
TECHNICAL NOTES

Southern Wax-myrtle Response Following Winter Prescribed Burning in South Florida

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Abstract

Southern wax-myrtle is an undesirable shrub that is invading thousands of acres of rangeland in south Florida. Prescribed burning has been considered a potential management tool for maintaining pastures free of wax-myrtle. Results of this study show wax-myrtle to be easily crown killed by a single winter fire. However, most plants survive through basal sprouts. Use of prescribed winter fire to reduce wax-myrtle competition will require repeated periodic burns coordinated with cattle grazing programs.

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Manuscript received February 3, 1978.

Southern wax-myrtle (*Myrica cerifera* L.) is a small, aromatic, evergreen shrub or tree common throughout the coastal plain of the southeastern United States (Grelen and Duvall 1966; Kurz and Godfrey 1962). Southern wax-myrtle is rapidly invading many ranges throughout southern Florida. McCaleb (1970, personal communication) estimated two million acres of south Florida already invaded, and soon to "become shaded to the point that forage production will be reduced to the extent that major pasture renovation will be required." The noticeable increase in wax-myrtle is most common on areas where prescribed burning is not used as a periodic management practice. Grelen and Duvall (1966) reported that wax-myrtle plants survive burning by resprouting vigorously from the root collar. "Plants burned periodically average about 3 feet high, forming large, many-stemmed clumps." Similarly, Givens (1962) observed that burning can be used effectively to prevent encroachment of myrtle on beach



Fig. 1. Typical unburned wax-myrtle scattered through a saw-palmetto-creeping bluestem (*Schizachyrium stolonifer* (Nash.) Hitch.) pasture.

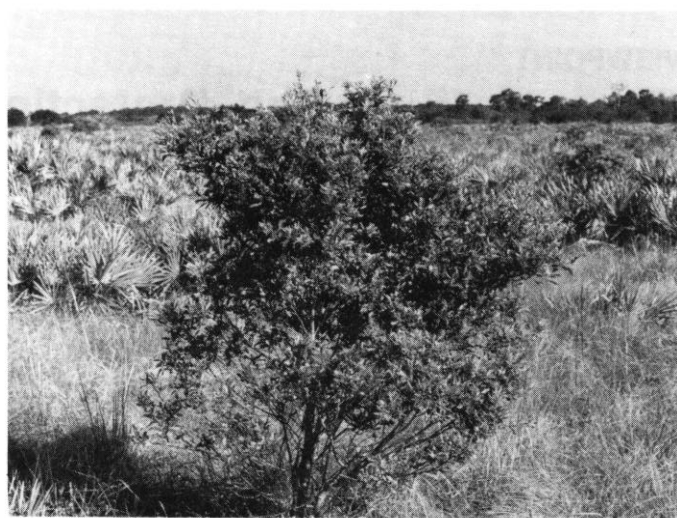


Fig. 2. Canopy killed wax-myrtle with numerous basal sprouts one growing season after a winter prescribed burn.

marshes. Langdon (1971) reported single summer fires killed less than 10% of bayberry (probably *Myrica pennsylvanica* Loisel.); however, 100% kill was achieved after seven annual summer burns. He concluded that "hardwood vegetation recovers to its previous state from a single summer or winter burn in 5 to 7 years." Lotti (1950) found that four annual summer fires in South Carolina pine forests resulted in effective control. Kill was 5%, 35%, 48%, and 90% with one summer fire, two successive summer fires, three successive summer fires, and four successive summer fires, respectively. Lewis and Harshbarger (1976) found after 20 years of prescribed burning in South Carolina that southern wax-myrtle crown spread (m) per 25-m transect was 1.0, 0.8, 2.0, and 0.03, 0.24, and 0.0 for unburned control, periodic ("burned when 25% of certain hardwood stems reached 5 cm dbh") winter, periodic summer, annual winter, biennial summer and annual summer, respectively. The annual winter fires significantly reduced wax-myrtle canopy while periodic winter fires did not. Results from winter burning of wax-myrtle in south Florida have not been observed in the literature.

This study was initiated to determine the amount of control winter prescribed burning has on southern wax-myrtle on flatwoods sites in south Florida.

Methods and Materials

The study was conducted at the Agricultural Research Center, Ona, Fla. Six range pastures heavily infested with wax-myrtle were prescribed burning during January and March 1974. The pastures were approximately 16 ha in size on typical south Florida flatwoods. These pastures had not been burned for at least 10 years (Fig. 1). Associated shrub species included dense stands of saw-palmetto (*Serenoa repens*) Lodd. ex Schultes) and some gallberry (*Ilex glabra* (L.) Gray). Back fires were used until a sufficient fuel break was established, then the entire pasture was encircled and a head fire allowed to burn.

Burned areas were sampled for number of live and dead shrubs, estimated percent canopy kill, and number of shrubs with basal sprouts along randomly located 3.0 m wide belt transects the length of each pasture. The number of transects varied according to pasture configuration to include a 10% area sample from each pasture. Any part of a shrub encountered by the belt transect was considered as a hit. Sampling was completed in October 1974. The six pastures were used as replications to develop confidence intervals.

Results

The average density of wax-myrtle shrubs was 27 ± 11 ($P > 0.05$) per ha over the six pastures. Most wax-myrtle were approximately 4 to

5 m in height scattered through each pasture. Only $5.4 \pm 1.4\%$ of these shrubs survived the fire with little if any visible damage. Most of these live shrubs occurred near the edge of the pastures and around several ponds located within the burns. The remaining shrubs were either killed outright ($8.4 \pm 1.8\%$) or remained alive through basal sprouts ($86.2 \pm 15.5\%$).

Discussion and Conclusions

Kill of wax-myrtle with one winter prescribed burn was similar to that reported for summer fires in South Carolina (Lotti, 1956). Single prescribed fires are apparently very effective in top-killing wax-myrtle (Fig. 2); however, periodic fires would be necessary to maintain reduced canopy. Periodic burns should be designed to increase kill for a number of years then become less frequent. Timing of periodic burns based on recovery rate of "certain hardwoods" to a 5 cm dbh as per Lewis and Harshbarger (1976) would not be recommended if greater plant control is desired. Canopy removal would allow more sunlight for understory herbage and probably reduce competition from wax-myrtle. In addition, Grelen and Duvall (1966) suggested that frequent burning and subsequent browsing by cattle and wildlife keep wax-myrtle low in stature. Browsing usually occurs during January and February on burned areas. Unburned wax-myrtle receives little utilization. Prescribed burning coordinated with grazing management programs appears to be essential for maintaining low stature wax-myrtle pastures in south Florida unless more expensive mechanical control techniques are employed.

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