BACKGROUND
Species of Concern

Widely distributed across the eastern United States and parts of Mexico, northern bobwhite (Colinus virginianus) is one of North America’s most economically important game birds. The ongoing and widespread decline of bobwhite populations has been a concern among wildlife scientists since the 1930s, with research on bobwhite conservation increasing dramatically during the past two decades. In the Southeastern U.S., bobwhites depend on a heterogeneous mix of open, early successional landscapes dominated by grasses and forbs and interspersed with woody cover for most of their habitat needs, and their decline is associated with the conversion of such habitat to large-scale monoculture agricultural and silvicultural practices over the past century.

The National Bobwhite Conservation Initiative

The National Bobwhite Conservation Initiative (NBCI) is a range-wide plan for recovering bobwhites and features a Biologist Ranking Information (BRI), a spatially and temporally explicit conservation planning tool designed to be pragmatic, flexible, and usable by multiple organizations (Figure 1). The BRI was developed through an expert solicitation process to characterize bobwhite habitat potential across 25 states using four tiers of habitat potential. “High” indicates land use compatible with bobwhites and other early successional species at the landscape scale. “Medium” indicates that conversion to suitable habitat is possible but more expensive and difficult. “Low” indicates land impossible to convert at the landscape scale although isolated patches may exist. “None” represents urban and other land uses nearly impossible to convert.

METHOD

The overall goal of this project was to compare methods and results of the species-focused BRI and the system-focused Open Pine and Grassland Watershed Ranks map layers in order to enhance the effort to identify potential bobwhite habitat across the NBCI and GCPO LCC partnership.

RESULTs

Aside from a general tendency to exclude urban areas, wetlands, alluvial plains, and closed-canopy forests, the two approaches produce notably different images of the amount and configuration of potential conservation areas in the landscape (Figure 3).

The BRI layer was clipped to the boundary of the HUC12 watersheds intersecting the GCPO LCC geography. To base the comparison on a common mapping unit, the four BRI classes (High, Medium, Low, None) were summarized by watershed by assigning to each watershed the highest value from either system. For species as limited by conditions particular to Open Pine and seven species as limited by conditions particular to Grassland and Open Pine, the BRI describes high potential across a broad swath of Southern Illinois ignored by the BCC. In Eastern Texas and Oklahoma, the LCC describes hundreds of watersheds as having high potential whereas BRI acknowledges only a handful.

The pattern of divergent results is clustered and occurs over large areas (Figure 4), suggesting that large landscape features, such as physiographic characteristics or ecoregions, could be at play in addition to the neighborhood scale feature of agricultural land use.

FUTURE STEPS

This analysis provides both the GCPO LCC and the NBCI BRI the opportunity to examine the characteristic limitations of their respective approaches. Given both maps of the LCC Conservation Blueprint and the NBCI BRI could include the following actions:

- GCPO LCC: Develop a standard program for generating bird habitat conservation through voluntary USDA initiatives authorized under periodic Farm Bill legislation and similar programs for working lands. This is a challenge for large landscape comprehensive geospatial projects, since the information is more easily mapped by experts with local knowledge (within states) but difficult to apprehend at large landscape (across states) scales.

- GCPO LCC: Continue to explore ways of nesting local conservation planning efforts into the larger scale Landscape Conservation Design Process.

- NBCI: consider re-examining broad areas of Central Mississippi, East Texas, and East Oklahoma for possible “High” potential landscapes.

Figure 3: Maps of potential habitat described by the GCPO LCC (Grasslanda, Open Pine, Combined Grassland + Open Pine) and by NBCI BRI (Bobwhite)

Figure 4: Watersheds ranked low by one process and high by the other

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