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Effects of forest management practices on treefrog oviposition site choice

Worldwide amphibian declines have raised international concern because amphibians are bioindicators of environmental health, a fact attributable to their permeable skin. It is known that habitat destruction is the primary cause of these amphibian population declines; however, what remains partly unexplored is the idea that some species may be more greatly affected than others by deforestation. Four existing forest management practices (clear cut with coarse woody debris (CWD) removed, clear cut with CWD retained, partial cut (thinning) of 25% basal area, and uncut forest) were utilized at four wetlands at the Savannah River Site near Aiken, South Carolina. Wading pools filled with rainwater were placed at fixed distances in each treatment and treefrogs (Family: Hylidae, 5 species) were allowed to lay eggs in the pools. To monitor time to first oviposition event and to determine the number of events per treatment, pools were checked daily, and all eggs were counted. At three of the four wetlands, first oviposition events occurred in the partial cuts, and second events occurred in the clear cuts with CWD retained. Also, of the four treatments, we found that more oviposition events occured in the partial cuts and the clear cuts with CWD retained than in the clear cuts with CWD removed or the uncut forests. The reasoning behind these findings may be that hylids have evolved to locate openings in the forest canopy. During evolutionary history, these openings typically indicated fallen trees whose uprooting caused an ephemeral pool to form, affording hylids a place to breed.