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MARYLAND CHAPTER

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Secretary Josh Kurtz
Maryland Department of Natural Resources
580 Taylor Avenue
Annapolis, MD 21401

RE: Maryland Sierra Club Comments on the 2026 Maryland State Wildlife Action Plan

Dear Secretary Kurtz and Maryland Department of Natural Resources,

Thank you for the opportunity to comment on Maryland's 2026 State Wildlife Action Plan (SWAP) and its detailed analysis of the diversity, species abundance, and habitats. Improving the protection of Species in Greatest Conservation Need (SGCN) and their Key Wildlife Habitats (KWHs) as prepared by the Wildlife and Heritage Service's (WHS) Natural Heritage Program (NHP) is of utmost importance in the face of the growing biodiversity crisis. The broad collaboration and support for the development of this detailed plan also holds much promise for its implementation and for securing financial support. We're thrilled to see the inclusion and coordination with regional SWAP plans and agree with the vast majority of recommended actions to protect SGCN. However, we noted that many actions to counter current threats include active management and stewardship plan development, or "conservation work." We believe there is a significant need for land preservation and protection, not only conservation work through active management and stewardship plans. There is also a recommendation in the SWAP to further explore nuclear power. Due to the risks of nuclear energy, we do not support the state expanding nuclear energy, and therefore we do not support that recommendation.

Following, we suggest additional key actions to counter the threats to SGCN and KWHs for the enhancement of Maryland's 2026 SWAP. We understand that this is a non-regulatory guiding document but feel strongly that certain actions can be taken immediately on county and state administrative levels if recommended by the DNR. It is important that we encourage the permanent protection of land and water for the recovery of biodiversity within this plan now, to preempt the depletion of our natural resources from development sprawl, to obtain funding, and to initiate advocacy around the needs of natural places and biodiversity in general.

1. **Current biodiversity crisis and response**

The World Wildlife Fund's 2024 Living Planet Report shows the average size of wildlife populations falling by 73% since the 1970s. This is a mere two percentage points away from a mass extinction—caused by humans. While populations of over 5,000 vertebrate species are measured to assess population declines, this species decline is expected to be larger among invertebrates and plant life but less than 1% of insect species are measured (Eisenhauer et al., 2019) and data is incomplete around plant life.

The loss of living organisms, including plants, animals, and microbiomes, has an oversized impact on our biosphere, the thin layer on Earth on which life can thrive, as it affects biogeochemical cycling, ecosystem multifunctionality, and their processes. Without species variety and richness, ecosystems destabilize, reducing their resilience and adaptability to challenges like climate change, pathogens, and invasive species. Without a depth and breadth of biodiversity, ecosystems cannot recover from these impacts and collapse.

Biodiversity is the foundation of ecosystem services that life on Earth relies on. Ecosystem services include functions like water and air purification, soil formation, pollination, carbon sequestration, and temperature regulation, among others. Humans are fundamentally dependent on these ecosystem services for our physical and mental health.

The cause of the biodiversity decline is first and foremost caused by habitat loss and fragmentation, followed by overexploitation, and pollution per the 2024 Living Planet Report. The SWAP's twelve Threat Categories can be grouped into the same three causes: Residential and Commercial Development (habitat fragmentation or elimination), Agriculture and Aquaculture (habitat and overexploitation), Energy Production and Mining (habitat and pollution), Transportation and Service Corridors (habitat and pollution), Biological Resource Use (overexploitation), Human Intrusion and Disturbance (habitat), Natural Systems Modification (habitat), Invasive and Problematic Species Genes and Diseases (habitat and overexploitation), Pollution, Geological Events, Climate Change, and others.

Recognizing this threat, in 2022, 196 countries signed the Kunming-Montreal Global Biodiversity Framework committing to the preservation and protection of 30% of all lands and waters by 2030 ("30 x 30"). Retaining existing ecosystems and restoring an additional 30% of converted land would mitigate 71% (+/-4%) of current extinctions and 49% of all the CO2 increase since the industrial revolution (Strassburg, et al., 2020.)

