Building a Regional Science Framework to Support Shared Stewardship for Landscape-Scale Conservation in Southeast Ohio

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The Interagency Forestry Team of Ohio (Team) was established in 2008 to combine efforts and facilitate a common vision toward promoting healthy forests, especially oak-dominated forests, among federal and state agencies via a shared stewardship approach. The focus area is a 17-county region of southeastern Ohio that was selected for a Joint Chiefs' Landscape Restoration Partnership Project for 2015–2017 (Fig. 1). The 2016 National Land Cover Database (Yang et al. 2018) estimates Ohio at 34.0 percent forested, and 41.8 percent of this forest resides within the 17-county area. Within this zone are three units of the Wayne National Forest, 17 Ohio State Forests, and multiple Ohio Wildlife Management Areas, State Parks, State Natural Areas and Preserves, and other publicly protected or managed areas that together account for 12 percent of the focus area. Therefore, the vast majority of these forests are privately owned in these dissected, unglaciated landscapes of the Allegheny Plateau (Iverson et al. 2019). These forests, with 77 known species of trees, are among the most diverse in the nation, but adequate regeneration of the oak-dominated forest types has been lacking in the last decades due to a reduction of light to the forest floor in the absence of adequate management and fire (Iverson et al. 2008, Johnson et al. 2009, Nowacki and Abrams 2008). However, research by the USDA Forest Service Northern Research Station since 1995 has shown that a combination of canopy reduction and repeated fire, especially on ridges and southern exposures, can improve advanced regeneration in oak and hickory in southern Ohio (Hutchinson et al. 2012, Iverson et al. 2017).
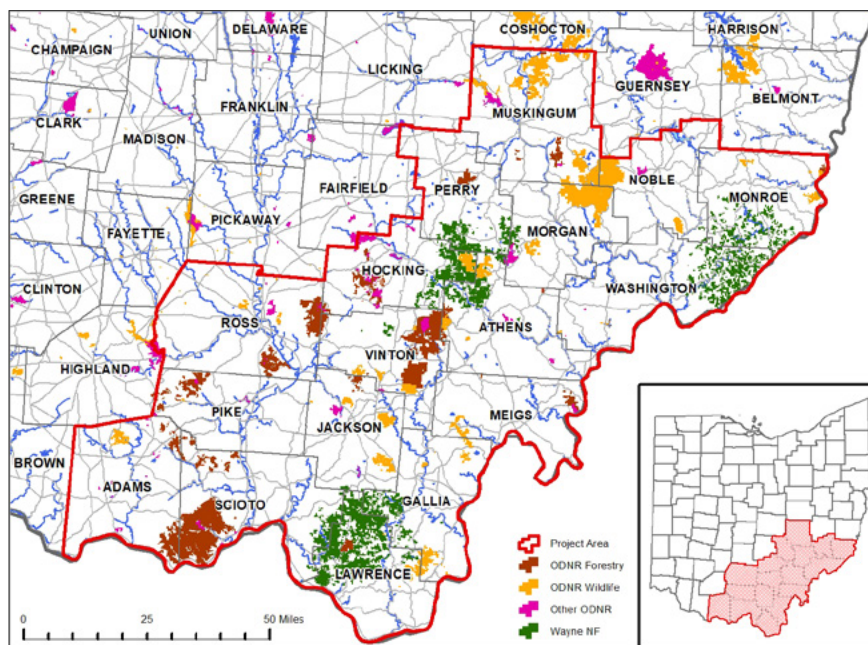

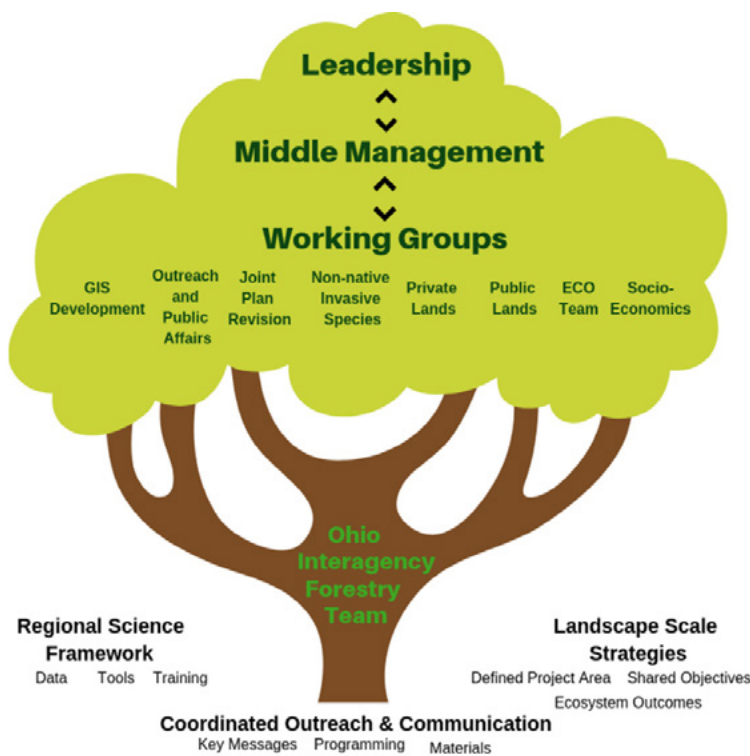Figure 1.—Southeast Ohio Oak Management Priority Forest Area.

Figure 2.—Structural makeup of the Ohio Interagency Forestry Team.

The Team is composed of three tiers of operation: leadership, the heads of agencies involved in forest management of the region; middle management, the primary players for planning and on-the-ground implementation; and working groups, teams of specialists focused on specific aspects of the shared stewardship (Fig. 2). As part of the new business model the Team is working under, a regional science framework of data, tools, and training is being developed. One of the tools being developed is an oak investment model (Working Groups GIS Development and ECO team, Fig. 2) to quantify and prioritize silvicultural treatments to promote oak-dominated forest regeneration in the region.

The oak investment model consists of three components: site capability, current vegetation condition, and recommended treatment investments. For site capability, we used an ecomapping approach, based primarily on topographic characteristics, to identify those locations most (and least) suitable and efficient for encouraging oak and hickory establishment and growth (Iverson et al. 2018). These include mapping of 15 landtypes characterized by three forest classes: dry oak forest, dry-mesic mixed oak hardwood forest, and rolling bottomland mixed hardwood forest. The model connects these ecomapping outputs with current vegetation represented by thousands of SILVAH and other sampling plots. Stand reconnaissance and the SILVAH decision-support system is then used to recommend treatments and help identify locations for management investment. SILVAH (Brose et al. 2008) uses a strategic inventory to determine abundance of desirable oak seedlings and barriers to their success, then prescribes silvicultural guidelines for reducing these barriers to regeneration, thereby fostering enhancement of desirable oak seedlings.

This tool is also being used for rapid ecological assessment in support of National Environmental Policy Act (NEPA) planning on the Wayne National Forest, among other applications on public lands. In these efforts, project objectives in expanding early successional wildlife habitat are being coupled with the dual purpose of regenerating oak-dominated forest where sites are suitable, and to expand these objectives to include private lands where there is interest in collective action supported by complementary government programs and authorities.

Prior to the Team's establishment, information sharing among agencies was minimal and project specific. However, since 2008, the flow and accessibility of information has increased and the Team is working toward cross-boundary management that benefits all lands. This approach has already increased project and personnel funding as well as the implementation of on-the-ground treatments, resulting in a positive impact to the forests of the region.

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