Florida Division of Forestry
County Protected Acres Project 2006

Introduction
The Protected Acres Project determines which areas of the county will need assistance from the Florida Division of Forestry (DOF) in protection from wildfires. DOF has developed a GIS based model to determine the Protected Acres within a county. Areas to be excluded from protection are those areas managed by federal, state, or local government, as well as impervious areas that would not normally be considered burnable and permanent waterbodies.

GIS Datasets
The following GIS datasets were used for the 2006 County Protected Acres Project of the Florida Division of Forestry:
- **State Lands (FNAI 2006)**
- **Local Lands (FNAI 2006)**
- **Federal Lands (FNAI 2006)**
- **Hydrography (USGS 2002)**
- **Impervious Areas (USGS National Land Cover Database 2001)**
- **County Boundary (FDEP)**

Waterbodies
Waterbodies to be excluded are classified by the USGS as lake, pond, reservoir, stream, or sewage disposal pond. Marshes, wetlands, swamps, bogs, and intermittent waterbodies are considered part of the protected acres. During a dry spell, marshes become very susceptible to dangerous muck fires due to lighting strikes or arson events. Marshes on state or federal land will not be considered protected since these lands are already managed.

Urban/ Impervious Areas
Wildfire occurrence within urban areas has become a growing issue for the state of Florida, not only with wildland-urban interface growth but also with hurricanes providing increased fuel loads. GIS datasets on population and housing is not sufficient to determine what urban areas are at risk for wildfire. The 2001 National Land Cover Database Zone Imperviousness Layer was used as the urban dataset. Landsat 7 ETM+ images (30m resolution) were the primary data source for mapping impervious surfaces. Two types of high-spatial resolution images, IKONOS from the Space Imaging and the Digital Orthophoto Quadrangles (DOQ) of the US Geological Survey color infrared photographs, were utilized for training data. The basic methodology included the following: 1)algorithm selection, 2) training/validation data development, 3) predictive variable selection and initial regression tree modeling and assessment, and 4) final modeling and mapping. Overall accuracy achieved was 87.6% (USGS, 2001).
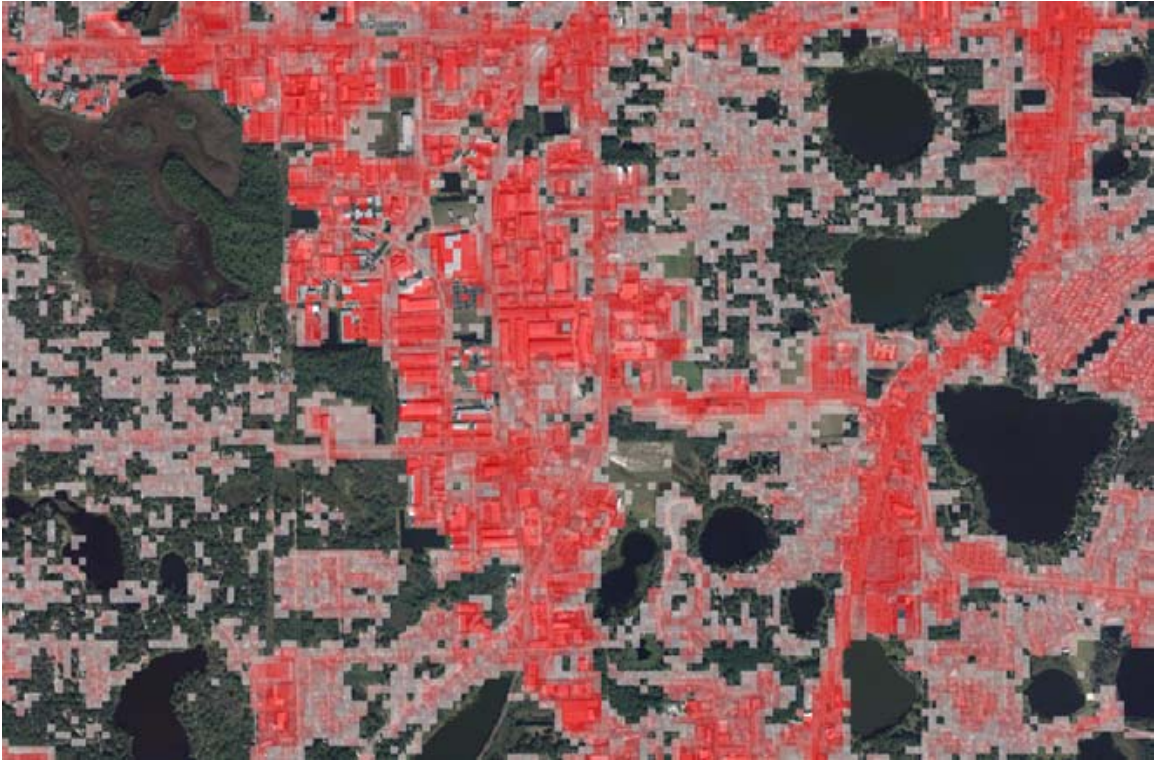
Area in red is classified as Impervious, which will not be part of the Protected Acres.
Area that is transparent is classified as Non-Impervious (as can be viewed with a 2004 Aerial Image in background).

