# Forest Formation and Land Cover Map Series: St. Kitts and Nevis

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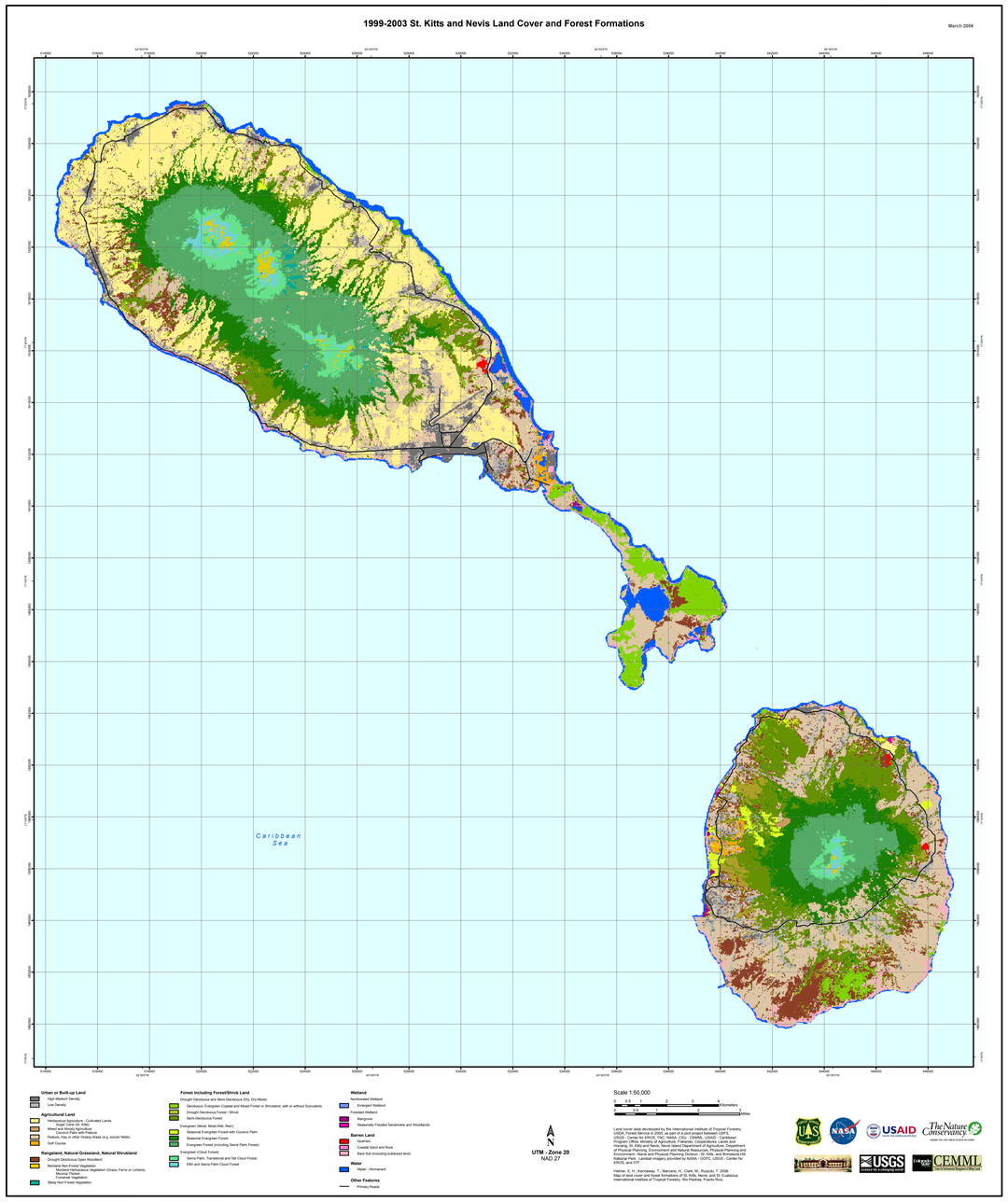


Land Cover Maps produced by USDA Forest Service and The Nature Conservancy

## ABSTRACT

*From Helmer and others, 2007, Distributions of land cover and forest formations for St. Kitts, Nevis, St. Eustatius, Grenada, and Barbados from satellite imagery: in review, International Institute of Tropical Forestry, Río Piedras, Puerto Rico.*

We developed forest formation and land cover maps for several Caribbean islands from satellite imagery for a multi-organization project. For the map of St. Kitts and Nevis (Kennaway and Helmer, submitted), we used decision tree software to classify Landsat Enhanced Thematic Mapper Plus (ETM+) image mosaics. In the classifications, we stacked ancillary raster data, including topographic variables (Farr and Kobrick, 2000), with spectral bands from the Landsat image mosaics. The image mosaics were developed with regression tree normalization (Helmer and Ruefenacht, 2005) replacing cloudy parts of scenes with data from other Landsat scenes. We then assessed accuracy of the Landsat image classification with 1-m pan-sharpened, false color IKONOS imagery. The forest classification scheme relates closely to that described by Areces-Malea (1999), with modifications similar to those in Helmer (2002).

A comparison of land cover areas in the maps with the areas reported by Beard (1949) reveals that land under cultivation on St. Kitts and Nevis declined over the second half of the 20th century (Helmer and others, submitted). At the same time, areas of forest cover have increased as forests have been re-established on lands that were formerly grazed or cultivated. Since 1949, the proportional increase in the drier forest types at lower elevations has been greater than the increase in evergreen forests. This trend will likely continue for St. Kitts because the state-run sugar company closed in 2005. At the same time, areas of developed lands have increased on the two islands, primarily at lower elevations. Higher elevation forests in St. Kitts and Nevis are well-protected, particularly submontane evergreen and evergreen cloud forests. In St. Kitts and Nevis, construction is prohibited above 1000 feet elevation. In addition, St. Kitts is in the process of having all lands above 1000 feet declared national park land. Drier forest formations are not as well protected on St. Kitts and Nevis. However, the decline in cultivated land area and the increase in areas of drier forest types may present an opportunity to conserve new forest land at lower elevations. Most higher elevation forests are drier on St. Eustatius, and drier forest types are relatively well protected there.

## CONTRIBUTORS

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## DATA AVAILABILITY

These land cover data and cartographic products will be available in June 2007 for download at the following Web sites: USGS Center for Earth Resources Observation and Science - International Programs (http://edcintl.cr.usgs.gov) and USDA Forest Service International Institute of Tropical Forestry (http://tropicalforestry.net/).

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