The Sierra Club fundamentally agrees with 30 x 30 as stated in its land conservation policy:

> "We must protect 30% of lands by 2030 to fight the climate and extinction crisis. Protecting wild places will keep drilling and logging from dumping pollution into the air, sequester emissions, provide protection from extreme weather, homes for wildlife, and opportunities for people to enjoy the outdoors together."

30 x 30 is also supported by Sierra Club's intergenerational equity policy.

In support as well, the 2021 Presidential Executive Order #14008 "Tackling the Climate Crisis at Home and Abroad" calls for the protection of 30% of U.S. land and waters by 2030. In its register, it highlights that: "The U.S. Geological Survey reports that only 12% of lands are permanently protected. Studies show that roughly 23% of America's ocean is currently strongly protected, with the vast majority of ocean protections found in the western Pacific Ocean" (DOI Fact Sheet, 2021). While the current administration has rescinded this order, we know that permanent protection of at least 30% of land and water is the only way forward to solve the biodiversity crisis. The current administration's attack on public lands and biodiversity has created public pushback in Maryland which presents an opportunity to permanently protect our own public and private resources, as Maryland has relatively little federally owned acreage.

In short, we know what to do to support biodiversity recovery: protect and preserve remaining habitats and ecosystems, expand these through restoration and rewilding, and connect the habitats to ensure a wide range for biodiversity. Range and mobility are of growing importance with climate change so that biodiversity can access climate refugia and food in shifting bioregions. We understand that this is a growing challenge as Maryland is one of the most populated States in the country. In 2010, the MD Department of Planning published the Land Use/Land Cover (LULC) Report. The Report highlights a 154% increase in land development for a population increase of 39% since 1973. The SWAP (5.27) also states that "conservation opportunity areas are vulnerable to future development or constrained by current development." Multiple threats including population pressures, development sprawl, energy generation, and energy transmission impacts are only expanding and accelerating. For this reason, it is important that Maryland take immediate action for permanent land and waters protections before we run out of ecosystems and habitats to protect.

2. **Habitat and Species management/conservation actions**

We agree with most of the actions suggested by the SWAP. However, while many actions listed include stewardship, wildlife management, and habitat management plans there are very few mentions of permanent protection and preservation of natural lands and waters. However, we know that no management generally does the best for biodiversity and habitats (Moomaw et al. 2019) except for where harmful invasives are present. To protect and support biodiversity recovery, we need land protections and preservation, not management or stewardship which interferes with natural processes and ecosystem balance, including their biota.

E.O. #14008 highlighted the USGS' tracking the amount of lands and waters that are protected across the U.S. The USGS has four levels in its Gap Analysis Project ("GAP Codes") which defines the management applicable across U.S. lands and waters. Only GAP 1 and GAP

2 count as protected areas—currently around 12% across the US. Following is the description of the management styles for each code.

> **GAP 1:** An area having permanent protection from conversion of natural land cover and a mandated management plan in operation to maintain a natural state within which disturbance events (of natural type, frequency, intensity, and legacy) are allowed to proceed without interference or are mimicked through management.
>
> **GAP 2:** An area having permanent protection from conversion of natural land cover and a mandated management plan in operation to maintain a primarily natural state, but which may receive uses or management practices that degrade the quality of existing natural communities, including suppression of natural disturbance.
>
> **GAP 3:** An area having permanent protection from conversion of natural land cover for the majority of the area, but subject to extractive uses of either a broad, low intensity type (for example, logging, Off-Highway Vehicle recreation) or localized intense type (for example, mining). It also confers protection to federally listed endangered and threatened species throughout the area.
>
> **GAP 4:** There are no known public or private institutional mandates, or legally recognized easements or deed restrictions held by the managing entity to prevent conversion of natural habitat types to anthropogenic habitat types. The area generally allows conversion to unnatural land cover throughout or management intent is unknown.

