Using GPS and GIS Technology to Track Rabbit Damage in Southern California Nursery
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Cottontail rabbits (Sylvilagus audubonii) cause economic loss to ornamental tree nurseries in Southern California through vegetation destruction and damage to irrigation lines, which can be recognized by characteristic 45-degree angle cuts. One large commercial tree nursery in San Diego County reported $20,000 to $30,000 annual costs from repairing irrigation lines and crop damage due to rabbits. Currently there are few methods to control the damage by cottontail rabbits and growers are frustrated by the lack of IPM solutions to this economically important problem.

Result Section 2: Impact of Rabbit Removal
GPS waypoints showed beds 128 and 129 received large amounts of irrigation damage. We removed rabbits from Beds 128 and 129 with live traps set on the ground throughout the beds. The damage tracked by GPS waypoints did not decrease as a result of the rabbit removal, as shown in the Figures 1 & 2 below.

Result Section 3: Irrigation Line Covers
We wanted to know if protecting the ¼" drip lines with covers would prevent damage. We placed ¾" recycled poly hose over the drip lines in a bed receiving large amounts of damage. Covers were put on the drip lines on 4/15/05 (see before and after photos below). Waypoint data demonstrated the irrigation line covers were effective in providing a lower amount of damage points in the trial area, as shown in the Figures 3 & 4 below.

Discussion
Cottontail rabbit damage continues to be a major economic consideration of growers at Southern California nurseries. However the use of GPS technology has assisted in characterizing the types of nursery production practices most vulnerable to damage and given researchers an additional objective tool to measure the impact of IPM experimental control strategies.