**NASA DEVELOP National Program**

****NASA Marshall Space Flight Center

**Summer 2015**

**Short Title: Texas and Arizona Ecological Forecasting**

**Updated Abstract**

Although ocelot (*Leopardus pardalis*) habitat is found throughout Central America, portions of South America, and the United States, the species is currently listed as endangered with less than 100 remaining in the United States. This cat requires a minimum home range of 6.5 square kilometers, which prevents deadly interactions with humans on roadways. Many conservation efforts have been attempted, from ocelot translocation to habitat restoration. In this project, a remote sensing approach was developed, using NASA Earth-observing sensors. Landsat 8 Operational Land Imager (OLI) and Landsat 5 Thematic Mapper (TM) imagery were used to create supervised land cover classifications for 1996, 2005, and 2014 during January through March to assess land use and cover over time. Surface reflectance imagery from Terra and Aqua Moderate Resolution Imaging Spectroradiometer (MODIS) were then used to derive Normalized Difference Vegetation Index (NDVI values) to verify the results from the land cover classification layer. The verified land cover classification was then used with *in situ* data in the Princeton Maximum Entropy model to identify suitable ocelot habitat. A proximity risk map to roads and urban areas was created using multiband buffer zones over this habitat. The products were delivered to the [name the project’s partners]. The use of GIS and remote sensing will greatly aid [name’s] decision-making process in directing conservation efforts for this endangered species.