

**SOUTHEAST
BEAVER ALLIANCE**



August 15, 2025

Via E-mail to russ.walsh@wfp.ms.gov

Russ Walsh, Wildlife Chief of Staff
Mississippi Wildlife, Fisheries, & Parks
1505 Eastover Drive
Jackson, MS 39211

Re: Draft 2025 State Wildlife Action Plan

To Whom it May Concern,

The Southeast Beaver Alliance submits these comments regarding the draft of Mississippi's revised State Wildlife Action Plan ("SWAP"). We are pleased to offer our general support for the plan, as well as suggestions for your consideration as you work to finalize the SWAP. In particular, we highlight the beaver as an important ally for conservation of aquatic and wetland ecosystems which house species of greatest conservation need ("SGCN") in Mississippi.

Conservation of keystone or umbrella species that are considered common or less rare should still be prioritized since their cascading benefits can protect and restore threatened and endangered species. For instance, the beaver (*Castor canadensis*) is considered common throughout Mississippi and is associated with many ecological systems in the state; however, this species also provides many ecological services and should be prioritized in conservation actions. Mississippi Wildlife, Fisheries, & Parks ("MDWFP") elegantly summarizes the importance of these ecosystem engineers, stating:

The beaver is considered a keystone species, because it changes the environment by creating favorable new habitats for other species ... Beaver ponds provide habitat for various species of fish and some amphibians are more abundant in these ponds. A variety of birds and mammals feed on the fish inhabiting the ponds.¹

We first would like to thank MDWFP for acknowledging the positive impacts that beavers have on Mississippi's landscape, including their importance as a keystone species. In particular, the Alliance supports the inclusion of conservation actions for beaver ponds such as, restoration and improved management of altered and/or degraded habitat; maintaining, improving, and/or restoring hydrologic and geomorphic integrity; and providing public education

¹ Chapter 5: *Wildlife Habitats in Mississippi*, in [Draft] Mississippi State Wildlife Action Plan 2025-2035, at 121 (Miss. Dept. Wildlife, Fisheries & Parks, July 11, 2025, <https://perma.cc/5EUN-ARC4> [herein "Habitats"]).

about the conservation of SGCN and their habitats.”² We also support encouraging the retention, preservation, and conservation of remaining natural habitat through purchase, easements, or MOAs; encouraging buffers and improving land use practices adjacent to streams and other aquatic and wetland habitats; and promoting and developing landowner incentive and assistance programs for conservation of SGCN and their habitats³ We also appreciate that the draft SWAP includes in threats to beaver ponds the hunting and collecting of terrestrial animals.⁴

Despite the potential of beaver-created and -maintained habitat to contribute to a variety of species conservation efforts, the draft SWAP otherwise contains little discussion of actions to facilitate beaver conservation and in fact labels this keystone species as a pest species.⁵ Among other benefits, beavers create wetlands and can help manage and conserve SGCN. We ask that Mississippi’s 2025 SWAP include further research on the benefits of beavers to ecosystems in Mississippi and specific provisions for beaver conservation when related to the restoration and maintenance of habitat of SGCN.

Mississippi experienced a 59% loss in wetlands from the 1780s to the 1980s.⁶ Beavers can play a key role in wetland conservation and restoration. Beaver dams serve as a natural wetland creation mechanism by slowing the velocity of water, encouraging lateral spreading, and saturating larger areas of soil.⁷ Beavers create a complex wetland habitat ranging in age and successional stage that is more resilient to flooding, drought, and other symptoms of climate change and enhances adjoining habitat for other species, including SGCNs.⁸

Established beaver dams are also capable of withstanding significant flood events while slowing down floodwaters and reducing erosion and other damage downstream.⁹ Areas dammed by beaver increase water storage capacity and can reroute water to longer subsurface flow paths. These mechanisms create a buffer against drought for the wetland and downstream habitats and improve groundwater storage and aquifer recharge.¹⁰ The benefits multiple beaver dam-pond pairs provide ecosystems include: (i) maximizing habitat diversity and providing migration pathways and refugia for diverse organisms; (ii) “maximizing lateral and vertical connectivity across the entire river corridor, while limiting longitudinal connectivity,” leading to “enhanc[ed] storage of surface and subsurface water, sediment, nutrients, and organic matter;” and (iii) reducing peak flows and sediment transport if one dam fails.¹¹

² *Actions to 2025 Habitats*, in [Draft] SWAP 2025 Threats and Actions (Miss. Dept. Wildlife, Fisheries & Parks, Jan. 6, 2025), <https://perma.cc/A3W5-98UQ> [herein “Habitat Threats”].

³ *Id.*

⁴ *See 2025 Habitats Threats*, in [Draft] SWAP 2025 Threats and Actions (Miss. Dept. Wildlife, Fisheries & Parks, Jan. 6, 2025), <https://perma.cc/9F48-CUW8> [herein “Habitat Threats”].

⁵ *See* Habitats at 122.

⁶ *See id.* at 115.

⁷ U.S. Fish & Wildlife Serv., *The Beaver Restoration Guidebook: Working with Beaver to Restore Streams, Wetlands, and Floodplains* 4 (M.M. Pollock, G.M. Lewallen, K. Woodruff, C.E. Jordan and J.M. Castro eds., 2023) [hereinafter “Guidebook”].

⁸ *See id.* at 5.

⁹ *See* Emily Fairfax & Cherie Westbrook, *The Ecology and Evolution of Beavers: Ecosystem Engineers that Ameliorate Climate Change*, 55 Ann. Rev. of Ecology, Evolution, and Systematics 323, 334 (2024).

¹⁰ *Id.* at 335–36.

¹¹ Ellen Wohl and Shreeram Inamdar, Beaver Versus Human: The Big Differences in Small Dams, 12 WIREs Water

These beaver-created, climate change-resistant ecosystems can also increase biodiversity and reverse habitat loss.¹² Beaver-created wetlands generally have a positive impact on terrestrial invertebrate diversity,¹³ the abundance of waterfowl, and the abundance and diversity of fish species.¹⁴ On a landscape scale, beavers can increase overall plant species richness “by creating a new mosaic of terrestrial and aquatic vegetation habitats.”¹⁵ Beaver wetlands can also reduce the effects of wildfire and provide refugia to a host of wildlife species during wildfires, although most of this evidence base consists of studies in the western United States.¹⁶ We recommend MDWFP research the effects of beaver wetlands on wildfires within the state, especially given the increase of wildfire risk projected for the southeast¹⁷.

Prioritizing beavers can protect and enhance dozens of SGCN listed in the Mississippi SWAP. For example, beaver activity is a known component to healthy Golden-winged Warbler habitat alongside fire disturbance.¹⁸ Other species of the highest conservation need which rely on beaver ponds include the Northern Long-eared Bat, Gray Bat, Indiana Bat, Roseate Spoonbill, Wood Stork, Water Chicken Turtle, River Frog, Prickly Hornwort.¹⁹

Species of high or very high conservation need which rely on the ecosystem services of beavers include the Tricolor Bat, Mud salamander, Little blue heron, Prothonotary Warbler, Louisiana Waterthrush, Rusty Blackbird, Broadstripe Topminnow, Southeastern Shrew, Rafinesque's Big-eared Bat, Meadow Jumping Mouse, Black Bear, Louisiana Blackbear, Least crayfish, Angular Dwarf Crayfish, Mitchell's Satyr, Piedmont Bladderwort, Broadwing Sedge, Wolf's Spikerush, Kral's Yellow-eyed Grass, and Southern Shield Wood-fern.²⁰

Other SGCN which rely on beaver-created habitat include the American Woodcock, Tricolored Heron, Black-crowned Night Heron, Yellow-crowned Night Heron, Red-headed Woodpecker, Northern Starhead and Western Starhead Topminnow, Least Killifish, Bluespotted Sunfish, Southeastern Myotis, Silver-haired Bat, Hoary Bat, Northern Yellow Bat, Pearl Blackwater Crayfish, Shadow Darter.²¹

12:e70019, at 17 (March 27, 2025).

¹² Fairfax & Westbrook, *supra* n.9 at 337.

¹³ Brian M. Bush & Scott A. Wissinger, *Chapter 12: Invertebrates in Beaver-Created Wetlands and Ponds*, in *Invertebrates in Freshwater Wetlands: An Int'l Perspective on their Ecology* 411, 432 (Darold Batzer and Dani Boix eds., 2016).

¹⁴ David R. Butler, *The Reintroduction of the Beaver into the South*, 31 *Se. Geographer* 39, 41 (1991).

¹⁵ See Annegret Larsen, et al., *Dam builders and their works: Beaver influences on the structure and function of river corridor hydrology, geomorphology, biogeochemistry and ecosystems*, 218 *Earth-Science Revs.* (May 2021), at 31.

¹⁶ See Emily Fairfax, et al., *Impacts of beaver dams on riverscape burn severity during megafires in the Rocky Mountain region, western United States*, 562 *Geological Soc'y Am.* 131 (Feb. 15, 2024).

