

Project Summary

Rocky Mountains Cooperative Ecosystem Studies Unit

Project Title: Land-cover and Vegetation Mapping in Pinnacles National Monument
Type of Project: Technical Assistance
Funding Agency: National Park Service
Other Partners/Cooperators: San Francisco Bay Area I&M Network
Effective Dates: September 1, 2003- February 1, 2005
Funding Amount: \$19,000 in FY 03
Investigators and Agency Representative: NPS Key Official: Kris Swofford, Point Reyes National Seashore, Point Reyes Station, CA 94956, 415-464-5105, Kris.swofford@nps.gov NPS Technical Representative: David Schirokauer, GIS Biologist, Point Reyes National Seashore, 415-454-5199 UNIVERSITY CONTACT: Dr. Roland Redmond, Director, Wildlife Spatial Analysis Lab, University of Montana, Missoula, MT 59812, (406) 243-4906, red@selway.umt.edu
Project Abstract: The Wildlife Spatial Analysis Lab at the University of Montana will produce a digital database of the land cover and existing vegetation for the Pinnacles National Monument and adjacent environs from high resolution IKONOS imagery. The geographic extent of the project cannot be any larger than the area covered by the IKONOS imagery provided by the National Park Service, and it will definitely include all lands within the legal boundaries of Pinnacles National Monument, California. This digital database will be of sufficient resolution and quality for scientists and planners at the Monument to use for management decision-making to mitigate impacts to resources and for long-term monitoring of resource condition and trends. The IKONOS satellite images will be mosaiced together, ortho-rectified, and reprojected, if necessary. An unsupervised classification will then be performed with Erdas Image Software (SOKATA routine), followed by a segmentation of the full image using eCognition software. The latter step will create relatively homogeneous patches or raster polygons from the pixel data that are at least 9.5 ha in size. All available ground-reference data will be organized and compared with the target list of cover types to be mapped. It is anticipated that this step will involve an image analyst traveling to Pinnacles for up to five days to work with scientists there. Any vegetation community types not adequately represented in the sample of reference data will be identified, and a decision will have to be made about whether to obtain additional data for these types, or drop them from the list. Preliminary results of both the cover type and canopy closure classifications will be sent in digital form NPS representatives for review. Based on the nature of the feedback, a second site visit may be required to obtain additional information prior to carrying out the final supervised classifications of cover type and canopy closure.
Outcomes with completion dates: A detailed and spatially explicit land cover database (Arc/Info Grid) of Pinnacles National Monument and local environs. A final report describing the database, how it was created and how accurate the classifications were. FGDC compliant metadata about the database. Final Product: June 1, 2004.
Keywords: Land-cover, Vegetation mapping, Pinnacles National Monument, IKONOS imagery

For Administrative use only:

Date Annual Report Received:

Date Final Report Received:

Publications, etc. on file: