

PERFORMANCE OF GYPSY MOTH LARVAE ON HOSTS FROM THE DEEP SOUTH: SURVIVAL, DEVELOPMENT AND HOST PREFERENCES

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ABSTRACT

Survival, development time and pupal weights of gypsy moth, *Lymantria dispar* L., which had fed on southern tree hosts were determined. Five species of oaks, *Quercus* spp.; sweetgum, *Liquidambar styraciflua* L.; and river birch, *Betula nigra* L., were found to be acceptable hosts. Survival and female pupal weights were significantly higher and development times were significantly shorter for larvae fed on water oak, *Q. nigra* L., than for any other species.

There were no clear host preferences by larvae in any instar among all possible paired combinations of oaks and sweetgum. The inclusion of water oak in any pairing increased gypsy moth survival, reduced development time and generally produced heavier pupae, indicating that water oak is a superior host.

When loblolly pine, *Pinus taeda* L. was paired with hardwood hosts, gypsy moth larvae always fed on hardwoods. However, most larvae pupated in the pine foliage. When larvae were placed on loblolly pine at different developmental stages, first instars did not survive, second instar survival was 21 percent and survival in instars 3-5 exceeded 95 percent. Development times (egg hatch to pupation) and pupal weights from larvae fed on pine were similar to those on most good hardwood hosts regardless of when they were transferred to the pine.

It appears that the availability of acceptable hosts will not be a limiting factor for gypsy moth in the deep South. Loblolly pine stands with a high hardwood component may be at some risk for defoliation but pure pine stands probably will not be seriously affected.

DEVELOPMENT OF APPROPRIATE METHODOLOGIES FOR SAMPLING GYPSY MOTH POPULATIONS IN MODERATELY SIZED URBAN PARKS AND OTHER WOODED PUBLIC LANDS

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ABSTRACT

Egg mass survey data from operational gypsy moth (*Lymantria dispar* L.) management programs in five Maryland county parks and the Beltsville Agricultural Research Center (BARC) have demonstrated that improved survey protocols are needed to increase the precision and accuracy of the surveys. Despite an intensive 300-m survey grid, estimates of egg mass numbers within survey blocks containing at least 5 survey points had associated 90% confidence intervals ranging from 23 to 173% of the mean, with only 12% of the confidence intervals falling within 50% of the mean. Sampling of young larvae within the lower canopy shows promise as a supplementary survey tool on which to base management decisions.