

## Overview

The WEPP online GIS interface uses the OpenLayers (<http://openlayers.org/>) software to assist in setting up WEPP watershed simulations. The TOPAZ model (<http://ars.usda.gov/Main/docs.htm?docid=21167>) is used to determine the channel network, delineate the watershed and determine the flowpaths within the watershed. To translate the GIS data into WEPP inputs, custom software is used. The model outputs show soil loss and runoff from watershed.

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### 1. Select your area of interest

The first step is to zoom to an area of interest. There are several ways to navigate:

- Type in a zip code or the nearest city and state to where your watershed is located.
- Draw an area by holding down the SHIFT key and dragging the mouse with the left button held down .
- Use the zoom level bar on the left to zoom in/out from the current location, or the arrows at the top left to pan. Holding the left mouse button down can also be used to pan.

**WEPP Watershed Online GIS Interface** January 2011

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**Mapping** **Help**

Double-click to zoom in, and drag to pan. Hold down the shift key and drag to zoom to a particular region.  
 Zoom to Zip Code or City,State:   → Example: Pullman,WA

Enter the nearest town to the watershed. Click the 'Go' button or press enter.

Start Over with New Area

Show Legend  
 Minimum Source Channel Length(m):   
 Critical Source Area (ha):

POWERED BY Google  
 Map data ©2011 - Terms of Use

2682712.02694, 3727680.99489

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The layers available on the map can be seen by clicking the **+** sign towards the upper right of the map to display the layer switcher. The Google Physical, Streets, Hybrid, or Satellite images can be used as a base layer. GIS layers that can be used as overlays include USGS 2001 land use, topographic maps, SSURGO soils, or impervious areas from USGS. In the image below the PRISM gridded precipitation data is shown. The NRCS SSURGO soils data is very detailed and is only shown when zoomed in at one of the higher zoom levels.

To proceed to the next step, you need to zoom in to an area less than 0.2 degrees from east to west. In the central U.S., this is about 12 miles. If the zoom bar on the left is at the first, second or third bar from the top this would be a small enough area.

Physical: zoom level 3

Street, satellite, hybrid: zoom level 7

**WEPP Watershed Online GIS Interface** January 2011

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**Mapping**   **Help**

Double-click to zoom in, and drag to pan. Hold down the shift key and drag to zoom to a particular region.  
 Zoom to Zip Code or City, State:  Go Example: Pullman, WA

**PRISM Precipitation**

- Precipitation 0 to 4 (in)
- Precipitation 4 to 8 (in)
- Precipitation 8 to 12 (in)
- Precipitation 12 to 16 (in)
- Precipitation 16 to 20 (in)
- Precipitation 20 to 24 (in)
- Precipitation 24 to 28 (in)
- Precipitation 28 to 32 (in)
- Precipitation 32 to 36 (in)
- Precipitation 36 to 40 (in)
- Precipitation 40 to 44 (in)
- Precipitation 44 to 48 (in)
- Precipitation 48 to 52 (in)
- Precipitation 52 to 56 (in)
- Precipitation 56 to 60 (in)
- Precipitation 60 to 64 (in)
- Precipitation 64 to 68 (in)
- Precipitation 68 to 72 (in)
- Precipitation 72 to 82 (in)
- Precipitation 82 to 100 (in)
- Precipitation > 100 (in)

Show Legend  
 Minimum Source Channel Length(m):   
 Critical Source Area (ha):

Click the layer manager in the upper right of the map to switch the underlying images and overlays.

The Show Legend checkbox will turn off (or on) the last overlay layer selected.

These settings are used to control how the channel network is generated. A channel network can only be generated when zoomed in.

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## 2. Build the Channel Network

After zooming to the area of interest click the **Build Channel Network** button. This will run the TOPAZ software, using elevation values from the National Elevation Data layer (USGS, 200x) . Two parameters define the amount of detail in the channel network:

- **Minimum Source Channel Length**– the shortest channel length that can support other channels. Increasing the value will generate fewer channels in the watershed. (meters) ( The minimum length for source channels (channels without tributaries).)
- **Critical Source Area** -the minimum upstream drainage area at which a channel is initiated. Increasing the value will cause fewer channels to be delineated.

Unless you have a basis for selecting these, a good strategy is to use the default setting to define an initial channel network. If the resulting channel network does not match the topography, or creates too many or too few subcatchments in step 4, adjust these parameters and rebuild the channel network.

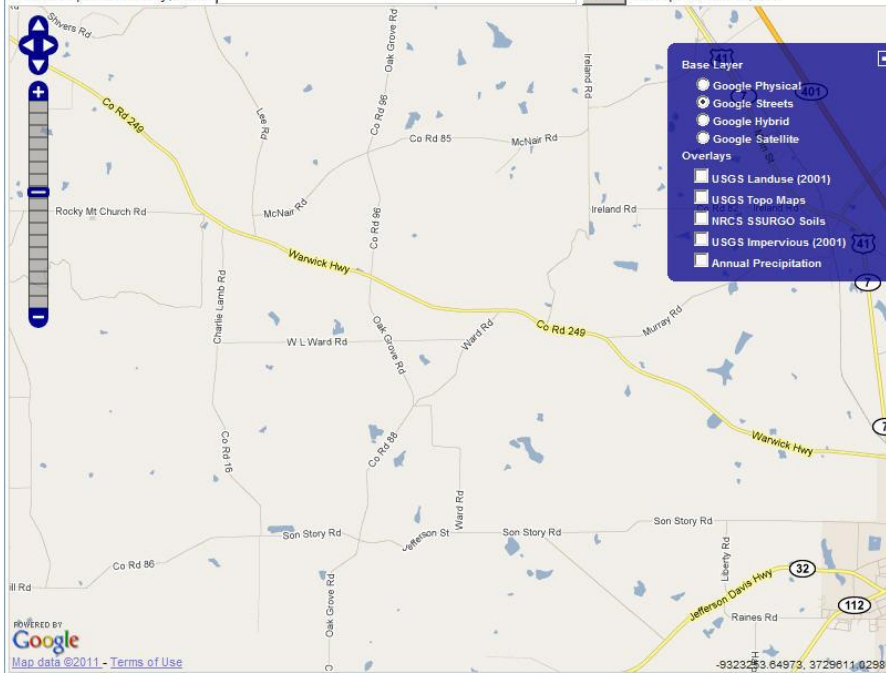


Mapping Help

Double-click to zoom in, and drag to pan. Hold down the shift key and drag to zoom to a particular region.

Zoom to Zip Code or City, State:

Go Example: Pullman, WA



Start Over with New Area

Show Legend

Minimum Source Channel Length(m): 60

Critical Source Area (ha): 3

Build Channel Network

After zooming into the general watershed area position the outlet towards the center of the window and click the 'Build Channel Network' button.

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When the TOPAZ model is running to define the channels information will be sent to browser. When the simulation is complete click on the **View Channel Network** button.

**Running TOPAZ to determine channel network...**

```

/home/wepp/wepp/pretopaz /home/wepp/eb61f7e73b98eaa11cbf49992cbd7b8d3603311700Starting pretopaz Opening utmSlice.asc Opening dnmcnt.txt Opening DNMCNT.INP DNMCNT.INP opened ok
***** BEGINNING PROGRAM DEDNM. ***** BEGINNING INITIALIZATION AND INPUT OF CONTROL DATA FROM FILE DNMCNT.INP. TOPAZ SOFTWARE : TOPAZ
PARAMETERIZATION SOFTWARE SYSTEM VERSION 3.12, AUGUST 1999 PROGRAM DEDNM : DIGITAL ELEVATION DRAINAGE NETWORK MODEL PROGRAM VERSION 3.10, APRIL 1999
J. GARBRECHT, USDA-ARS, EL RENO, OKLAHOMA, USA. L. MARTZ, UNIVERSITY OF SASKATCHEWAN, SASKATOON, CANADA. DISCLAIMER THIS PROGRAM AND ITS SUBROUTINES
ARE ACCEPTED AND USED BY THE RECIPIENT UPON THE EXPRESS UNDERSTANDING THAT THE DEVELOPERS MAKE NO WARRANTIES, EXPRESSED OR IMPLIED, CONCERNING THE
ACCURACY, COMPLETENESS, RELIABILITY OR SUITABILITY FOR ANY ONE PURPOSE, AND THAT THE DEVELOPERS SHALL BE UNDER NO LIABILITY TO ANY PERSON BY REASON
OF ANY USE MADE THEREOF. TITLE OF THE CURRENT TOPAZ APPLICATION. DATE: 23 AUGUST 1999 WEPP WEB INTERFACE DEDNM VERSION 3.1 APPLICATION FOR TESTING AND
VERIFICATION WEPP WEB GIS; INPUT FILE TESTING AND CALIBRATION. ***** BEGINNING DEM INPUT AND DEM PRE-PROCESSING. ***** BEGINNING DEPRESSION AND FLAT
AREA TREATMENT. ***** BEGINNING FLOW VECTOR, FLOW PATH AND DRAINAGE AREA COMPUTATIONS. ***** BEGINNING CHANNEL NETWORK DEFINITION.

***** BEGINNING PROGRAM RASFOR. TOPAZ SOFTWARE: TOPAZ PARAMETERIZATION SOFTWARE SYSTEM VERSION 3.12, AUGUST 1999 PROGRAM RASFOR: RASTER
REFORMATTING PROGRAM VERSION 3.11, AUGUST 1999 J. GARBRECHT, USDA-ARS, EL RENO, OKLAHOMA, USA. L. MARTZ, UNIVERSITY OF SASKATCHEWAN, SASKATOON,
CANADA. J. CAMPBELL, USDA-ARS, EL RENO, OKLAHOMA, USA. DISCLAIMER THIS PROGRAM AND ITS SUBROUTINES ARE ACCEPTED AND USED BY THE RECIPIENT UPON THE
EXPRESS UNDERSTANDING THAT THE DEVELOPERS MAKE NO WARRANTIES, EXPRESSED OR IMPLIED, CONCERNING THE ACCURACY, COMPLETENESS, RELIABILITY OR
SUITABILITY FOR ANY ONE PURPOSE, AND THAT THE DEVELOPERS SHALL BE UNDER NO LIABILITY TO ANY PERSON BY REASON OF ANY USE MADE THEREOF. *** PROCESSING
FILE: FLOVEC.OUT *** PROCESSING FILE: FLOPAT.OUT *** PROCESSING FILE: NETFUL.OUT - THE OPTION FOR 'DEM ELEVATION PRE-PROCESSING AND FULL NETWORK
GENERATION' WAS SELECTED. ONLY DEM ELEVATION, FLOW VECTOR, FLOW PATH, UPSTREAM AREA AND FULL NETWORK RASTER FILES ARE AVAILABLE FOR REFORMATTING.
*** WRITING OUTPUT CONTROL FILE; SBRT IOCNT. ***** ENDING PROGRAM RASFOR.
    
```

Input file size is 441, 334 0...10...20...30...40...50...60...70...80...90...100 - done.

**Done with TOPAZ channel delineation**

View Channel Network

The next screen will run the TOPAZ model on the 30 meter DEM for the watershed area. When TOPAZ run is complete click the 'View' button.

### 3. Set the watershed outlet point

In this step, you have the opportunity to select the outlet of the watershed you are modeling. This point should lie on one of the channels that were delineated. Select **Set Outlet Point** then click on a channel cell.

The screenshot displays the WEPP Watershed Online GIS Interface. At the top, it says "WEPP Watershed Online GIS Interface" and "January 2011". Below this is a navigation bar with "Mapping" and "Help" tabs. A search bar prompts the user to "Zoom to Zip Code or City, State:" with a "Go" button and an example "Pullman, WA". The main area is a map showing a complex network of blue channels and yellow roads. A red arrow points to a specific channel cell. To the right of the map is a control panel with several buttons and text instructions:

- Start Over with New Area** button
- Show Legend**
- Minimum Source Channel Length(m): 60
- Critical Source Area (ha): 3
- Build Channel Network** button
- Text: "To select the outlet point for your watershed click on the **Set Outlet Point** button and then click on a channel location on the map."
- Set Outlet Point** button
- Text: "To determine the watershed area that drains to the outlet point click on the **Build Subcatchments** button."
- Build Subcatchments** button
- Text: "Review the watershed soils, landuse, channels."
- Review Watershed Summary** button
- Text: "Once the channel network and watershed are correct click on the **Setup WEPP Model** button to proceed with setting up a WEPP simulation for the watershed."
- Setup WEPP Model** button

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### 4. Build Subcatchments

After setting the watershed outlet point on a channel the **Build Subcatchments** button is available. This delineates the watershed draining into the selected outlet. It also divides the watershed into a number of subcatchments, determined by the channel network that was built in Step 2.

As the TOPAZ model is running to determine the watershed boundary, subcatchment and flowpath information will be sent to the browser. In addition, the online SSURGO database is queried to determine the different soils in the watershed.



**WEPP Watershed Online GIS Interface** January 2011

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**Mapping Help**

Double-click to zoom in, and drag to pan. Hold down the shift key and drag to zoom to a particular region.  
 Zoom to Zip Code or City, State:   Example: Pullman, WA

[Start Over with New Area](#)

Show Legend

Minimum Source Channel Length(m):

Critical Source Area (ha):

To select the outlet point for your watershed click on the **Set Outlet Point** button and then click on a channel location on the map.

To determine the watershed area that drains to the outlet point click on the **Build Subcatchments** button

Review the watershed soils, landuse, channels.

Once the channel network and watershed are correct click on the **Setup WEPP Model** button to proceed with setting up a WEPP simulation for the watershed.

**Click the 'Set Outlet Point' button and click on the channel location where the watershed outlet is located.**

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When the processing is complete click on the **View Watershed Subcatchments** button to return to the map window

```

-----
Input file size is 441,334 0...10...20...30...40...50...60...70...80...90...100 - done.
gdal_translate -of AAIGrid -a_nodata -9999 /home/wepp/eb61f7e73b98ea11cbf49992cbd7b8d/soils/soilgrid4.tif /home/wepp/eb61f7e73b98ea11cbf49992cbd7b8d/soils/soilgrid4.asc
-----

gdalinfo -noct -nogcp -nomd /home/wepp/eb61f7e73b98ea11cbf49992cbd7b8d/utmSlice.asc > /home/wepp/eb61f7e73b98ea11cbf49992cbd7b8d/deminfo.txt
Computed Extent: 234542.662 3519342.752 247772.662 3509322.752
0...10...20...30...40...50...60...70...80...90...100 - done.
/usr/local/bin/gdal_merge.py -init -9999 -o /home/wepp/eb61f7e73b98ea11cbf49992cbd7b8d/landuse/utmSliceNLCD2.tif -ul_lr 234542.662 3519342.752 247772.662 3509322.752 /home/wepp/eb61f7e73b98ea11cbf49992cbd7b8d/utmSliceNLCD.tif
-----

Input file size is 441,334 for band 1, nodata value has been clamped to 0, the original value being out of range. 0...10...20...30...40...50...60...70...80...90...100 - done.
gdal_translate -of AAIGrid -a_nodata -9999 /home/wepp/eb61f7e73b98ea11cbf49992cbd7b8d/landuse/utmSliceNLCD2.tif /home/wepp/eb61f7e73b98ea11cbf49992cbd7b8d/landuse/utmSliceNLCD2.asc
-----

/home/wepp/wepp/maskgrid /home/wepp/eb61f7e73b98ea11cbf49992cbd7b8d/landuse/utmSliceNLCD2.asc /home/wepp/eb61f7e73b98ea11cbf49992cbd7b8d/BOUND.ARC /home/wepp/eb61f7e73b98ea11cbf49992cbd7b8d/landuse/landuse3.asc
Unique: 11
/home/wepp/wepp/getids /home/wepp/eb61f7e73b98ea11cbf49992cbd7b8d/landuse/landuse3.asc /home/wepp/eb61f7e73b98ea11cbf49992cbd7b8d/landuse/landuseids.txt
Unique: 32
/home/wepp/wepp/getids /home/wepp/eb61f7e73b98ea11cbf49992cbd7b8d/SUBWTA.ARC /home/wepp/eb61f7e73b98ea11cbf49992cbd7b8d/landuse/hillslopeids.txt
0...10...20...30...40...50...60...70...80...90...100 - done.
/usr/local/bin/gdal_merge.py -init -9999 -o /home/wepp/eb61f7e73b98ea11cbf49992cbd7b8d/landuse/landuse4.tif -ul_lr 234542.662 3519342.752 247772.662 3509322.752 /home/wepp/eb61f7e73b98ea11cbf49992cbd7b8d/landuse/landuse3.asc
-----

Input file size is 441,334 0...10...20...30...40...50...60...70...80...90...100 - done.
gdal_translate -of AAIGrid -a_nodata -9999 /home/wepp/eb61f7e73b98ea11cbf49992cbd7b8d/landuse/landuse4.tif /home/wepp/eb61f7e73b98ea11cbf49992cbd7b8d/landuse/landuse4.asc
-----
  
```

**Done with TOPAZ watershed delineation**

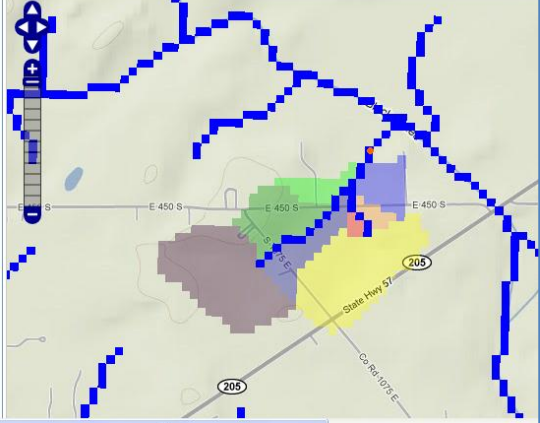
**After the 'Build Subcatchments' button is clicked the TOPAZ model will delineate the watershed from the outlet point. When**

After the watershed has been defined the outlet and subcatchment layers will be shown in the map window. Each different colored subcatchment will be used as WEPP hillslope in a watershed simulation.

In addition, all the flowpaths within the watershed will be simulated with WEPP to estimate spatial soil loss.

Mapping Help

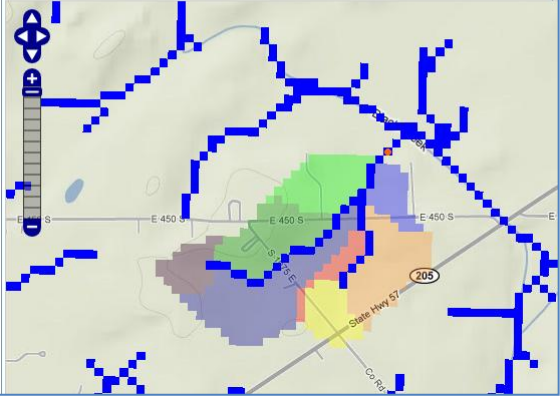
Double-click to zoom in, and drag to pan. Hold down the shift key and drag to zoom to Zip Code or City,State:



Critical source area = 10 ha

Mapping Help

Double-click to zoom in, and drag to pan. Hold down the shift key and drag to zoom to Zip Code or City,State:

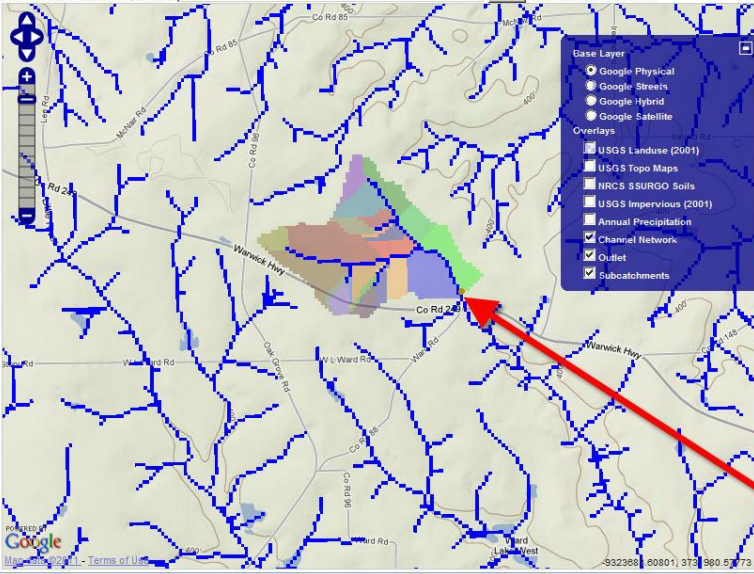


Critical source area = 3 ha

**WEPP Watershed Online GIS Interface** January 2011

Mapping Help

Double-click to zoom in, and drag to pan. Hold down the shift key and drag to zoom to a particular region.  
Zoom to Zip Code or City,State:  Go



**Base Layer**

- Google Physical
- Google Streets
- Google Hybrid
- Google Satellite

**Overlays**

- USGS Landuse (2001)
- USGS Topo Maps
- NRC S SURGO Soils
- USGS Impervious (2001)
- Annual Precipitation
- Channel Network
- Outlet
- Subcatchments

[Start Over with New Area](#)

Show Legend

Minimum Source Channel Length(m):

Critical Source Area (ha):

To select the outlet point for your watershed click on the **Set Outlet Point** button and then click on a channel location on the map.

To determine the watershed area that drains to the outlet point click on the **Build Subcatchments** button.

Review the watershed soils, landuse, channels.

Once the channel network and watershed are correct click on the **Setup WEPP Model** button to proceed with setting up a WEPP simulation for the watershed.

The map now shows the watershed boundary. Each subcatchment is shown in a different color.

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## 5. Review and edit watershed, channel, representative hillslope, land use, and soil properties

After building the subcatchments click on the **Review Watershed Summary** button. The button is only available after the subcatchments have been defined.

**WEPP Watershed Online GIS Interface** January 2011

Mapping Help

Double-click to zoom in, and drag to pan. Hold down the shift key and drag to zoom to a particular region.

Zoom to Zip Code or City, State:  Go Example: Pullman, WA

**Base Layer**

- Google Physical
- Google Streets
- Google Hybrid
- Google Satellite

**Overlays**

- USGS Landuse (2001)
- USGS Topo Maps
- NRCS SSURGO Soils
- USGS Impervious (2001)
- Annual Precipitation
- Channel Network
- Outlet
- Subcatchments

**Start Over with New Area**

Show Legend

Minimum Source Channel Length(m):

Critical Source Area (ha):

**Build Channel Network**

To select the outlet point for your watershed click on the **Set Outlet Point** button and then click on a channel location on the map.

**Set Outlet Point**

To determine the watershed area that drains to the outlet point click on the **Build Subcatchments** button.

**Build Subcatchments**

Review the watershed soils, landuse, channels.

**Review Watershed Summary**

Once the channel network and watershed are correct click on the **Setup WEPP Model** button to proceed with setting up a WEPP simulation for the watershed.

**Setup WEPP Model**

**Next, click the 'Review Watershed Summary' button. This will display in a new tab in your browser.**

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The first section of the page gives some general information about the watershed. The next section lists the channels defined within the watershed. Impoundments may be added to the ends of channels.

**WEPP Watershed  
Online GIS Interface**
January 2011

No Data Value: 0

**Watershed Summary**

Working Directory:	/home/wepp/eb61f7e73b98aaa11cbf49992cbd7b8d
Area (ha):	135.72 (cells: 1508)
Number of Representative Hillslopes:	23
Number of Channels:	9
Number of Impoundments:	0
Outlet Location:	-83.72474669244686 31.739992957912325
Reference Point:	0
Minimum Source Channel Length (m):	60
Critical Source Area (ha):	3

**Channel Summary**

ID	Order	Name	Length(m)	Width(m)	Upstream Drainage Area(ha)	Impoundment
104	1	OnRock	507	1.0	5.22	None
94	1	OnRock	217.2	1.0	3.69	None
74	1	OnRock	632.1	1.0	4.14	None
64	1	OnRock	174.9	1.0	3.78	None
44	1	OnRock	259.8	1.0	3.78	None
84	2	OnRock	297	2.0	30.33	None
54	2	OnRock	312.3	2.0	39.78	None
34	2	OnRock	337.2	2.0	57.96	None
24	3	OnGravel	639.3	2.0	108.63	None

**Representative Hillslope Summary**

The first section of the Watershed Summary screen lists the basic inputs for the channel delineation and the outlet point selected.

The channel listing shows the channel sizes in the watershed. These sizes are determined from the channel database.

The next section shows the representative hillslopes. Each WEPP representative hillslope is the area defined by a subcatchment within TOPAZ. