

SCMagLev - What's the Biological and Ecological Impact?

By: Dan Woomer

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Edited by: Susan McCutchen

The Baltimore-Washington Rapid Rail (BWRR) (the project developer) and the Northeast MagLev (TNEM) (the promotional entity) have the short-term goal of obtaining Federal Railroad Administration (FRA) approval to build a magnetic levitation (maglev) train between Baltimore and Washington, DC, with the long-term goal of extending the train operation to New York City by way of Philadelphia. Japan's Superconducting Magnetic Levitation (SCMagLev) train is the high-speed, ground-based transportation system TNEM is promoting to build in the northeast corridor of the United States.

Information about the SCMagLev and BWRR's plans to build and operate the system have raised many questions and concerns. This is one of a series of articles that identifies and discusses some of the many questions and concerns citizens and communities have identified with moving forward in building and operating the SCMagLev.

Abstract

This article explores some of the biological and ecological impacts on Maryland's and the nation's environment associated with building and operating the SCMagLev train system.

The SCMagLev proposed alignment (route) runs underground between Baltimore and Washington, except in one location. This is where the train emerges aboveground and includes two elevated guideways, as well as an aboveground industrial trainyard where the trains are cleaned, maintained, repaired, and stored. To function, this trainyard, which would cover approximately 200 acres, must be completely flat and be able to withstand the weight of thousands of tons of equipment without deforming. To understand the industrial nature of this trainyard, refer to the one built in China that is slightly smaller than the one proposed to be located on our public lands. There will be few significant differences between deployment between the two locations; while watching, the reader must ask whether this type of land use is appropriate for public refuge, research, and conservation lands.¹

Questions & Concerns

(1) What impact would building the planned SCMagLev trainyard have on our preserved lands?

- A trainyard would normally be built in an industrial zone within a large city where power, housing, and a skilled workforce would be co-located. The trainyard would be sited in a landscape already built to accommodate and minimize the runoff, lighting, pollution, and ecological impacts such as intense and industrial land use requires. Siting a trainyard in a preexisting trainyard would properly place it in a landscape that was long-ago compromised ecologically and currently dedicated to human commercial and business needs. In the same fashion, refuges and parks are dedicated to the needs of wildlife, conservation, research, and the human needs for nature, solitude, clean water, clean air, and a place to recharge our own batteries.

¹ Shanghai High-Speed Train Yard. www.youtube.com/watch?v=OKPqHKmpAOE&fbclid=IwAR0nDnM0VxLlfQVQUUJo0rJ-1Y7V0WBOQvuVbQVJ4ptCn6eu2I0IbwCSKsE%29%29%29.

- However, the SCMagLev plan sites the train emerging from its underground tunnel to slice through, destroy, and disrupt the last large, ecologically intact green space left in the Prince George County region. When the SCMagLev train parasitically emerges aboveground, it would access a planned 200-acre industrial site, currently located on existing conservation lands. Building these train lines and trainyards also requires upgrading the existing small rural roads to industrial standards, as well as the creation of a new, high-powered, electrical system and associated transmission corridors. All this development would be placed into an existing, large intact landscape of protected forests, wetlands, and fields, the last such area in the region.
- To accomplish this section of the SCMagLev project, BWRR must have this protected public land transferred to their corporation and be given permission from several federal, city, state, and county agencies to build the trainyard. Agencies and municipalities unwilling to transfer this land may have their land taken by BWRR through eminent domain, a power that was granted as part of the train operation license of the defunct Baltimore and Annapolis Train Company that was purchased by BWRR.²
- The protected parklands in questions are public properties, set aside and preserved for the use of the people of the United States, the local communities, and scientific research. None of these lands have ever been transferred to private hands, and never to groups wishing to build an industrial center.
- Such a transfer of lands is problematic. It sets a precedent for future transfers to private hands of projects that could be deemed “in the public good,” allowing construction such as upscale homes, shopping centers, sand and gravel operations, and parking lots, on lands that would never recover from the destruction of the natural environment. Transfers like this lean only one way, toward ecological destruction, and never toward preservation or the good of the area’s environment.

