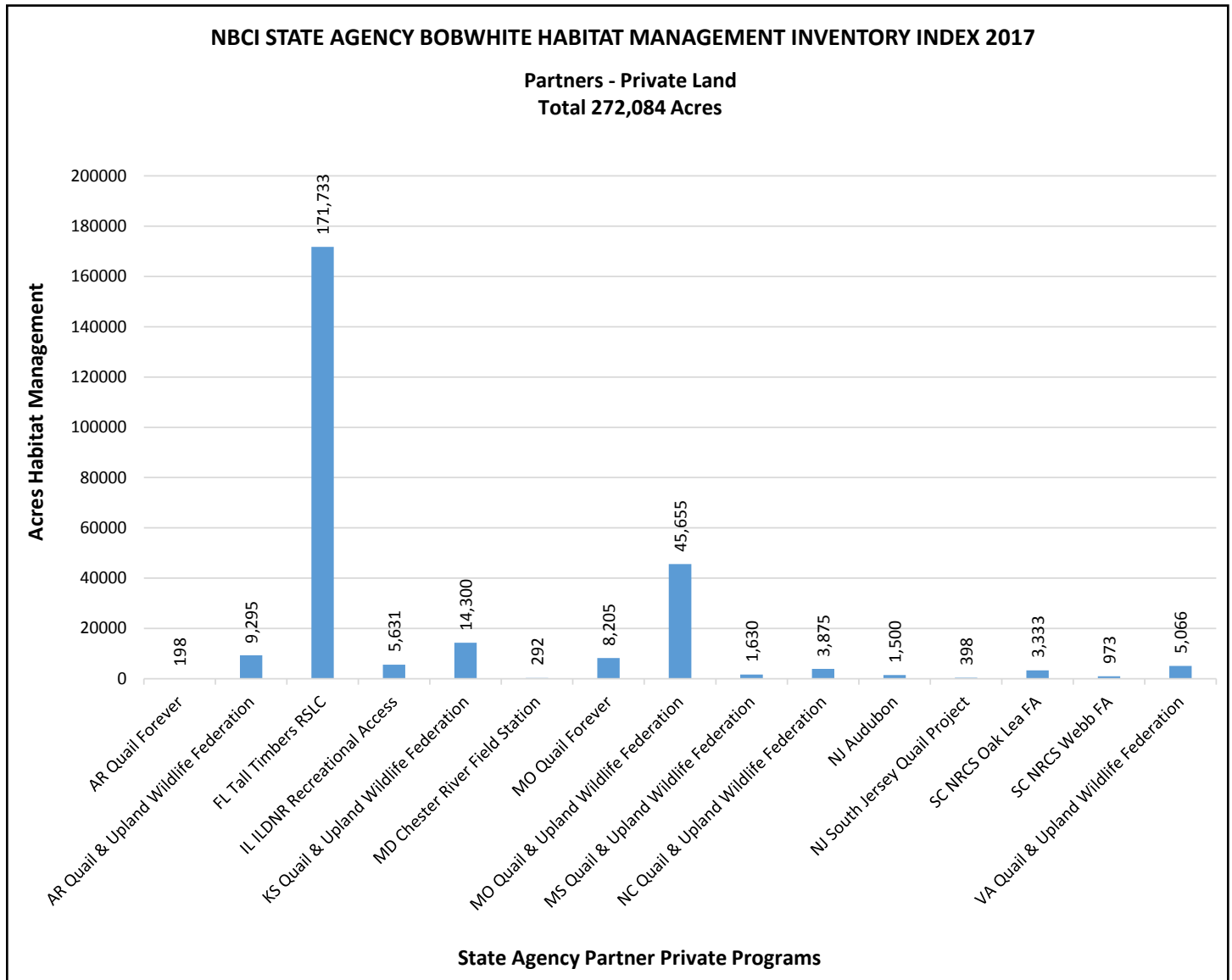


Figure 4. 2017 NBCI State Agency Bobwhite Habitat Management Index for 15 miscellaneous private land programs. Index is acres of habitat managed by prescribed fire, disking, grazing, spraying herbicide, cutting, planting, etc., during the reporting year (ranging from July 1, 2016, to March 29, 2018).



- Confident, Arkansas Game and Fish Commission/Pea Ridge National Military Park—National Park Service;
- IA Ringgold—public/private lands, 1,113 acres, Very Confident, Iowa Department of Natural Resources;
- IA Shawtee—public land, 373 acres, Neutral, Iowa Department of Natural Resources;
- LA USFS Vernon, 13,798 acres, Somewhat Confident, Louisiana Department of Wildlife and Fisheries/Kisatchie National Forest, Vernon Unit—US Forest Service;
- MO 2C—private land, 358 acres, Very Confident, Missouri Department of Conservation/Quail Forever;
- NE Meridian—private land, 558 acres, Very Confident, Nebraska Game and Parks Commission;
- NJ Dix WMA—public land, 572 acres, Very Confident, New Jersey Division of Fish and Wildlife;
- OK Cross Timbers—public land, 11,900 acres, Very Confident, Oklahoma Department of Wildlife Conservation/Oaks and Prairies Joint Venture;
- PA Letterkenny Army Depot Bobwhite Quail Focus

- Area—public land, 632 acres, Somewhat Confident, Pennsylvania Game Commission;
- SC USFS Indian Creek—public land, 277 acres, Very Confident, South Carolina Department of Natural Resources/Sumter National Forest/US Forest Service;
- TN Wolf River—public land, 375 acres, Very Confident, Tennessee Wildlife Resources Agency; and
- VA Big Woods/Piney Grove—public land, 997 acres, Very Confident, Virginia Department of Game and Inland Fisheries.

Summary

In this seventh year of the NBCI State Agency Habitat Management Inventory, state agency participation increased, with a record number of states (23) and acreage reported. During 2011-16 reporting years, 19-22 states participated. For the 2017 reporting year, the 23 state agency coordinators reported 3,962,611 acres of bobwhite habitat management for 91 programs, a substantial

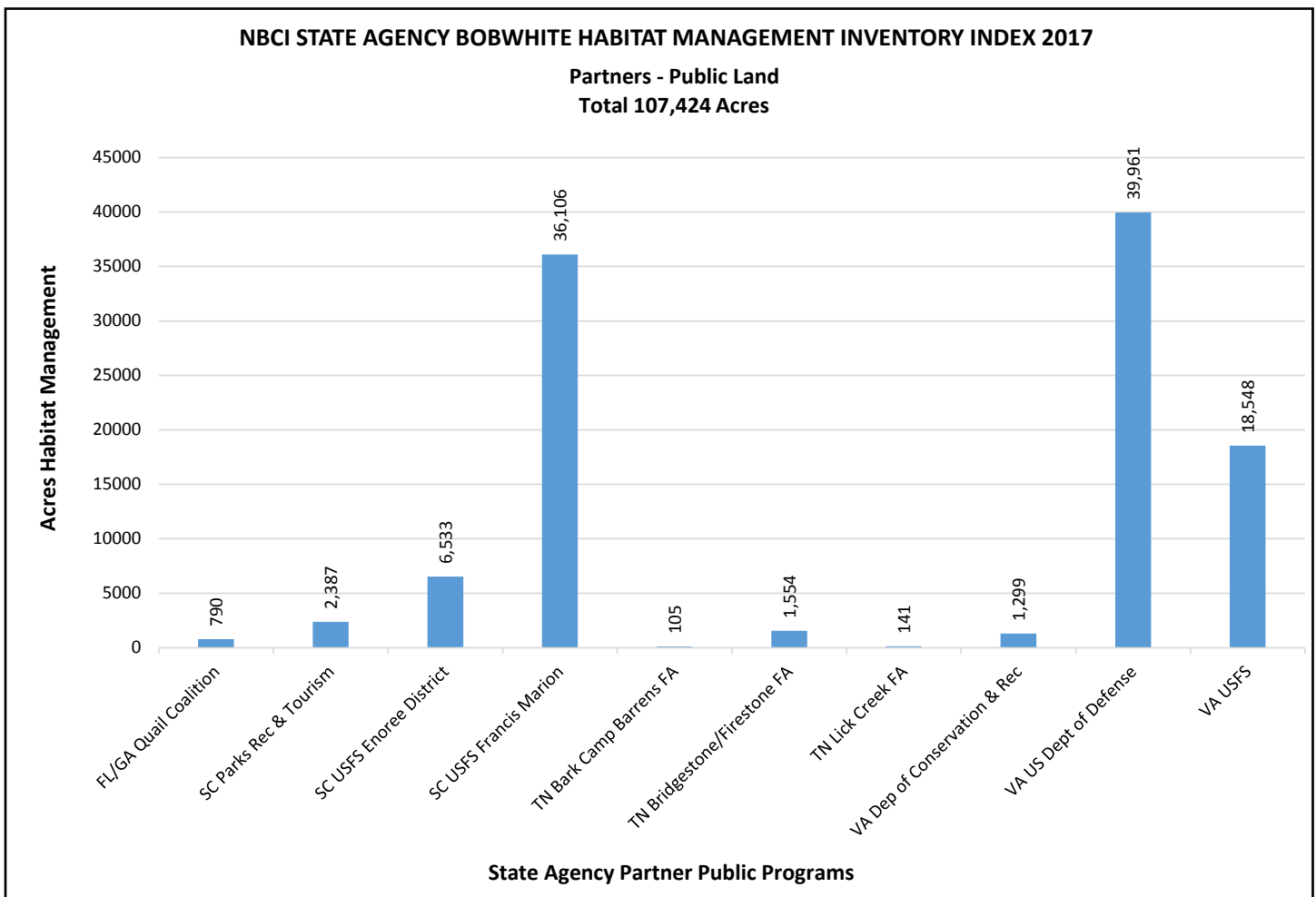


Figure 5. 2017 NBCI State Agency Bobwhite Habitat Management Index for 10 miscellaneous public and private land programs. Index is acres of habitat managed by prescribed fire, disking, grazing, spraying herbicide, cutting, planting, etc., during the reporting year (ranging from July 1, 2016, to December 31, 2017).



increase in acreage over previous years (3,191,266 acres for 2016, 2,695,645 acres for 2015, etc.). Coordinators continue to recognize the many efforts by partners to put habitat on the ground, and the addition of data from Pennsylvania marks the beginning of renewed interest by state agencies in translocation of wild bobwhites.

Across the past seven years, three of the NBCI Inventory land categories—State Agency Public Land, State Agency-Based Private Land, and Private Land enrolled in USDA Farm Bill—have been standardized and are displayed in Figure 6. Trends in these categories have been described in previous SOTB reports, and include downward, but stabilizing, management via USDA Farm Bill programs, stability in management of Agency Public Lands, and a near doubling of management reported for the Agency Private Land category. For the State Agency-Based Private Land category, 2,077,142 acres were reported for 2017, 1,072,635 acres for 2016, 0.48 million acres for 2015, etc. This increase is attributed largely to increased capacity to report bobwhite-friendly management, deferred grazing,

in Texas.

In summary, it is clear from the NBCI Habitat Inventory that state wildlife agencies and partners are continually working on the foundation of bobwhite populations, habitat management. Regardless of program size, land is being improved for the benefit of many species of wildlife, and in many cases quail hunting is improved.

