Introduction

The National Gap Analysis Program (GAP) examines land cover classes and vertebrate distributions in relation to land stewardship to determine conservation "hot spots" throughout the country. Geographic Information Systems are used to overlay classified land cover maps and vertebrate distributions with land stewardship to determine the protection offered to rare land cover types or vertebrate species. Our objective was to determine land cover class protection status for South Dakota.

Methods

Land Stewardship

Land stewardship was determined by obtaining digital coverages of public land tracts from various agencies throughout the state. These coverages were attributed with data including name, owner, and conservation status. Conservation status, or the degree of protection offered to various tracts of land, was determined based on guidelines outlined in the National Gap Analysis Program handbook (Table 1) (http://www.gap.uidaho.edu/handbook/Stewardship/default.htm).

Land Cover

Land cover was classified for the state of South Dakota using 30-meter Landsat 5 Thematic Mapper (TM) satellite imagery. Eighteen scenes were necessary to obtain a complete coverage of South Dakota. Known vegetation data were compiled and separated into three distinct regions: eastern and western South Dakota (excluding the Black Hills) and the Black Hills to assist in interpretation and classification of the satellite images. These regions were joined after their completion and population data was overlaid to mask developed areas.

Gap Analysis

Gap analysis was performed by intersecting land cover types with conservation status codes and exporting resulting tables. Hectares and percentages of each land cover type were reported within each status and stewardship code. National GAP standards also require analysis of land cover types by ownership and status.