(2) What are some of the permanent, unrecoverable biological damages building the SCMagLev trainyard would have?

- *The bottom line:* Building a 200-acre trainyard results in absolute, irreversible ecological damage to the land. The landscapes currently targeted for support and maintenance for the SCMagLev trains have been in forest for millennia. They contain plants, such as the White Fringed Orchid, that are globally rare. The Pitch Pine Barrens ecosystem is at its southern terminus and is also globally rare. This landscape of protected government parklands and research centers is large enough to support and retain almost all the biodiversity that was once, but is no longer, found across the Baltimore-Washington region.
- Much of that biodiversity outside this protected area has been lost, or greatly diminished, due to the combinations of housing developments, shopping malls, business centers, roadways and other built-up industrial, transportation, and recreational facilities. That altered landscape can no longer support most species that once lived and thrived in this area and, instead, is composed mostly of the weeds and nonnative species that follow development and invade the remnant natural landscapes.
- Researcher C. K. Khoury, after reviewing all the public lands in the United States, indicated that the Patuxent Research Refuge (PRR) retains the most biodiversity of the wild relatives of our crop plants, one of many examples of both how rich the biodiversity of the area remains and how important it is to

² “Eminent domain refers to the power of the government to [take](#) private [property](#) and convert it into public use. The [Fifth Amendment](#) provides that the government may only exercise this power if they provide [just compensation](#) to the property owners.” See: https://www.law.cornell.edu/wex/eminent_domain.

keep this repository. He points out that many of these important wild native plants that could be important for our food security are now rare, un- or under-represented in genetic repositories.³

- BWRR's planned removal of the 200-acre preserve for the SCMagLev trainyard is of an intensity and magnitude that would result in the complete destruction of the existing natural preserve and the invasion and corruption of hundreds of nearby acres.
- All three of the proposed trainyards are located at the headwaters of stream systems of both the Potomac and Patuxent Rivers. These stream systems are filled with fragile springs, bogs, fens, and other wetlands. Their loss and the subsequent pollution from the runoff from these trainyards would bring large pulses of silt and industrial-related, chemical-laden water, all pushed downstream. Rain events would punish and degrade all the streams below these sites.
- The creation of these industrial sites requires the removal of all trees, plants, creatures, and topsoil on the site to level the area to accommodate these long trains. Several feet of gravel, sand, and concrete would be placed on top of this flattened landscape to stabilize the roadbed so that it would be able to handle the weight of all the trains and attendant heavy equipment. Factories would be built both to create and repair these trains. Parking lots would be created for the sites' employees. Roadways would need to be built and augmented to handle the weight of industrial vehicles and increased commuter traffic. In addition, new transmission lines and substations would need to be located to handle the high-energy needs for the site.
- The building of this trainyard in the middle of our protected public lands, as with what has occurred at other industrial sites, would create an invasion portal for non-native species—Tree of Heaven, Asian Bittersweet, Privet, Bush honeysuckle, Norway Rats, House Mice, Kudzu, and many more. These invasive plants and animals would infiltrate the surrounding parklands, seriously disrupting the native wildlife in the area, causing outright destruction of the natural hydrology of the springs, and seeping support of the rare plant and animal communities that filter and preserve our drinking water. This development would inject light, noise, vibration, and pollutants on and into our public parklands, repelling the very animals such refuges are specifically designed to protect and study.

(3) What plant and animal communities would be lost?

- The planned site for the SCMagLev trainyard is currently a large protected green space where land, plant, insect, and animal studies have been conducted by public, academic, and private researchers for over 100 years. From this century of work, a long list of species have been scientifically described for the first time and named using specimens found in this area. Literally hundreds of publications have been generated from work done on these public lands. (*Note*: Patuxent is the sole research refuge in the entire National Wildlife Refuge system and the U.S. Department of Agriculture's Beltsville Agricultural Research Center [BARC] is the largest agriculture research station in the world). This region is one of the biologically best-documented sites in the world.
 - The Patuxent Research Refuge has the largest species list of dragonflies and damselflies of any national wildlife refuge or national park in the United States—approximately 112 species. It contains

³ Khoury, Colin. K. "Crop wild relatives of the United States require urgent conservation action." 2020. <https://www.pnas.org/content/early/2020/12/09/2007029117>.

more known species of bees than any other national wildlife refuge in the United States—approximately 221 species, with more new ones found each year. This refuge has what are likely complete, or nearly so, lists of all the plants, mammals, snakes, fish, amphibians, and birds that inhabit the many types of intertwined streams, wetlands, plant communities, and rivers.

- Building the SCMagLev trainyard on the proposed site would destroy these species' habitat, effectively destroying the existing diverse nature living therein. Once built, these lands could never be recovered and the losses could never be mitigated or recreated elsewhere. These current protected areas act as a unit, a complete landscape. They function and exist in connection and relationship with each other, allowing plants and animals to migrate and reestablish populations sequentially across the region as local ecological circumstances change. Destruction of this system with the building of the SCMagLev trainyard and maintenance facilities, would kill this system. The trainyard would result in a new biological desert that would jeopardize the remaining neighboring landscape of trees, forests, and fields, and their inhabitants. When large-scale disasters, such as the inevitable hurricanes, tornadoes, floods, and fires occur, the ability of the remaining habitats to recover would be seriously compromised.
- As an analogy, if you were very wealthy and politically powerful, you could build your house from blocks of stone removed from the National Cathedral in such a way that the cathedral would be left standing. However, with the next earthquake, the cathedral would collapse because your predation of those blocks has weakened the edifice to the point of structural failure. Who would do that? Placing the SCMagLev trainyard in this protected, vulnerable, and endangered site would equally weaken it. Such wounds would ultimately cause the last forested cathedral in the region, an area held sacred to the surrounding communities, to collapse. However, unlike the National Cathedral, the area can never be rebuilt or restored.

(4) Who are the current public landowner groups and what are their lands?

- The National Park Service (NPS) owns and manages the land around the Baltimore-Washington Parkway (Parkway) in the project area. The roadway is purposely surrounded by an unbroken swath of woodlands that connect it to the PRR and BARC. The SCMagLev train lines would run parallel to the Parkway and destroy a wide path through these woods, leaving a strip of woodlands isolated between the Parkway and the train line. This would cause them to be ecologically isolated and functionally dead from the lack of connection to the contiguous PRR and BARC woodlands, and open the construction area to the invasion of weeds and non-native plants. The north- and south-bound lanes are only 40 feet wide; however, the SCMagLev line would be 130-feet wide, dwarfing the impact of the Parkway.
- The U.S. Fish and Wildlife Service owns the PRR, which would be substantially impacted by this project in several locations with the building of the trainyard. The research refuge is home to the Patuxent Wildlife Research Center. It is also home to some of the best-known and most-studied groups of animals and plants in the world. The refuge is currently an almost unbroken swath of woodlands, wetlands, headwater streams, and bottomlands bisected by both the Big and Little Patuxent Rivers.
- The BARC is the world's largest agricultural research center. It was created over 100 years ago and has housed hundreds of research scientists who have used the facility to study all aspects of agriculture. The grounds are a complex of fields, pastures, research areas, study plots, and natural areas.
- The National Aeronautics and Space Administration (NASA) Goddard Space Flight Center would be affected by this project. In the BARC-EAST proposed trainyard (primarily to be located on the PRR and BARC), some of the trainyard would directly impact NASA's optical test site. This site was chosen

because the surrounding area was dark, silent, and isolated by the surrounding woodlands and fields. SCMagLev's impacts on the NASA facility would come from adding vibration, light, and sounds that are not compatible with its functioning.

