

THE USE OF COLOR INFRARED DIGITAL ORTHOPHOTOGRAPHY TO MAP
VEGETATION ON BLOCK ISLAND, RHODE ISLAND

BY

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ABSTRACT

I used near-infrared digital orthophotography and three collateral datasets to model ecological communities on Block Island, Rhode Island. Aerial photography of the island was taken on May 19, 1992 at a nominal scale of 1:40,000. The photography was scanned and differentially rectified. The resulting dataset was comprised of three spectral bands and had a pixel dimension of 1.27m. The three bands of data were used as independent variables in the model. Three textural variables were developed by calculating the standard deviation within a 10 meter radius of every pixel for each of the three imagery bands. The terrain model that was used to create the orthoimagery of Block Island were also used to derive *SLOPE* and *ASPECT* data. Soil Survey data was used to create a *DRAINAGE CLASS* dataset and this was used to distinguish wetland from upland vegetation. Overall there were 9 independent variables and one dependent variable (vegetation class) in the model. I used linear discriminant analysis to classify 14 vegetation types within 6 discrete land cover classes on Block Island, Rhode Island. The Mean Classification Accuracy for training data was 80.5 percent for training data and 55.2 percent for validation data. Overall Classification Accuracy was 77.1 percent for training data and 56.6 percent for validation data. The ecological variable *DRAINAGE CLASS* dominated the model and explained the most variation in vegetation class.