Some days the best place to spot a trophy buck is a Texas suburb. A 300-member deer herd calls the suburban community of Hollywood Park in northern San Antonio home. And, while the deer are beautiful, they are also an enormous management problem in the form of landscape damage, vehicle collisions and the threat of disease.

Traditional wildlife surveying techniques are difficult to use in an urban environment. For instance, they first considered marking the deer using colored paintballs fired from paintball guns. This idea was abandoned, though, out of fear that the public might think the deer were being harmed. They then considered marking the deer with bioluminescent dye; the dye is invisible to the naked eye and can only be seen with infrared night vision goggles. This idea was also abandoned, however, when they realized it might be hard to convince homeowners that people driving around at night peering around houses and yards with goggles were only “looking for deer.”

Then, they hit upon the solution: A laser rangefinder-enabled GPS system! By mounting a rangefinder in the back of a pickup truck and connecting it to a Trimble GPS Pathfinder® Pro XRS GPS receiver, they could drive sampling transects through Hollywood Park, mapping the deer and anything else they thought might be relevant.

Targeting a deer with the laser determines the distance and bearing to the deer, and the information is then recorded as a position “offset” in the GPS receiver. This set-up also has the advantage of mapping deer on private property while remaining on public streets.

Sampling worked best with three-person teams: one person to drive the pickup truck, the second to operate the laser rangefinder and the third to operate the GPS receiver while also helping spot deer.

Many of the Hollywood Park residents view the deer as their “pets” and actually set up feeding stations for them at their homes. They mapped the locations of the homes with feeding stations and labelled those as “feeder houses.” Not surprisingly, a GIS analysis of the deer and feeder houses revealed a convincing spatial relationship.

The GPS data was exported from Trimble’s GPS Pathfinder Office software as ArcView Shapefiles. Composite GIS maps of the morning, noon and sundown sampling transects were created using ArcView 3.2. Feeder house locations were added to each of these maps. A buffer analysis of...
the feeder houses showed that most of the herd stays within a 200-meter radius of the feeder homes.

In short, the people feeding the deer were influencing their behavior and residency status. There was observed that the intensity of landscaping damage and the incidence of vehicle/deer collisions decreased the further away from feeder homes one travelled.

The conclusion was made that the deer were not “trapped” by development as many residents thought, but were responding to abundant food and to a relatively predator-free environment.

The results of this study were presented to the Deer Committee formed by the Hollywood Park City Council in the spring of 2001. In response to this study and to public pressure, a no-feeding ordinance was drafted and enacted by the City of Hollywood Park in 2001. Additionally, in the spring of 2002, approximately one-half of the herd was live-trapped and relocated to rural areas.

This is a unique and useful application for using GPS for GIS Field Data Collection.

The equipment used on this project includes:

- Trimble GPS Pathfinder Pro XRS GPS receiver
- Laser rangefinder
- GPS Pathfinder Office software