- The Greenbelt Forest Preserve is 254.8 acres of forested land owned by the City of Greenbelt and protected and conserved in their existing natural state for the use and enjoyment of present and future generations. The city purchased the parcels that became the preserve in the mid-1990s and passed legislation in 2003 to designate these lands as a protected "Forest Preserve." This designation protects the land from development and retains it in a natural forested state. Several of the largest, most contiguous forested parcels, which comprise approximately 145 acres, are threatened by the proposed SCMagLev's J1 alignment (route) option. Sixty-five acres would be destroyed by that route, including 12 acres of wetlands. In addition, 6.5 of those acres are designated and protected as Wetlands of Special State Concern by the state of Maryland. The 145 acres are part of a larger unbroken patch of forest that runs from the community gardens at Gardenway to Beaverdam Road in the City of Greenbelt.
- The Forest Preserve is protected by more than municipal ownership. The Maryland-National Capital Park and Planning Commission owns a woodland covenant on one of the largest parcels, which was purchased using Maryland's Program Open Space (POS) funds.⁴ Land purchased using POS funds shall be perpetually protected green space and are federally protected under the Land and Water Conservation Fund Act of 1965. The NPS owns scenic easements on 65 acres of the North Woods Tract of the preserve. These easements establish a federal interest in the green space, such that this land falls within the legal boundaries of the Parkway, although the City of Greenbelt retains ownership of the land itself. Finally, the preserve is protected under Section 4(f) of the 1966 U.S. Department of Transportation Act,⁵ which prohibits the construction of transportation projects within protected green space or historical landmarks unless it is shown that no "feasible or prudent" alternative exists. And as we have identified and discussed in other articles, alternative transportation systems already exists, namely Amtrak & MARC.
- Anne Arundel County has parklands adjacent to the Parkway south of Maryland City, as well as just north of the North Tract of the refuge. The parcels along the west side of the Parkway include playfields for baseball, football, and soccer, as well as a popular dog park. The parcel north of the North Tract includes baseball playfields and floodplain wetlands, as well as the riparian forest along the Little Patuxent River.
- The District of Columbia and the federal government owns some of the land. The Oak Hill site where the proposed Route 198 trainyard would be located is an 800+-acre triangular area bounded by Maryland Route 198 on the south, the Parkway on the northwest, and Maryland Route 32 on the northeast. The Little Patuxent River traverses the site. The majority of this site is composed of an 827-acre parcel owned by the U.S. government, but it has been managed and operated by the District of Columbia since 1921, pursuant to the Federal Appropriations Act of 1923.⁶ Historically, the District operated several facilities on site, including the Forest Haven Asylum, which closed in 1991; the Cedar Knoll Youth Center, which closed in 1993; and the Oak Hill Youth Center, which closed in 2009. Currently, the site houses the Maya Angelou Academy at New Beginnings and the Maryland Job Corps' Woodland Job Corps Center. The Maryland Environmental Trust, the Scenic Rivers Land Trust, and the Patuxent

⁴ See: <https://dnr.maryland.gov/land/Pages/ProgramOpenSpace/home.aspx>.

⁵ See: https://www.environment.fhwa.dot.gov/env_topics/4f_tutorial/overview.aspx?h=e/.

⁶ See: <https://www.loc.gov/law/help/statutes-at-large/67th-congress/Session%204/c67s4ch148.pdf>.

Tidewater Land Trust hold a conservation easement on 250 acres of the site. A great majority of the site is undeveloped. Riparian and upland forest dominate the undeveloped areas, coupled with acidic seepage swamps, wet meadows, emergent wetlands, and the river itself.