According to the USGS, Maryland only has 2.67% of lands and waters in GAP 1 and GAP 2 management. This is the key action we need to expand to protect habitats for biodiversity recovery. We also have 33.3% of lands in GAP 3, as working lands or "land in conservation" which is important and addresses one of the priority threats listed in the SWAP: "Threats to working lands." While working lands in conservation are important and must be protected from development, these lands (mined, logged, farmed, traffic, etc.) do very little for biodiversity recovery, in fact they tend to dramatically reduce species diversity and abundance.

The SWAP addresses this head on (5.22):

> "Habitat loss and fragmentation is tied to every other threat articulated in Maryland's 2025 SWAP revision. It affects every region, habitat, and species in Maryland, whether terrestrial or aquatic. The threat presented by habitat loss speaks for itself. Threats associated with habitat fragmentation include the loss of large-scale habitat connectivity and corridors, which makes it more difficult for species to migrate and shift their ranges in response to climate change; the isolation of populations, which can result in reduced population sizes, genetic erosion, and inbreeding; and increased mortality, as animals are forced to navigate human

dominated landscapes and roads in order to find food, migrate, and breed. Habitat loss and fragmentation is a particularly difficult threat to address, as most changes must be made on a larger scale in order to have any impact. The most effective ways to address this threat are through regulation/policy change and land preservation, both of which require a large amount of money, time, effort, and *political will.*" (Emphasis added).

3. **Where to start**

The SWAP's suggested actions include the encouragement of best management practices (BMPs) to minimize or reduce habitat fragmentation; improve connectivity; and, work with county and municipal planning and zoning offices to ensure the continuation of natural spaces—among many others. We fully agree. But we believe the lack of specificity and direct-action steps will not provide the protection needed for biodiversity. Encouragement and education will not be adequate; they have not been to date. We need specific goals and processes in addition to political will.

Regarding processes, there is a zonation process outlined by the United Nations Educational, Scientific, and Cultural Organization (UNESCO) for 30 x 30 for the protection of biodiversity and earth systems processes recovery under its Man and Biosphere (MAB, 2022) program. It consists of full protections—no human intervention or manipulation—of an ecosystem (intact or mostly intact) which will become the nucleus of a biodiversity reserve (GAP 1). No management is especially important for plant life and microbiota which cannot travel to escape human destruction. Around this nucleus, a buffer zone for the expansion of the nucleus must be restored and rewilded for the expansion of habitats.

The International Union for the Conservation of Nature (IUCN) establishes clear rules on how this is done (Carver et al., 2025). No management or extractive activity should occur in restored and rewilded areas. The buffers would be a GAP 2 management area. Around the buffer, a transition zone is created in which only compatible activities are allowed to take place, i.e. agroforestry, regenerative farming and silvopasture or clean energy generation. This would be a restricted GAP 3 management code (restricted as no pesticides, fire, mining etc. should occur as they directly degrade neighboring ecosystems). Once nuclei, buffers, and transition zones have been identified, these are then connected to increase range for wildlife. These connections need to be fully based in science to anticipate bioregion shifts, climate refugia, and potential assisted migration of plant life. These connections should follow—and therewith include protection for—Maryland's streams and rivers which are natural wildlife corridors. Protecting streams and rivers as ecosystem connectors will also improve conditions for aquatic biota which is suffering from pollution and damming/lack of connectivity on regional levels per the SWAP. Regionally, the SWAP should look to include western lands and waters into the Appalachian Ecosystem Protection Area (AEPA) (Krichbaum, 2023).

