Forest Assessment of the Mississippi Alluvial Valley, 2021

Many species, communities, and ecological functions depend upon intact forest habitat in the Mississippi Alluvial Valley (MAV). From birds to bats to bears, the extent and spatial arrangement of forest habitat throughout the region dictates habitat suitability and population viability. Hence, the ability to characterize these forest attributes is vital to biological planning, conservation design, and strategic conservation delivery by the Lower Mississippi Valley Joint Venture (LMVJV) partnership.

The latest MAV forest assessment was based upon Google Dynamic World 2021 land cover mapping which uses a Fully Convolutional Neural Network classification method to classify (Brown et al. 2022). Classifications include water, trees, grass, crops, shrub/scrub, flooded vegetation, built-up area, bare ground and snow/ice. We excluded or masked out anything that was not labeled as 'trees' (value 1), as well as urban areas based using 2016 NLCD.

This assessment resulted in an estimated **8.1 million acres of forest** (Figure 1). Of this, **Forest Core** (forest within 250-meter buffer from surrounding hostile habitat [agriculture, pasture, developed]) was estimated to be **2.6 million acres** (Figure 2; Table 1). Forest Core is extremely important to area sensitive forest interior breeding birds, providing refuge from edge predators and nest parasites. Because of this, LMVJV partners have utilized a Forest Breeding Bird Decision Support Tool since 2006 to assist in focusing afforestation efforts in areas with higher likelihood of creating and building larger blocks of Forest Core (lmvjv.org/mav-breedingbird).
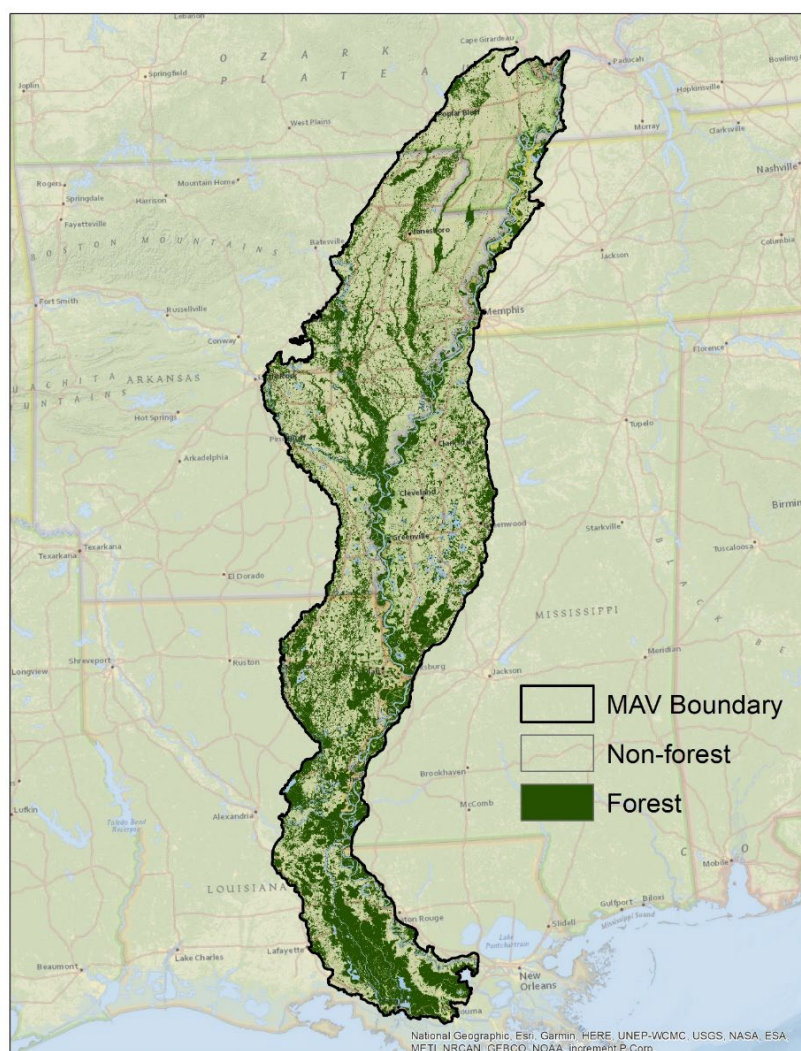

