

HARVEST Lite Help

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INTRODUCTION

HARVEST Lite is a simplified version of HARVEST designed for use as an educational tool.

HARVEST was designed to simulate the even-aged timber harvest techniques that generate a new stand of trees that are all the same age (e.g., clearcutting, shelterwood, seed tree techniques). The model was built based on knowledge of the past dispersion of timber harvests on the Hoosier National Forest (Indiana, USA), and has been shown to generate patterns similar to those produced by timber management. For educational use, the model was simplified to minimize the input data required, and to allow you to experiment with the most interesting and important parameters, without causing confusion by too much complexity. The model allows you to change the size of timber harvest openings, the total area harvested, and the spatial distribution of harvested areas (whether harvests will be clumped or dispersed).

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HOW TO USE HARVEST Lite

MODEL

This menu item contains the controls for the simulation part of HARVEST Lite.

---Choose base map -----

This command allows you to select a stand age map file on which HARVEST Lite can operate. A standard Windows File Selection dialog box will open, allowing you to choose the file you wish to use. The input files must be in ERDAS v. 7.4, 8-bit format, and will typically have a .gis extension. This map must contain values representing the age (in decades) of the forest on each cell. When you select a base

map, it will be displayed on the screen. A text window will also appear. This window will allow HARVEST Lite to communicate results and progress to you. The information appearing in this window is also recorded in a log file that you may save for future reference.

---Execute -----

This option will cause HARVEST Lite to conduct a simulation of harvesting on the currently loaded input map. When you press the OK button, HARVEST Lite will conduct the simulation. When the simulation is completed, the new, modified forest age map will be displayed, reflecting the harvests simulated by HARVEST Lite.

You will be prompted for 3 items of information:

1. Mean harvest size - Enter the average size of harvests to be placed on the landscape (forest age map). HARVEST Lite will generate random sizes around this mean, with a standard deviation of 10% of the mean size you specify.

2. Percent of forest area to cut - Enter a percentage between 0.1 and 100%. HARVEST Lite will scan the input age map to determine how much of it is forested (non-zero values). HARVEST Lite will attempt to harvest the percentage of the forested cells each decade you specify. It may actually cut more or less, usually within an amount less than half of the mean size you specified. HARVEST Lite may also not find enough cells that are old enough to fully allocate your request in every decade. (This version requires forest to be at least 80 years old to be cut.) The number of cells actually cut each decade are recorded in the log file.

3. Dispersion method - HARVEST Lite will choose locations for harvests using one of 2 algorithms. The dispersed method randomly selects locations for each harvest independently of all other locations. The clumped method randomly chooses a focal site, and then places 9 harvests randomly in the vicinity of that focal site. Under both methods, forested cells must always be older than 8 decades to be cut.

---Exit -----

This option will cause HARVEST Lite to terminate. You will be prompted to save files, should you desire to do so.

ANALYZE

This menu item causes HARVEST Lite to conduct an analysis of the patch structure of the current forest age map, or to analyze the amount of interior and edge habitat found in the current forest age map.

---Patches (Before harvest) -----

This option is enabled only when you have not yet run a harvest simulation (before selecting 'Execute'). It will calculate a number of measures of landscape structure including the age distribution, the length of linear edge between patches of different ages (known as forest stands), the average size of stands of similar age, and the distribution of patch sizes by age class. This information is recorded in the running log.

---Patches (After harvest) -----

This option is enabled only after you have simulated harvest (after selecting 'Execute'). The same measures are calculated as described above, and are also recorded in the running log.

---Interior (Before harvest) -----

This option is enabled only when you have not yet run a harvest simulation (before selecting 'Execute'). It will calculate the amount of interior and edge habitat.

You will be prompted to enter an edge-buffer width. This is the distance (in meters) that edge effects extend into the forest (maximum value of 1200 m). HARVEST will convert the number you enter to the nearest # of pixels, because the actual value used must be a multiple of the pixel width. This information is recorded in the running log.

You will also be prompted to enter the number of decades that harvested openings Persist (Opening persistence time). When analyzing forest interior and edge, any stand less than or equal to this age will be considered a forest opening. Stands older than this value are assumed to have returned to a closed canopy condition.

---Interior (After harvest) -----

This option is enabled only after you have simulated harvest (after selecting 'Execute'). The same measures are calculated as described above.

SAVE

This menu item allows you to save the results of your analyses.

---Age map -----

You may save the simulated age map after a simulation run. The map will be saved in ERDAS 7.4 format, and can be used as input to other HARVEST Lite runs, or loaded into many common GIS systems. Note that once you load a new base map, all previous maps are cleared from memory, so remember to save maps prior to loading another base map.

---Interior map -----

You may also save the current interior map at any time. This map is also saved in ERDAS 7.4 format. The map you see on the screen is the map that will be saved. Once you conduct a new analysis of interior (or load a new base map), any prior interior maps are cleared from memory and cannot be saved later.

---Log file -----

This option saves the contents of the 'Progress and Results' window to a text file. You may save this log information at any time, but please note that the window is cleared by saving. The window is also cleared when you load (or re-load) a base map.

HELP

The help menu provides access to the file you are now reading. You may also determine the version of HARVEST Lite you are using by selecting 'About.'

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COMMON PROBLEMS AND HOW TO FIX THEM

Problem: HARVEST Lite warns me that there are not enough colors available.

Fix: Go to the Windows Control Panel and select 'Display'. Set colors to 'High color (16-bit)'. You may need to re-start your computer for this change to take effect.

Problem: The fonts in the 'Progress and Results' window are so large that some of the output is outside the window.

Fix: Enlarge the window by dragging the lower-right corner. If the text will still not fit, go to the Windows Control Panel and select 'Display.' Set the 'font size' to 'Small.' If it is already 'Small,' you will need to rely on output saved to the log file to see all the values.

Problem: After the screen saver has been on, or after the program is minimized, some of the maps have disappeared. How can I get them back?

Fix: This is a bug being worked on. The program is not properly notified (by Windows) that windows have been exposed and need to be re-painted. If you move another window over the blank window, and then away, the program will be properly notified that the window has been exposed, and the window will

be repainted. Sometimes clicking first on the 'Progress' window and then the blank window, will be enough to get the blank window back.

Problem: The fonts on the map legends are too small to read.

Fix: When you first open HARVEST, maximize the main window then load your maps. The maps will be drawn larger, and this will result in larger legend fonts.

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HOW TO FIND INFORMATION ON THE WEB ABOUT HARVEST AND ITS APPLICATION

Visit the Web site of the Landscape Ecology Research Work Unit of the USDA Forest Service North Central Research Station at <http://www.ncrs.fs.fed.us/4153/> . There you will find links to research products (including publications that describe research using HARVEST) and analysis tools, including the full HARVEST model.

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