**NASA DEVELOP National Program**

****NASA Marshall Space Flight Center

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

**Updated Abstract**

Although the ocelot (*Leopardus pardalis*) is located 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, such as translocation and restoring native vegetation. 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 where land use and cover were assessed over time. Surface reflectance imagery from Terra and Aqua Moderate Resolution Imaging Spectroradiometer (MODIS) were then used to derive Normalized Difference in Vegetation Index (NDVI). The NDVI was used to verify the results from the derived land cover classification layer. The derived land cover classification was then used with in situ data in the Princeton Maximum Entropy model which determined the suitable ocelot habitat. The proximity risk map was then created using multiband buffer zones over the locations of suitable ocelot habitat by determining the proximity to roads and urban areas. The use of GIS and remote sensing will greatly aid the project partner’s decision making process in directing conservation efforts.