

## **The Nature Conservancy LANDFIRE - SWARS Proposal**

### **Background:**

As part of the LANDFIRE national mapping project a series of 3 modeling workshops were conducted in Honolulu, Hawai'i between November 2008 and March 2009. The LANDFIRE workshops represented participation from a broad spectrum of stakeholders including the United States Fish and Wildlife Service (USFWS), the United States Geological Survey (USGS), the Hawai'i Department of Land and Natural Resources Division of Forestry and Wildlife (DOFAW), the United States Department of Defense (DoD) and The Nature Conservancy (TNC). These workshops were designed to facilitate the development and subsequent review of an initial suite of LANDFIRE products. These products included 25 non-spatially explicit state and transition models and descriptions depicting pre-European settlement vegetation conditions on the 8 main islands of the Hawaiian archipelago. In addition to the vegetation models and descriptions, several spatial products were created including an Existing Vegetation Type (EVT) layer and corresponding Existing Vegetation Cover and Height layers. This set of Existing Vegetation layers represents the vegetation currently present on the 8 main islands of the Hawaiian archipelago. The vegetation map units used by LANDFIRE are derived from NatureServe's Ecological Systems classification, which is a nationally consistent set of mid-scale ecological units. Additional spatial products are currently in development, including a Biophysical Settings (BpS) layer that represents the vegetation that may have been dominant on the landscape prior to Euro-American settlement, and is based on both the current biophysical environment and an approximation of the historical disturbance regime.

### **Objectives:**

This proposal seeks to utilize a number of the LANDFIRE products developed for Hawai'i by further refining and modifying them for applicable use by the State of Hawaii's conservation partners. More specifically, the objectives of this proposal are to:

1. Evaluate the Hawai'i LANDFIRE Existing Vegetation Type (EVT) product for accuracy, and correct as necessary.
2. Compare the Hawai'i LANDFIRE EVT with other vegetation assessment tools such as the Hawai'i Gap Analysis Program (HIGAP), NOAA Coastal Change Analysis Program (CCAP), and Price HABQUAL. This analysis will be used to identify priority watersheds for biodiversity and other values with known threats such as fire and competition from invasive species.
3. Use specific Hawai'i LANDFIRE products to assess fire risk to remaining native-dominated dry forest, scrubland and grassland in Hawai'i, and identify high priority areas for protection of remaining native dry vegetation from conversion to fire-adapted alien systems.
4. Provide technical assistance and support to the Hawai'i Department of Land and Natural Resources Division of Forestry and Wildlife (DOFAW) in its use of LANDFIRE

products to complete components of the Hawaii's Statewide Assessment of Forest Conditions and Statewide Resource Strategy (SWARS)

**Deliverables:**

LANDFIRE products will be used in the State of Hawaii's SWARS analysis by TNC and its conservation partners to help address the following preliminary questions:

- i. Where are Hawaii's forests?
- ii. What condition are these forests in? What condition will they be in (10, 20, 100+ years) if trends continue? Is this condition desirable or undesirable? What are the characteristics of those forests in an undesirable condition?
- iii. Where the condition is undesirable, what is the root cause? Fire exclusion? Insects and Disease? Invasive species?
- iv. Where does this condition indicate the potential / need for treatment to restore a more natural range of conditions and improve resilience to disturbance? What is the level of need (high-med-low)?
- v. Where does this condition indicate the potential / need for treatment to protect lives, property and/or community infrastructure? What is the level of need (high-med-low)?

*Specific deliverables include:*

1. A refined current vegetation condition spatial mapping layer that can be adopted for the State of Hawaii's Statewide Assessment and Resource Strategy (SWARS) analysis.
2. A pixel-by-pixel comparison of the refined map and the original LFNA map, including a brief narrative of what changed during the refinement and identifies areas for future improvement.
3. A geospatial layer articulating HI-MED-LO priority areas for fire suppression and/or pre-suppression in areas of high native biodiversity that can be used for SWARS analysis to assist the State with strategically planning projects for hazardous fuel reduction and restoration of ecosystem integrity on fire-adapted landscapes.
4. A geospatial layer articulating HI-MED-LO priority watersheds/areas for biodiversity conservation.

**Project Timeline:**

<b>Task</b>	<b>Support/Resources</b>	<b>Timeline</b>
Collate background information, including existing data layers	<ul style="list-style-type: none"> <li>• TNC Science and GIS staff</li> </ul>	August 2009 – Sept. 15, 2009
Conduct a series of meetings/ workshops with assembled experts to evaluate LANDFIRE Existing Vegetation Type (EVT) product accuracy by comparing it with other vegetation assessment tools.	<ul style="list-style-type: none"> <li>• TNC Science and GIS staff</li> <li>• The State of Hawai'i Department of Land and Natural Resources, Division of Forestry and Wildlife (DOFAW)</li> <li>• USGS Biological Resources Division (USGS-BRD)</li> <li>• NOAA-CCAP</li> <li>• HIGAP</li> </ul>	Sept. 16, 2009 – October 2009
Incorporate derivative GIS products for SWARS	<ul style="list-style-type: none"> <li>• TNC Science/GIS staff</li> <li>• Ron Cannarella (DOFAW)</li> </ul>	November 2009 – December 2009

**Budget:**

<b>Budget Item</b>	<b>Amount Requested</b>	<b>Leveraged Funds (TNC or partner)</b>	<b>Total Project Cost</b>
0.3 FTE GIS Technician	\$22,600 <sup>1</sup>	-	\$22,600
Other labor	-	\$18,500 <sup>2</sup>	\$18,500
Materials and Supplies	\$1000	-	\$1000
Contracting Services	\$2500	-	\$2500
Meeting logistics (including possible airfare and per diem for non-federal experts)	\$2500	-	\$2500
<b>Total</b>	<b>\$28,600</b>	<b>\$18,500</b>	<b>\$47,100</b>

<sup>1</sup> Based \$4000/month + 40% benefits (X 0.3) = \$22,600

<sup>2</sup> Includes TNC staff time (Senior Scientist, Director of Science, GIS Specialist) and partner contributions