Using GPS to map more than 350 State Forest recreation sites, such as day-visitor areas, camping grounds, and walking tracks in Victoria, Australia, is the huge task being undertaken by recreation projects officer, Bonnie Ryan.

Ryan started this project in September 2002 and before it is finished at the end of June 2004, she will have carried high-resolution GPS equipment down all of Victoria’s 120-plus State Forest walking tracks, covered some 800 km (495 miles), and walked for 200 hours. In addition, Ryan will use the GPS equipment to gather data at 20 km (approximately 12.5 miles) per hour on her mountain bike on the few tracks open to cyclists.

When completed, the project data will become an important part of the Department of Sustainability and Environment’s (DSE) Recreation Facilities database, a geographic information system (GIS) supervised by the Victoria Forest Service. This database will be used to manage State Forest recreation facilities that are enjoyed by approximately four million visitors each year.

The Recreation Facilities Database is scheduled for completion by June 2004, and will address the previous lack of a standard system for recording location, condition, safety and management actions of the region’s State Forest recreation sites and walking tracks, some of which had never been previously mapped. Now, new tracks and sites will be mapped and added each year.

The database will have accurate and complete data statewide; a risk management process to identify, prioritize and record the actions required for a successful risk management strategy; and standard classification of recreation facilities (e.g. suitability for visitors with limited mobility). It will give forest managers unprecedented data for safety, navigation, and management of the State Forests—especially risk assessments and fire strategies.

Other specialized uses of the database will include accurate and automatic setting of buffer zones around logging areas and prioritizing safety inspections over 3 to 18 month cycles.

Trimble’s GeoXT™, one of the GeoExplorer® CE series of GPS handhelds, is easy-to-use as a handheld with integrated GPS, or for higher accuracy, as a datalogger with external GPS from a GPS Pathfinder® receiver. Ryan uses the GeoXT with the GPS Pathfinder Pro XR for her data collection, and the versatile, rugged equipment has proved ideal for her demanding working conditions.

In the field, Ryan uses the menu and pick list of TerraSync™ data collection software to record a multitude of data. She has collected individual GPS locations for thousands of natural and manmade features, including track markers, campsites, scenic overlooks, bridges, car parks, hang gliding launch pads, board walks and even historic relics of mining or timber felling.
During her weekly data collection, data is downloaded to a PC using GPS Pathfinder Office software for postprocessing. Ryan then uses GPS Pathfinder Office to postprocess the data to obtain higher accuracy. This is done by comparing her data with the precise positions of any one of Victoria’s 17 GPS base stations. This differential postprocessing improves the accuracy of raw data from 13–20 meters, depending on tree cover, to 1–2 meters.

The postprocessed data is then loaded into the Recreation Facilities GIS. Collected data will be integrated with other GIS layers from Victorian State Government sources such as Vicmap Products (spatial data) and the Corporate Geospatial Data Library (130 datasets that support natural resource planning and management). The result is a multilayered, comprehensive GIS with accurate data for quality decision making.

Due to the success of the project, the DSE plans to extend this kind of detailed GPS mapping to other state land under its jurisdiction. This project benefits the State Forest visitors too as the second phase of the project will provide a website which they can visit to plan their bushwalking, and print out the latest possible map and site information.

The equipment used on this project includes:

- GeoXT handheld
- GPS Pathfinder Pro XR GPS receiver
- TerraSync data collection software
- GPS Pathfinder Office postprocessing software