

Researchers develop model framework for safe wildlife passage

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Adult four-toed salamanders, *Hemidactylium scutatum*, are among the at-risk species living on the Oak Ridge Reservation. Scientists and facility managers worked together to create a framework that recommends cost-effective solutions to protect habitats for the salamander and other fish and wildlife. Credit: Bryce Wade/ORNL, U.S. Dept. of Energy

Oak Ridge National Laboratory researchers developed a model framework that identifies ways to ensure wildlife can safely navigate their habitats while not unduly affecting infrastructure.

The project centered on the 32,000-acre Oak Ridge Reservation in Tennessee, home to Department of Energy facilities and several at-risk species like the four-toed salamander. The work is published in *The Journal of Wildlife Management*.

Scientists identified habitats and simulated solutions like conservation buffers and open-bottom culverts to allow safe passage for salamanders and other wildlife, which cost far less than large-scale barrier removal and similarly boost ecological connectivity.

"Development and [environmental sustainability](#) don't have to be at odds," said ORNL's Evin Carter. "Our [collaborative approach](#) with project managers and engineers shows wildlife management can be an integral part of land-use planning without introducing undue cost or delays."

ORNL doctoral student Bryce Wade said the model also benefited from 30 years of high-resolution data available because of the reservation's history and management as a National Environmental Research Park.

More information: Bryce S. Wade et al, Advancing wildlife connectivity in land use planning: a case study with four-toed salamanders, *The Journal of Wildlife Management* (2023). [DOI: 10.1002/jwmg.22456](https://doi.org/10.1002/jwmg.22456)

Provided by Oak Ridge National Laboratory

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