



Texas Imported Fire Ant Research and Management Project

Final Progress Report - October 2001

Studies of the relationships between red imported fire ants and habitat management for white-tailed deer

Principal investigator:

Dr. Mark C. Wallace
Dept. of Range, Wildlife and Fisheries Mgmt.
Box 42125
Texas Tech University
Lubbock, TX 79409-2125
Phone: 806/742-1983; Fax: 806/742-2280
Email: mwallace@ttacs.ttu.edu

Other Participants:

Wayne Brown (M.S. Student – finishing)
Brett Johnson (M.S. Student - starting)

Funding Amount/2 years: \$80,000

Major accomplishments to date (Sept. 1, 1999 through Aug. 31, 2001):

Phase I – evaluating mechanisms for RIFA impacts on white-tailed deer fawns completed. Fawn responses on areas averaging 95 RIFA mounds/acre were evaluated.

- ▶ Over 1,300 hours of observation of 38 fawns did not detect any instances of fawns remaining bedded or hiding while being stung by RIFA.
- ▶ Fawns avoid bedding on RIFA mounds to limit encounters.
- ▶ Fawns that were obviously stung by RIFA did exhibit behaviors that would increase their risk of being detected by potential predators
- ▶ MS thesis completed 2000 and paper resubmitted for publication in 2002.

Phase II – data collection to determine whether brush control treatments to improve wildlife habitat affect RIFA abundance and distribution.

- ▶ We have measured RIFA mound densities, fire ant foraging activity, vegetative cover in relation to brush management treatments with respect to degree of disturbance associated with type, frequency, and spatial arrangement of treatments on sites on 8 ranches between College Station and Sinton, TX.
- ▶ Results indicate that degree of shading may be more strongly correlated than degree of soil disturbance.
- ▶ Analyses to be completed by summer 2002.

Completed field work to standardize and validate bait cup methods for assessing RIFA activity and develop relationships between bait cup and mound count estimates of RIFA abundance.

- ▶ Data analyses nearly complete – relating RIFA per bait cup to duration of

- bait cup sample and density of RIFA mounds.
 - ▶ Expect to submit paper for presentation/publication in summer 2002
- Phase III – Captured and radio-collared 11 white-tailed does to determine adult deer response to RIFA presence during fawning.
- ▶ This phase terminated upon initiation in 2001 due to lack of funding.

Goals achieved:

Phase I analyses, presentation, and publication submission.

Phase II data collection for 1st season measuring RIFA density pre- and post- brush control completed September 2000. Second season post brush control treatment measurements completed September 2001. Expect completion of data analyses in Spring 2002.

Completed field work to standardize and validate bait cup methods for assessing RIFA activity and develop relationships between bait cup and mound count estimates of RIFA abundance. Data analyses to be completed in 2002 and expect to submit paper for presentation/publication in summer 2002.

Relevance to the Texas Imported Fire Ant Research Ant Management Project:

A major goal of the Texas Imported Fire Ant Research and Management Plan is to develop methods to reduce RIFA impact on wildlife. Current methods available to reduce RIFA density in wildlife habitat, such as insecticide treatments, are not economically or environmentally desirable for most landowners. In some instances landowners may be able to mitigate the impacts of RIFA on wildlife populations by altering ecological processes rather than removing ants. For instance, landowners may be able to increase white-tailed deer populations subjected to predation related to RIFA abundance by decreasing loss of fawns to mammalian predators or maintaining sufficient shade to discourage RIFA colonization.

Publications submitted/published; presentations/posters presented at national technical meetings/conferences:

Proceedings Articles:

BROWN, W. E. and M. C. WALLACE. The effect of red imported fire ants on white-tailed deer fawns. To be submitted to Journal of Wildlife Management - Spring 2002.

Presentations:

BROWN, W. E. and M. C. WALLACE. 1999. Effects of red imported fire ants on activity patterns of white-tailed deer fawns. Welder Wildlife Foundation Symposium. August 6-7, 1999 Sinton, TX.

BROWN, W. E. and M. C. WALLACE. 2000. The effect of red imported fire ants on white-tailed deer fawn behavior. 35th Annual Meeting Texas Chapter of The Wildlife Society. San Angelo, Texas. 2-4 March 2000.

JOHNSON, J., and M. C. WALLACE. 2001. White-tailed deer (*Odocoileus virginianus*) habitat use in relation to red imported fire ants (*Solenopsis invicta* Buren) abundance. Welder Wildlife Foundation Symposium. August 4-5, 2001 Sinton, TX.