

DENDROECOLOGICAL ANALYSIS OF CONTINUED *QUERCUS* DOMINANCE ON EDAPHICALLY EXTREME SOUTHEASTERN SLOPES OF THE ALLEGHANY FRONT

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Abstract—The Allegheny Front escarpment forms the boundary between the Ridge and Valley to the east and the Allegheny Plateau to the west. Peaks including Mount Porte Crayon in West Virginia (1,450 m), Blue Knob in Pennsylvania (882 m), and the focal area of this study, Dans Mountain (882 m) in western Maryland. Dans Mountain contains infertile, xeric habitats due to thin weathered soils on southeastern-facing convex slopes. These edaphically extreme situations also occur in the interior low plateau of Kentucky, Tennessee, and Indiana on bluff tops and narrow ridges including the Knobstone Escarpment. These fire-adapted communities have been dominated by *Quercus* and *Pinus* since the demise of *Castanea dentata*. The *Quercus* component providing essential mast for Allegheny woodrats (*Neotoma magister*) and contributes to the complex canopy structures for northern long-eared bat (*Myotis septentrionalis*) and Appalachian cottontail (*Sylvilagus obscurus*). Unlike other *Quercus*-dominated sites, old-growth forests on Dans Mountain, have adequate oak regeneration based on SILVAH 7 (primarily *pinus*, *rubra*, and *alba*) and have escaped the typical encroachment of *Acer*. Our study presents the recruitment dates, species compositions and densities, fire histories and deer densities that have resulted in continued oak-domination even on sites impacted by gypsy moth (*Lymantria dispar dispar*). We suggest additional fire management and active measures to reduce deer densities to continue the suppression of *Acer* on these unique and often overlooked ecosystems.

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Citation for proceedings: Clark, Stacy L.; Schweitzer, Callie J., eds. 2019. Oak symposium: sustaining oak forests in the 21st century through science-based management. e-Gen. Tech. Rep. SRS-237. Asheville, NC: U.S. Department of Agriculture Forest Service, Southern Research Station. 192 p.