**Instructions for using the Spatiotemporal Analysis Toolkit**

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The Spatiotemporal Analysis Toolkit provides a tool to create polygons of repeat damage based on the user’s input. Users can run the toolkit on all polygons in the regional dataset, or they can select a damage agent (e.g. “gypsy moth”), a damage type (e.g. “defoliation”), or both (e.g. “gypsy moth defoliation”). The tool identifies overlapping areas of disturbance, and computes basic information such as the first and last years of damage, the number of years damaged and ranges in severity (when available). This toolkit requires the dataset that includes severity rankings. For more information about the overall project, visit <https://www.uvm.edu/femc/data/archive/project/northeastern_ads/>.

First, the dmg\_agnt\_code\_generator.py script needs to be run on the data to generate a user-friendly dropdown list of the available codes, and these need to be added by copying and pasting the output of the script into the FHdamageType.py script before it is run on the regional ADS dataset. The code includes a comment identifying where that text should be pasted.

dmg\_agnt\_code\_generator.py

This script provides analysis of standardized aerial survey data provided in a single feature class. The aerial survey data must be standardized according to the US Forest Service Forest Health Monitoring Aerial Survey Codes (Appendix E) and the US Forest Service Aerial Detection Survey GIS Handbook. The user is asked to select either a damage agent or damage type for the analysis. The tool calculates the number of times a particular polygon has been damaged by the given agent or type. It also counts the Mean and Sum of severity of the damage and the duration of the damage. These calculations are added as fields to the attribute table. The output of this tool is a shapefile that includes the new attributes.

FHdamageType.py

This script gets the correct US Forest Service Forest Health Monitoring aerial survey codes (Appendix E) from a feature class and creates a file that is formatted with the correct input for the dropdown list in the analysis tool and for the dictionary in the actual tool script.