- The proposed trainyard would impact both the developed and undeveloped areas. It would require the destruction of the Woodland Job Corps Center, impact more than a dozen private landowners, and destroy parts of the historic Forest Haven Asylum. It would destroy approximately 115 acres of upland forest and 25 acres of riparian forest, as well as destroy a 2.5-acre forested, groundwater-fed wetland and a 3-acre wet meadow. The published footprint of the trainyard crosses the Little Patuxent River, which would necessitate moving the course of the river. The published footprint of the trainyard would impinge on the conservation easement by 25 acres. The footprint for Route Option J of the SCMagLev viaduct would impinge on the property on the northeast boundary. It would destroy a large beaver pond and several vernal pools with a documented presence of marbled and spotted salamanders, as well as destroy several acres of riparian wetlands.

Findings/Conclusion

There are many issues, questions, and concerns about the building and operation of the SCMagLev will have on the area ecology, environment, and people living near and alongside the guideways, or who study and make use of these forested areas. This article identifies and explores but a few.

Want to Help?

- (1) Share this information with your family, friends, neighbors, and community.
- (2) Join our Facebook page: www.facebook.com/groups/CitizensAgainstSCMaglev.
- (3) Contact your elected officials to express your opposition to building the SCMagLev, go to: myreps.datamade.us.
- (4) Submit multiple public comments often at www.bwmaglev.info/index.php/contact-us. State your objection(s), and always end by saying you support the "No Build Alternative."
- (4) Learn more about the concerns and impacts the SCMagLev will have on our communities, see: www.stophisttrain.org/.
- (5) Make a contribution to support Citizens Against the SCMagLev (CATS) and Maryland Coalition for Responsible Transit (MCRT) at mcrt-action.org. Your donation, in any amount, is appreciated. Thanks for your support!

About the Author

Daniel E. Woomer is a community activist and technical expert. He retired after a long career that included positions with Westinghouse Defense Center, Johns Hopkins University's Applied Physics Laboratory, and the U.S. Department of Energy (DOE). During his career with the DOE, he worked in various positions with the Energy Information Administration and the Office of Congressional and Intergovernmental Affairs, and he helped set up the Office of Technology Transitions. He also served for several years as an adjunct faculty member with the University of Maryland University College, where he developed and taught mathematics, supervisory and leadership classes.

Sources:

The principal source of information for this article is information and discussion with Sam Droege. He grew up in Prince George's County and has worked as a biologist for the past 40 years, specializing in the survey and monitoring of plants and animals.

- (1) For high-quality, public domain downloadable photos of insects and other small creatures found in 2020 from the impact sites, see: www.flickr.com/photos/usgsbiml/albums/72157715288371553.

(2) For photos of the natural areas and agricultural areas that would be destroyed with the building of the SCMagLev, see: www.flickr.com/photos/189298652@N03/albums/72157715119662111/.

(3) For short, low-elevation flyovers of the trainyard site at Maryland Route 198, see: www.flickr.com/photos/189298652@N03/50427339292/in/album-72157715119662111/.

(4) To watch a flight over the Patuxent refuge and the proposed SCMAGLEV trainyard site, see: <https://www.flickr.com/photos/189298652@N03/50426482948/in/album-72157715119662111/>

(5) To watch another flight over the Patuxent Refuge and Beltsville Agriculture Research Center and the proposed SCMagLev trainyard site, see: www.flickr.com/photos/189298652@N03/50426482948/in/album-72157715119662111/.

(6) An interactive GIS map showing locations of SCMagLev impact areas and overlays of wetlands and other features are found at:

dcgis.maps.arcgis.com/apps/webappviewer/index.html?id=ae88f4ed5cff435cb96b9990bc15e997.

Citizens Against the SCMagLev (CATS) is a confederation of scientists, engineers, experts, community organizations and citizens in support of transportation infrastructure improvements that benefit our communities, state, and nation. CATS opposes the construction of an expensive transportation system serving a small minority of the wealthy at the cost of taxpayer funds far better used to maintain and improve the transportation infrastructure needed and used daily by all citizens, businesses, and commerce. For up-to-date information on the SCMagLev opposition, see our Facebook page at: <https://www.facebook.com/groups/CitizensAgainstSCMaglev>.