

**Texas A&M University – Commerce  
Federal Initiative Request FY 2011**

**Title:** Development of an economically optimized integrated pest management program to control nuisance populations of Great-tailed Grackles in Texas and the Southwest U.S.

**Description:** The objective is to control populations of Great-tailed Grackles in urban areas. To do so, data will be collected on behavior and ecology to identify a series of biologically based controls. Economic models will be used to identify the optimal set of control protocols for this species. This work will establish a bio-economic approach to pest control which can then be extended to other species such as pigeons, starlings, coyotes, raccoons, skunks, dogs, and bobcats.

**Relevance and Background:** Great-tailed grackles have recently become an important pest in urban areas of the southwest, impacting a significant proportion of the U.S. population. Of the 50 largest U.S. cities, 11 have reported nuisance flocks of great-tailed grackles. In Texas, more than 10.5 million people are affected by great-tailed grackle flocks and over a million dollars is spent annually controlling grackles and mitigating grackle damage.

Grackle roosts, in which there are thousands of birds, are typically in areas that maximize contact with humans and human property: large, busy, well-lit, 24-hour shopping centers and stores. The flocks create a health hazard by concentrating waste and carcasses in parking lots. This is particularly true where open air restaurants occur. Grackles harbor pathogenic bacteria, viruses, and parasites, including *Histoplasmosis*, *Clostridium*, *E. coli*, *Staphylococcus*, *Salmonella*, West Nile Virus, Saint Louis Encephalitis, and Western Equine Encephalitis. Grackle excrement is high in nitrogen and phosphorous and, as a result, contributes to high nutrient loading in urban watersheds leading to algal blooms, ecosystem damage, and water treatment problems. The excrement is acidic, causing damage to painted surfaces and contributing to structural damage on buildings and vehicles. In addition, Grackle excrement and roosting activities damage and kill landscaping and shade trees.

Grackles present an obvious nuisance in terms of noise and large disturbing flocks. Civic governments spend considerable money trying to control grackles. For example, Fort Worth alone spends over \$100,000.00 per year on grackle control just for Sundance Square. Other cities attempting to control grackles in Texas include Houston, San Antonio, Dallas, Austin, and Arlington. To date, none of the traditional methods of control has proven effective.

There are no formal grant programs that cover urban wildlife issues. For this reason, we are seeking funds to develop an economically driven approach to grackle control. First we will evaluate the impact of this species by looking at health effects, health risks, and the economic impact of the birds on human populations. We will collect biological data on the ecology and behavior of grackles during the life cycle. This will enable us to identify specific control strategies, test these strategies, and evaluate their cost and effectiveness. An economic model will be developed that will identify optimal pest management protocols based on evaluations of risks, costs, and benefits. The protocol can then be contracted out to local pest control companies and landscape designers to be implemented in urban areas. Furthermore, this will be a new approach to urban pest control and, as such, the method can be modified for other pest species such as coyotes, raccoons, skunks, starlings, and pigeons.

**Amount Requested:** \$1,475,000

## Budget/Cost

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### One-time expenditures (year 1 only):

Implan data and technical support \$ 15,000

### Annual Budget:

Post-doctoral Researchers (3) \$ 375,000

Ph.D. Students (4) \$ 360,000

Graduate Students (6) \$ 185,000

Undergraduate Research Assistants (6) \$ 80,000

Faculty Salaries \$ 175,000

Equipment/Supplies \$ 250,000

Transportation and Travel \$ 35,000

**Total of annual items (per year): \$1,460,000**

**Total for three years \$4,395,000**

### Anticipated Non-Federal Sources:

Dallas Agri-Life Extension Service is currently providing \$15,000 per year in support

### Agency/Agencies Targets:

US Department of Agricultural

National Science Foundation

National Institutes of Health

Environmental Protection Agency

### Investigator Information

Principal Investigator

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