

Distribution Patterns, Habitat Use, and Impacts of the Eastern Fox Squirrel (*Sciurus nigris*)

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Objectives

1. Determine the extent of fox squirrels relative to almond orchards in Fresno County.
2. Identify habitat use of fox squirrels.
3. Create a predictive model for fox squirrel distribution.
4. Based on the above information, we will investigate possible control methods such as shooting, trapping, and rodenticides.

Introduced to California as recently as the 1950's, the Eastern fox squirrel (*EFS*) was initially confined to urban and suburban areas such as neighborhoods, greenbelts, parks and college campuses. In the following years, these populations have spread to agricultural areas. Consequently, EFS has become a significant pest in several almond orchards within Fresno County. Not only do the squirrels consume almonds, they chew and destroy PVC pipe and hoses. While little is known about the demographics of California fox squirrel populations at the urban/agricultural interface, evidence seems to indicate that populations are growing and spreading into agricultural areas. A concentrated effort to understand the ecology and potential impacts of the fox squirrel is crucial in assessing the severity of what may become a significant problem to the almond industry.

We have established a web site for collection of information and future outreach to clientele. You can reach the EFS map by going to <http://www.gis.uckac.edu/> and click on "Projects", then on "Eastern Fox Squirrel". This site will include all almond orchards in Fresno County (or other counties if needed), and we can add information about any orchard site, regarding vertebrate pests, adjacent vegetation, soil types, irrigation method, etc. The goal is developing an interactive digital site, where information and knowledge can be exchanged between clientele and researchers/extension.

This web site will allow us to extend information about the first objective listed above. We are identifying the fields infested with EFS, and it is more extensive than previously assumed. Unfortunately, there are large resident populations of EFS in the City of

Fresno, along the San Joaquin River (of the border between Fresno and Madera counties), and at Kearney Park (just SW of the City of Fresno). Those sites regularly replenish growers' fields with EFS. In addition, we developed a survey for growers and PCAs regarding several factors to correlate with the presence or absence of EFS. Surveys will be mailed and conducted via the web site.

Control methods will be tested and compared this winter (objective four). Preliminary surveys indicate that the best control method so far is targeting the adult females and young squirrels found in nesting sites during late winter. Adult squirrels are difficult to shoot, but during the nesting season, the adults frequently run back to the nests. Crows nests are also found in almond trees and are similar in appearance to EFS nests. Nests are easier to identify after leaf drop occurs. For almond orchards near streams or riparian areas, we are investigating habitat modification, as the riparian areas will harbor EFS. We are also investigating trapping and two baits (which are not registered currently).