Figure 1. Extent of forest habitat within the Mississippi Alluvial Valley in 2021.
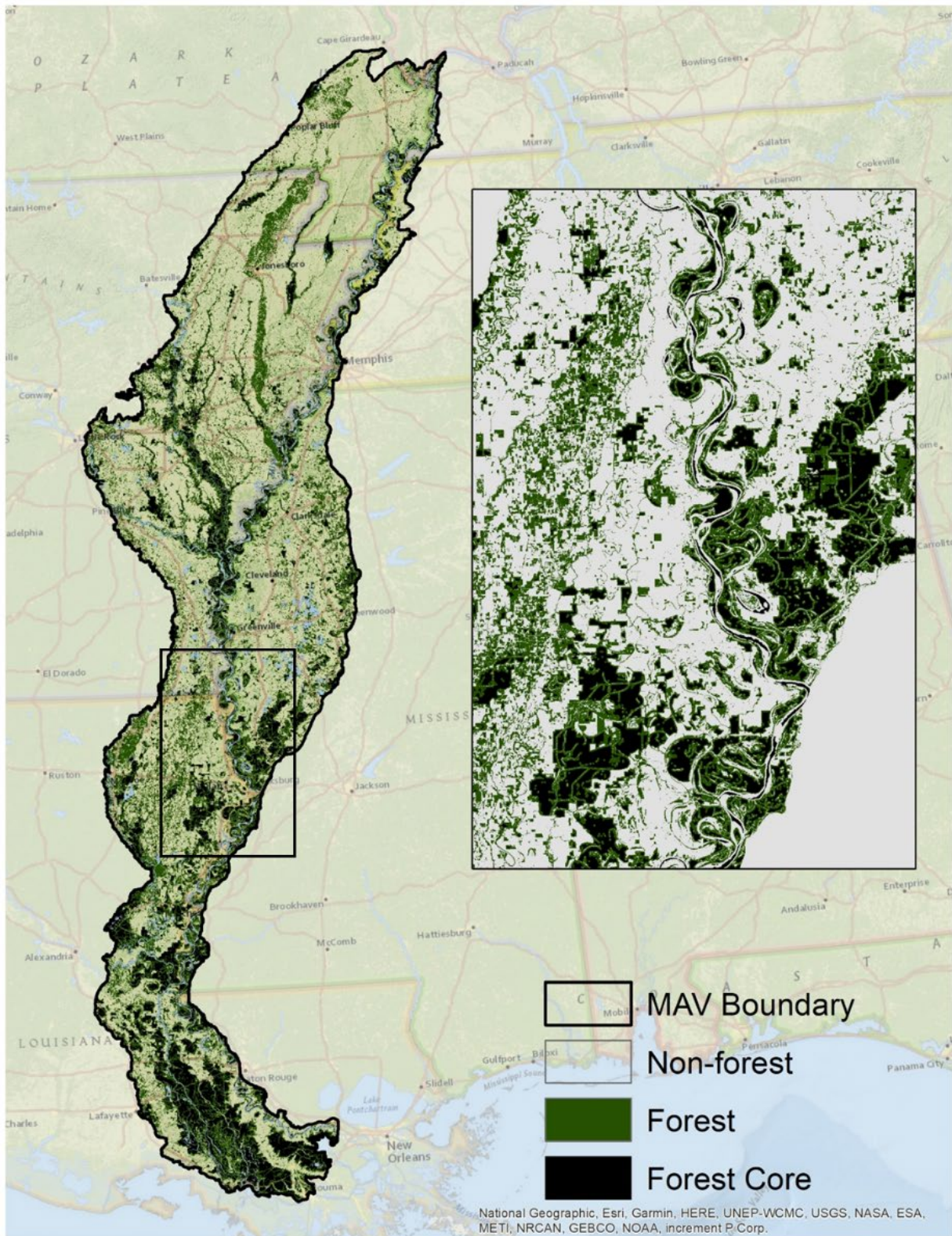
Figure 2. Extent of Forest Core within the Mississippi Alluvial Valley in 2021.