¹⁷ Victoria M. Donovan et al., *Increasing Large Wildfire in the Eastern United States*, 50 *Geophysical Research Letters*, e2023GL107051 (2023), <https://doi.org/10.1029/2023GL107051>.

¹⁸ *SWAP 2025 SGCN List* (Miss. Wildlife, Fisheries & Parks, June 17, 2026), <https://perma.cc/GF4U-2NUQ?type=standard> [hereinafter “SGCN List”]; see also *Sustainably Managing Forests Creates Golden-winged Warbler Breeding Habitat*, U.S. Dep't, of Agriculture, <https://perma.cc/3Q4L-XUG8>.

¹⁹ SGCN List.

²⁰ *Id.*

²¹ *Id.*

SGCN that rely on habitat noted as being created by beaver in other areas of the Southeast include the Black rail, King rail, Ironcolor shiner, and featherfoil.²² We recommend MDWFP research whether beaver-created ecosystems could be used to support the species' population in Mississippi.

Despite the benefits from beavers, Mississippi's 2025 SWAP highlights valid concerns about the presence of beavers. Flooding acts as a nuisance for landowners and can damage infrastructure. We recommend MDWFP research use of flow devices and fencing across a variety of beaver-influenced ecosystems to minimize disruption to landowners and other species.

These tools, when installed by trained professionals, can be used to manage water levels, leading to an increased tolerance for the presence of beavers so communities may benefit from their ecological services. Additionally, we strongly urge MDWFP to prioritize the use of flow devices and other nonlethal tools for beaver management as needed for the preservation of habitat for SGCN, and to utilize trapping as a last resort. Additionally, we recommend that the 2025 SWAP include public education about nonlethal management tools, such as flow devices that address flooding concerns, as well as wrapping trees in wire²³ and fencing off other vegetation to address tree damage. We also encourage MPDWFP to work with MDOT and municipalities to adopt nonlethal management strategies.

Where a site is unsuitable for the presence of beavers but would still benefit from the impacts of their activity, using beaver mimicry such as beaver dam analogs ("BDA"), post assisted log structures ("PALS"), and other low-tech, process-based restoration methods would similarly benefit the ecosystem. The Corps of Engineers recently released a draft of the updated Nationwide Permit 27 to explicitly include these restoration methods.²⁴

Because of the numerous benefits of beaver activity and beaver mimicry structures to ecosystems generally and SGCN specifically, we ask that Mississippi's 2025 SWAP support further research on the ecosystem benefits of beaver activity and beaver mimicry structures within Mississippi, especially regarding groundwater recharge, drought resilience, stream temperature, habitat creation from woody debris, and beaver conservation related to the preservation and maintenance of habitat of related SGCN. We also encourage MDWFP to pursue conservation actions that improve and preserve hydrologic connectivity and hydrologic and geomorphic integrity including restoration methods which use beavers or beaver mimicry.

²² See, e.g., Todd Schneider & Tim Keyes, *Birds Technical Team Report for Georgia's 2025 State Wildlife Action Plan* 11, 13 (Ga. Dep't of Nat. Res., Feb. 19, 2025 DRAFT); See [Draft] *Species of Greatest Conservation Need: Freshwater Fish* 10, Va. Dep't Wildlife Res. (2025), <https://perma.cc/42U2-4UT4>; Lisa Kruse et al., *Plants Technical Team Report* 51 (Ga. Dep't of Nat. Res., Feb. 19, 2025 DRAFT).

²³ See Cherie J. Westbrook and Kirby England, *Relative Effectiveness of Four Different Guards in Preventing Beaver Cutting of Urban Trees*, 7 J. of Urban Ecology, <https://doi.org/10.1093/jue/juab021>.

²⁴ See *id.* at 69.

We urge MDWFP to continue to actively encourage and promote maintaining beaver habitat in natural areas to create, restore, and maintain freshwater marshes, as well as other ecosystems reliant on beaver activity.²⁵ We also urge MDWFP to focus on the benefits brought by the presence of this keystone species, and to utilize and encourage the public to use the non-lethal management strategies highlighted above.

We appreciate this opportunity to support and provide feedback on Mississippi's Draft 2025 SWAP. We look forward to working with MDWFP to help conserve and restore the ecosystems which house the state's rich biodiversity. If you have any questions or would like to discuss these comments further, please contact us at southeastbeaver@gmail.com.

Sincerely,

Tony Able
Chair

Catherine Crafa
Vice Chair

²⁵ *Mississippi State Wildlife Action Plan (2015-2025)* 178, 189 (Miss. Dept. Wildlife, Fisheries & Parks, updated July 2016), <https://perma.cc/M3JG-Y4C2>.