

Land Cover Mapping of a Housing Subdivision in Elk Grove, California

Abstract

The widespread conversion of agricultural land to urban environments has caused an exponential increase in water impermeable surfaces like rooftops, streets, and sidewalks. Water impermeable surfaces, or impervious surfaces, do not absorb as much surface water and greatly increase the risk of urban flooding and negatively affect local watershed ecology. This project compares two supervised classification methods, an ENVI workflow and an ArcGIS workflow, used to map land cover change from 2002 to 2011 in a housing subdivision in Elk Grove, California. The author found that both methods produced similar results for the 2011 classification, but significantly different results for the 2002 classification. The ArcGIS workflow experienced considerable difficulty distinguishing sparsely vegetated agricultural land from bare earth. An accuracy assessment was not performed, so it is difficult to evaluate which method produced more accurate results. However, based on visual observations, it appears that the ENVI workflow produced slightly more accurate results for both images.