Table 1. Estimates of acres of Forest Core by source within the Mississippi Alluvial Valley in 2021. Sources include: National Resource Conservation Services Wetland Reserve easements, state agency Wildlife Management Areas (WMA), U.S. Fish and Wildlife Service (USFWS) National Wildlife Refuges (NWR), and U.S. Forest Service National Forests.

Source	Forest Core (ac)	% of Total
Wetlands Reserve	785,311	30%
State WMA	465,864	18%
USFWS NWR	303,785	12%
National Forests	43,962	2%
All other	1,007,602	39%
Total Forest Core	**2,606,524**	

Historically, forest habitat in the MAV reached its lowest extent in the late 1990s/early 2000s (Figure 3.) Although the trend in acres of forest habitat since 2001 is positive, achieving sufficient forest breeding bird habitat for the LMVJV's species of responsibility is estimated to require at least 9.1 million acres.
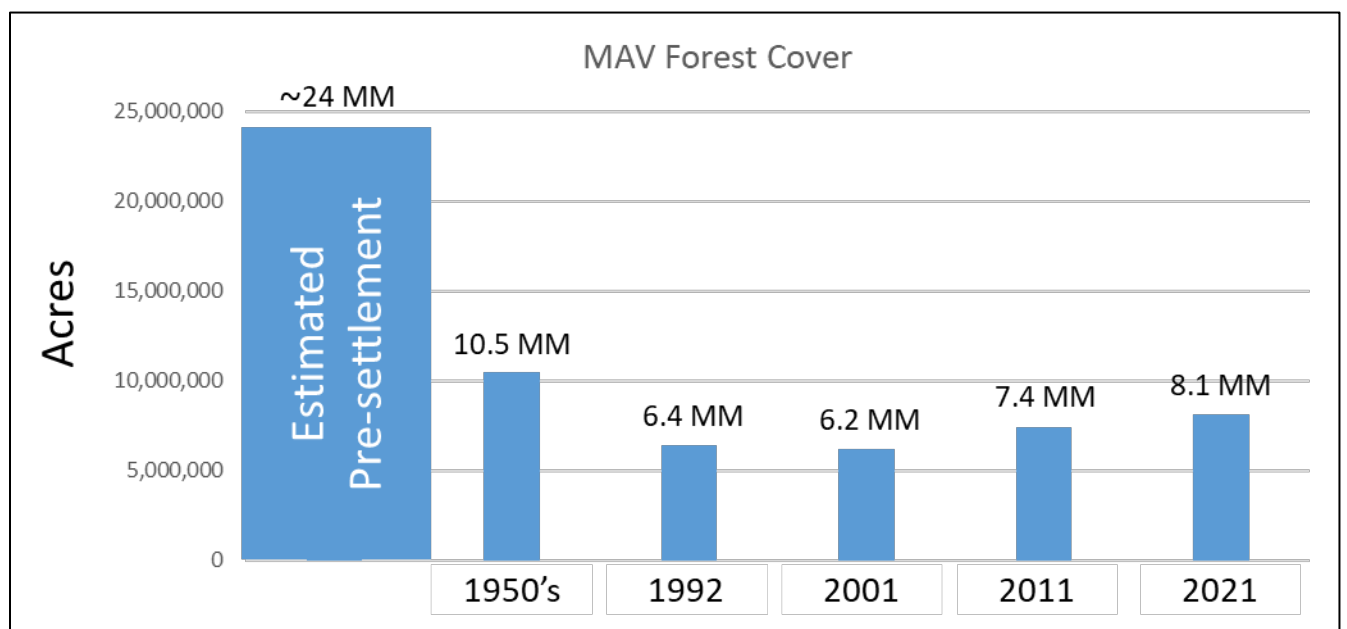

Figure 3. Change in acres of estimated forest habitat within the Mississippi Alluvial Valley from pre-settlement eras to 2021

Literature Cited

Brown, C.F., S.P. Brumby, B. Guzder-Williams, *et al.* 2022. Dynamic World, Near real-time global 10 m land use land cover mapping. *Sci Data* **9**, 251. https://doi.org/10.1038/s41597-022-01307-4