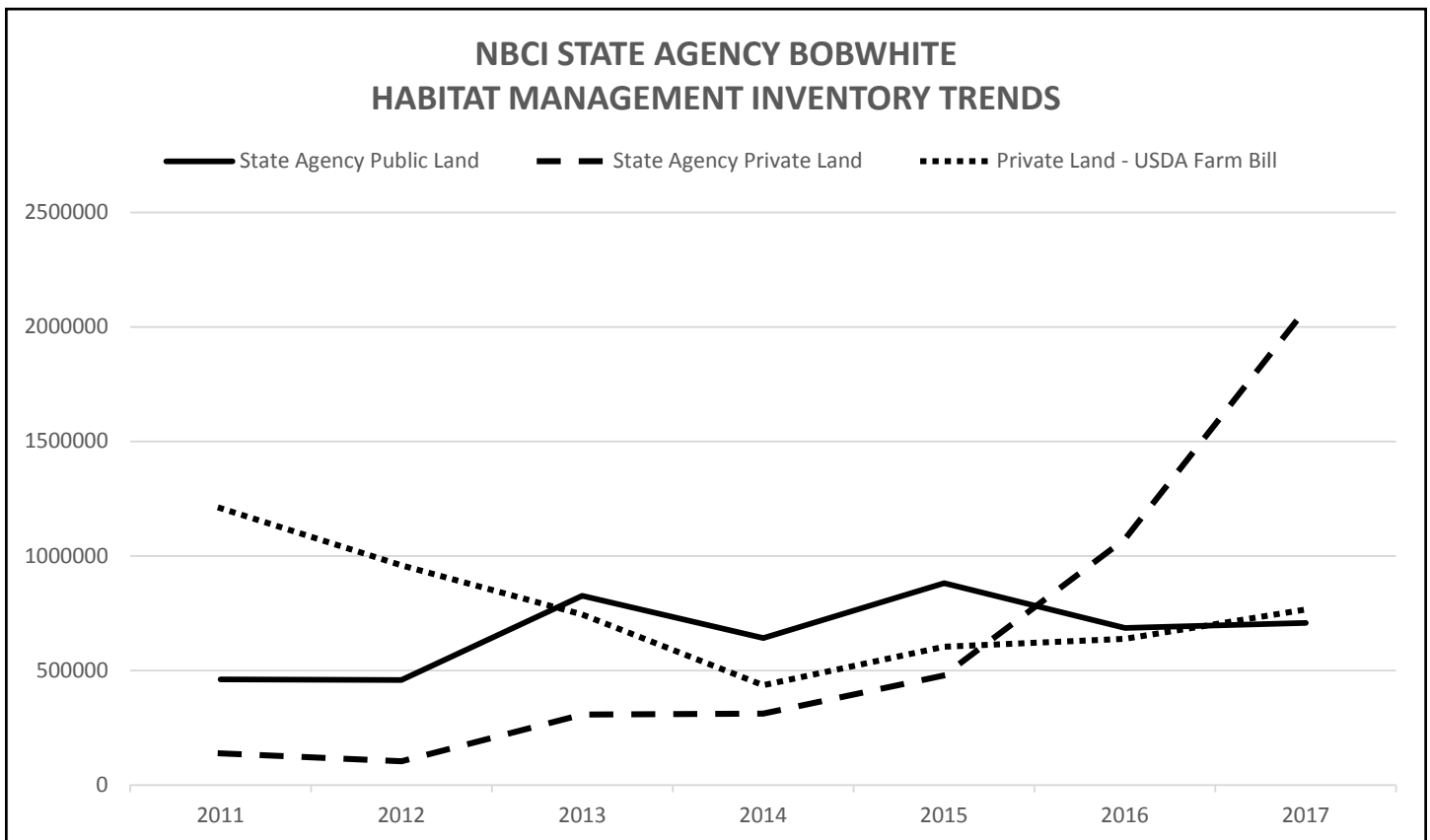


Figure 6. Trends in NBCI State Agency Bobwhite Habitat Inventory Index, 2011-17. Includes data from standardized categories identified in Figures 1-3.

