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Lack of Connected Habitat in the Southeast Has Consequences for Wildlife

As temperatures rise and rainfall patterns change, many wildlife species are expected to shift their range and move into new habitats in search of more suitable conditions. Yet in the eastern U.S., it's estimated that less than 2% of natural areas are connected enough to allow for the movement of wildlife from one area to the next. Urban areas, roads, and farms fragment natural areas, creating a patchwork of natural and developed lands – and limiting the ability of species to move.

WHAT:

The lack of connected habitats in the face of warming temperatures is one of the biggest threats facing wildlife today. Many species will seek cooler locations that are farther north or at higher elevations, as a means of adapting to changing conditions. Yet barriers on the landscape, such as highly developed areas, could prevent movement and result in local species extinctions.

As a result of this concern, researchers assessed current and future connectivity for three species found in the Southeast's bottomland hardwood forests, a habitat of high conservation concern: black bear, Rafinesque's big-eared bat, and the timber rattlesnake. Researchers first mapped landscape connections that would be important for these species, then identified how these connections will hold up in the face of changes in climate and urban growth.

FINDINGS:

Under anticipated future climate conditions, the Southeast will have fewer suitable connections that allow species to move to new habitats. This loss of connectivity adds to other threats facing wildlife in the region, such as urbanization and sea-level rise.

Results also reveal that the future suitability of landscape connections will vary depending on the species. For example, a landscape that might be sufficiently connected for black bears, which can more easily traverse long distances, might prove to be too disconnected for a rattlesnake. This result demonstrates that managers will need to consider multiple species when making decisions to improve connectivity.

SIGNIFICANCE:

Maintaining habitat connectivity is a key strategy for conserving wildlife, but is a challenge in the highly developed southeastern U.S. The results of this study can be used by managers and regional landscape planners to determine where conservation efforts and resources should be focused, in order to maintain connectivity into the future.



WHO:

PROJECT LEAD: Southeast Climate Adaptation Science Center, casc.usgs.gov/centers/southeast

PARTNERS: North Carolina State University | University of Florida | The Wildlands Network | South Atlantic LCC

STAKEHOLDERS: State and federal natural resource managers in the southeastern U.S.