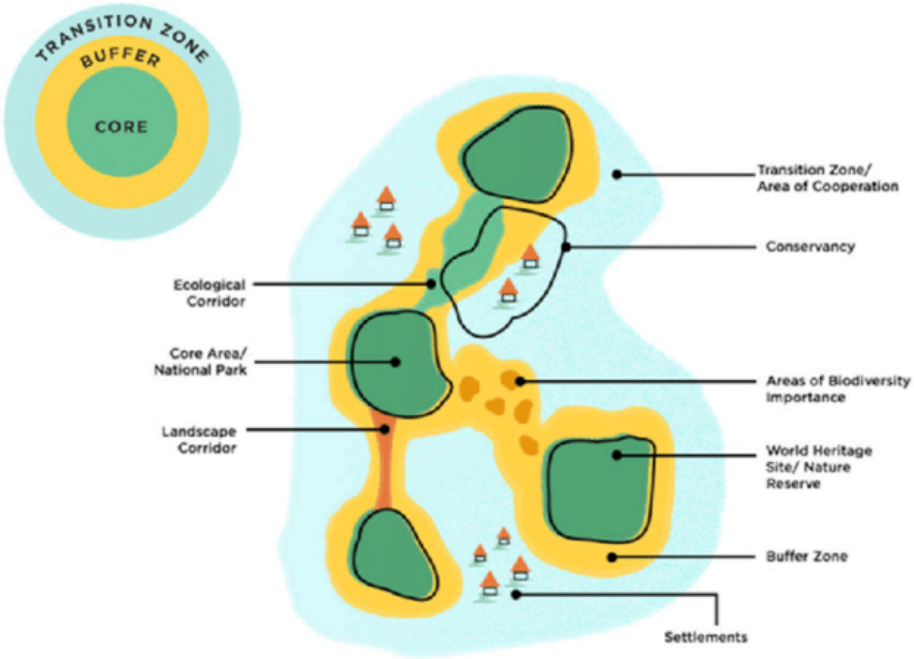

Figure 1. Schematic spatial layout of a typical biosphere reserve, UNESCO Man and Biosphere program zonation process. (Source: Pool & Coetzer, 2020., https://doi.org/10.17159/sajs.2020/7432)

SWAP 1.3 states: "Today, MD DNR owns over 507,000 acres of public land and protected open space with the Forest Service, Fisheries Service, Park Service, and WHS managing these lands for natural, historical, cultural, and recreational resources. WHS in particular oversees the management of 64 Wildlife Management Areas (MD DNR 2026). In addition to conservation of wildlife habitat through land ownership, MD DNR conserves land and wildlife habitat through a number of easement programs, such as the Conservation Reserve Enhancement Program, Rural Legacy Program, and Forest Legacy Program, and by working directly with landowners to provide technical guidance on managing fish and wildlife habitats."

These include the 57 KWHs, 362 Irreplaceable Natural Areas, and 32 Natural Areas (there is overlap). Per the SWAP, all these areas are currently managed. We argue that most should become the nuclei for the recovery of biodiversity—safeguarded from human intervention and management, left to their natural biological processes and succession.

Through administrative actions, we can move some of the currently unprotected (GAP 4) lands and lands owned and managed by the DNR through easements (GAP 3) into Gap 1 and GAP 2—passive or no management—to support biodiversity recovery and maximize ecosystem services provision. This requires political will at county and state levels, but not that much time and effort. Reducing active management across ecosystems will also save costs for Maryland's taxpayers and pollution from logging, road building (logging roads), pesticide and herbicide application, prescribed burns, stream restoration, and other costly and habitat damaging management actions.

In addition to moving public lands into protection and preservation, private landowners should be incentivized to permanently protect their property. Maryland is missing an opportunity by lacking programs for willing landowners to fully and permanently protect natural ecosystems on private lands, without requiring "management plans" or "stewardship plans," which can disrupt these lands' natural processes.

Forests, for example, host 80% of all terrestrial life and need to be prioritized for protection and preservation. However, industry pressures have limited the status of "conservation" to forests that have a management or stewardship plan—these become GAP 3 lands and include timber extraction—committing landowners to managing their forests as per written stewardship plans for at least 15 years. In return, property tax assessments on forested lands are significantly reduced and remain frozen during the agreement, with penalties for non-compliance. Most landowners do not sign up for these conservation efforts because they want to preserve their land for wildlife, beauty, and recreation and not for the extraction of timber (MFEAS, 2021). This means that a considerable amount of Maryland's 73% privately owned forests are probably considered GAP 4 right now and could become either nuclei or buffer zones (GAP 1 or GAP 2) per the zonation process to support biodiversity recovery, including SGCN.

Additionally, the Maryland Department of Emergency Management (MDEM) just released the new Statewide Resiliency Strategy in the face of Climate Change. Its first sector of attention is the Environment & Natural Systems and its restoration and protection:

"Restoring and protecting Maryland's environment and natural ecosystems to enhance ecosystem services in the face of environmental change and help communities harness benefits such as risk reduction, carbon sequestration, cleaner air and water, health, recreation, ecotourism, habitat diversity, and natural resource conservation. Maryland's natural resources play a critical role in lessening the impacts of natural hazards and climate change, while building overall community and ecological resilience." The recommendations, similar to ours, include making "nature-based solutions a mainstream and accessible resilience practice for private property owners. Nature-based solutions can be highly effective for reducing flood risk, providing storm protection, and minimizing erosion. For instance, wetlands act like sponges, absorbing and slowly releasing water that would otherwise cause flooding. Living shorelines can have a similar impact, breaking up wave energy and reducing storm damage. But a variety of barriers prevent greater uptake of nature-based solutions. By updating policy, engaging community members in planning, and continuing education efforts, DNR can make this practice mainstream and help draw down Maryland's hazard risk." In support, we also argue that a program for the permanent protection of private land and waters for willing landowners needs to be developed.

Finally, for the connection of ecosystems, MERLIN and the Reforestation Hub—applied with scientific interest only, not industry—will support and facilitate the identification and connection of ecosystems across Maryland. In addition to working with the Maryland

Department of Transportation (MDOT) for road planning as suggested in the SWAP, the MDNR, MDOT, and the State Highway Administration (SHA) should also coordinate with the Maryland Connectivity Coalition towards safe passage of animals following last year's Wildlife Connectivity and Crossings Act passage.

4. Funding

The DNR can direct some or all logging incentives, property tax reductions, and incentives towards incentives for permanent private land protection—without the required need for management or stewardship plans. These lands and waters can become buffers to expand existing ecosystem nuclei and combat current habitat loss and fragmentation. More Program Open Space dollars should be dedicated to acquiring lands for permanent protection. Other states, such as Oregon, have found other ways to dedicate additional funds for permanent private land protection. They added a 1.25% lodging tax ("tourism tax") which will be dedicated to the outright acquisition of lands and waters for the permanent protection of habitats and the support of wildlife which is expected to generate $37 million (Brown, 2026).

5. Conclusion

The SWAP provides an important and detailed decadal assessment of Maryland's SGCN and KWHs, its threats, actions to be taken, and monitoring at both state and regional levels. While it is a non-regulatory document, it lays the groundwork and becomes a valuable platform to initiate the many key actions listed in the SWAP. In addition to the actions listed in the SWAP, to support biodiversity and ecosystem health across our state, we must immediately initiate permanent protections on terrestrial and aquatic habitats, to expand, and then connect them—ideally reaching 30% of all Maryland's lands and waters.

Maryland cannot wait another ten years, for the next SWAP, to initiate a review of its land use, zoning, and management practices. The time to act is now by moving GAP 3 and GAP 4 public lands and waters into GAP 1 and GAP 2 management approaches; developing a program for the permanent protection and preservation of natural places owned by private landowners without the need for management or stewardship plans; and, creating a statewide and regional connectivity program for wildlife by tapping into regional efforts already underway.

The Sierra Club Maryland Chapter looks forward to supporting the Wildlife and Heritage's Natural Heritage Program in their efforts to preserve and protect land and waters for biodiversity recovery, and in the concomitant public education and outreach.

Sincerely,

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State Director
Sierra Club Maryland Chapter

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References

ACDS, LLC; WMRC&D; MDNR: DOC; EDA. (2021). Maryland Forestry Economic Adjustment Strategy (MFEAS) https://maryland-forestry-resources-salisburyu.hub.arcgis.com/pages/maryland-forest-economic-adjustment-strategy

DOI. (2021). FACT SHEET: President Biden to Take Action to Uphold Commitment to Restore Balance on Public Lands and Waters, Invest in Clean Energy Future https://www.doi.gov/pressreleases/fact-sheet-president-biden-take-action-uphold-commitment-restore-balance-public-lands

Brown, A. (2026). Oregon lawmakers increase lodging tax to boost wildlife funding. Stateline 3/5/36. https://stateline.org/2026/03/05/oregon-lawmakers-increase-lodging-tax-to-boost-wildlife-funding

Carver, S., Convery, I., Hawkins, S., Hertel, S., Fallon, J., Lyons, K., Beyers, R., Locquet, A., Derham, T., Kun, Z. (Eds.) (2025). Guidelines for rewilding. IUCN. https://doi.org/10.2305/MTYK9384

Eisenhauer, N., Bonn, A., & A. Guerra, C. (2019). Recognizing the quiet extinction of invertebrates. *Nature Communications*, 10(1), Article 50. https://doi.org/10.1038/s41467-018-07916-1

Krichbaum, S. (2023). The Big AEPA: A Last Chance to Save the Appalachian Ecosystem. *Counterpunch*. 8/14/2023. https://www.counterpunch.org/2023/08/14/the-big-aepa-a-last-chance-to-save-the-appalachian-ecosystem/

Maryland Office of Resilience, Department of Emergency Management. (2026). Resilient Maryland: A Collaborative Strategy to Promote Statewide Resilience. https://mdem.maryland.gov/Pages/resilience-strategy.aspx

Moomaw, W., Masino, S., & Faison, E. (2019). Intact Forests in the United States: Proforestation Mitigates Climate Change and Serves the Greatest Good. *Frontiers in Forests and Global Change*, 2. https://doi.org/10.3389/ffgc.2019.00027

Pool-Stanvliet, R., & Coetzer, K. (2020). The scientific value of UNESCO biosphere reserves. *South African Journal of Science*, 116(1–2), 21–24. https://doi.org/10.17159/sajs.2020/7432

Strassburg, B. B. N., Iribarrem, A., Beyer, H. L., Cordeiro, C. L., Crouzeilles, R., Jakovac, C. C., Braga Junqueira, A., Lacerda, E., Latawiec, A. E., Balmford, A., Brooks, T. M., Butchart, S. H. M., Chazdon, R. L., Erb, K.-H., Brancalion, P., Buchanan, G., Cooper, D., Díaz, S., Donald, P. F., … Visconti, P. (2020). Global priority areas for ecosystem restoration. *Nature* (London), 586(7831), 724–729. https://doi.org/10.1038/s41586-020-2784-9

UNESCO. Technical Guidelines for Biosphere Reserves. (2022). https://unesdoc.unesco.org/ark:/48223/pf0000375692

UNESCO. Man and Biosphere. (2022). https://www.unesco.org/en/mab

USGS: GAP Status Codes, frequently asked questions. https://www.usgs.gov/programs/gap-analysis-project/gap-status-code-frequently-asked-questions-faq

World Wildlife Fund. (2024). The Living Planet Report — a system in peril. WWF, Switzerland. https://wwflpr.awsassets.panda.org/downloads/2024-living-planet-report-a-system-in-peril_1.pdf