Geoprocessing Model

These datasets were then run through a geoprocessing model which clipped all the datasets to be excluded (federal land, state land, water, urban) to the county boundary. After the clip, the excluded datasets were unioned together. Instead of the exclusion layers being added together, they are unioned together so they are one data layer. This helps to avoid double-counting. (See illustrations below)
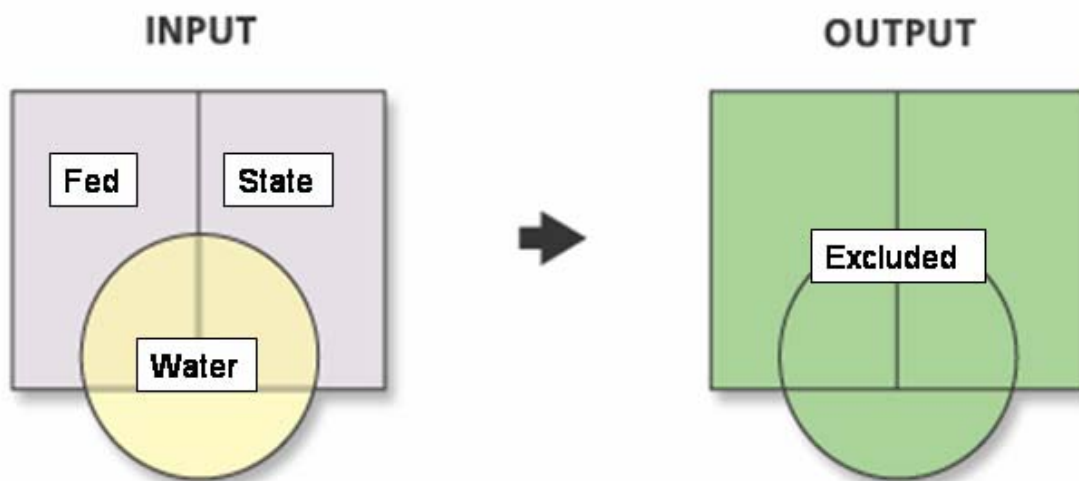
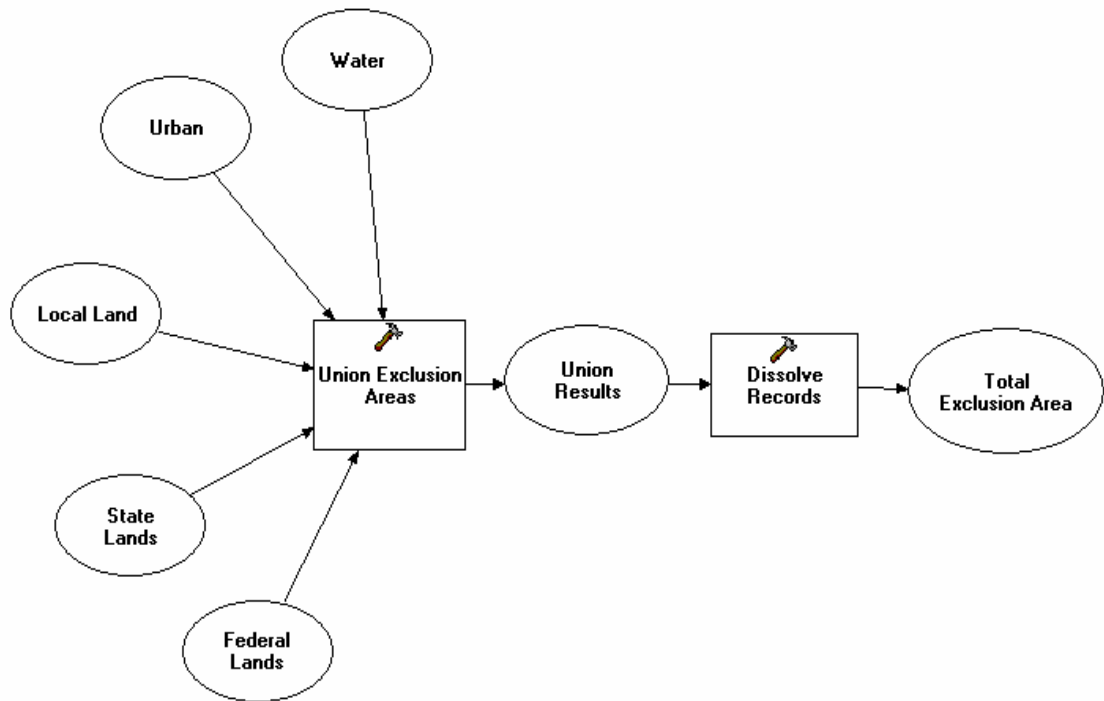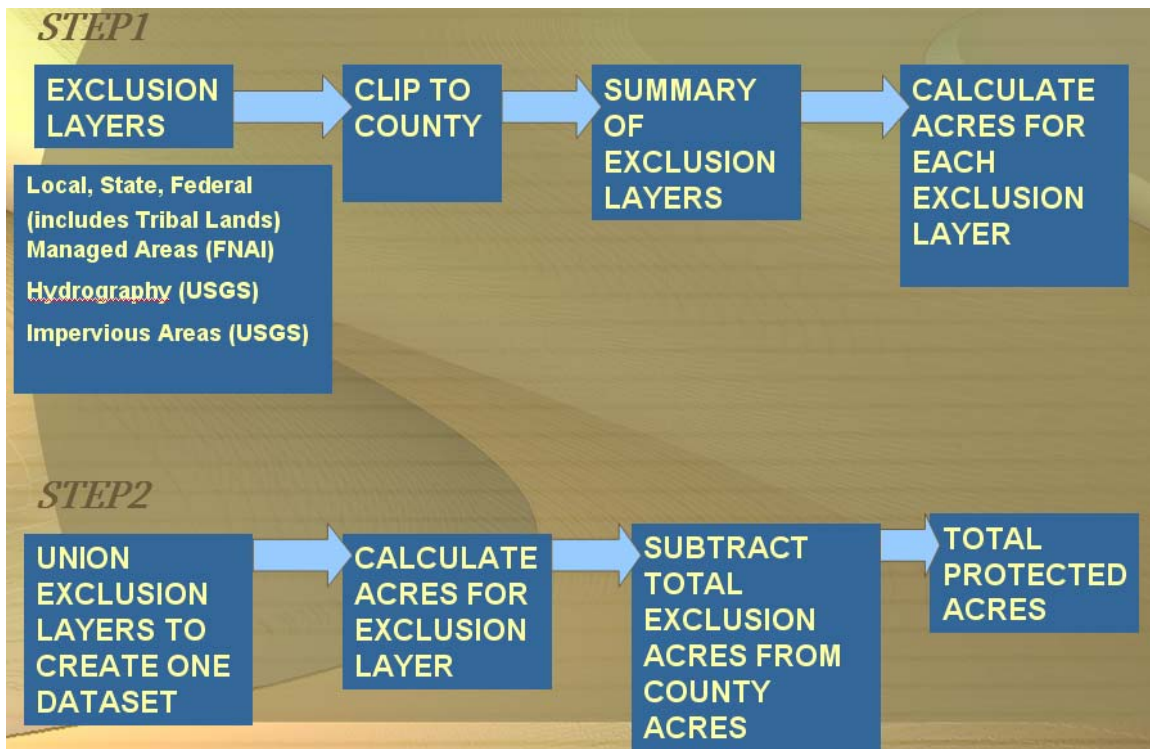**Illustration of a Union operation.**

Diagram of Model for Protected Acres Union operation.

The total acres of the exclusion area was then calculated and then subtracted from the total acres of the county. (See diagram below)

Reasons for Increase in 2006 Protected Acres

- Historically, Exclusion Areas were probably being subtracted out of the county twice, so water in Federal Land was being subtracted once as "water" and then a second time as "Federal Land".
- Areas that used to be excluded are now part of the Protected Acres. This includes grasslands, bare soil, vegetated urban, citrus, and cropland.

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