

**Bisley Experimental Watersheds Wildland Gradient Site**  
**Luquillo Experimental Forest, Puerto Rico 18.29166N 65.7916W**

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<http://luq.lternet.edu/>

**History:** Forestry research has been conducted at the site since 1900. The IITF Watershed program has conducted detailed watershed studies in these three adjacent watersheds since 1987 and the site has been part of the Luquillo LTER program since its inception in 1988.

**Key Contribution to Domain and Continental issues:** This site is relevant to research involving climate change, biogeochemical cycling, invasive species, land use change, and hurricane monitoring. Located on the eastern flanks of PR's central mountain range, Bisley is the first site to intercept hurricanes, trade winds, and Sahara dust. In this position, it will serve as a sensitive indicator of climate change. Urbanization is increasing on the coastal fringe between Bisley and the ocean and this has the potential to disrupt evaporative processes that lead to high rainfall on the mountainsides. Invasive and naturalized species are common components of secondary forests in the area and appear to help these forests respond to new conditions applied to the ecosystem by anthropogenic disturbance and climate changes.

**Key Characteristics:** Three adjacent watersheds that drain a mid-elevation, mature, secondary humid tropical forest, that is similar to the original mid-elevation forests of Puerto Rico. The area receives 3500 mm of rain each year and is underlain by volcanoclastic rocks that weather to deep, clayey tropohumultic soils. Hillslope soil catenas are well developed have been related to forest structure, composition, and disturbance frequency.

**Existing Infrastructure:** Three instrumented watersheds (6.3 ha, 6.7 ha, and 35 ha), 2 walk up instrumented climate towers, 1 meter DEM with multi-layer GIS coverages and a grid system of permanent plots where vegetation and soils have been monitored since 1987. Long-term (~ 20 years) records of stream flow, climate, and rainfall and litterfall chemistry are available online. Areas have also been designated to long-term studies of riparian dynamics, impacts of fertilization; decomposition, seedling dynamics and other ecological processes. Infrastructure also includes detailed land-use and disturbance histories, species inventories, biomass equations for common species, and sample archives. The three watersheds are also nested within the larger gauged Mameyes Watershed and nearby pasture lands, providing for multi-scale and multi land-use studies.

**Facilities:** Sabana Field Station is within walking distance and provides housing, field laboratories, and logistical support, including high-speed internet. The site has year round road access and is conveniently located near urban shopping areas and other proposed research sites.

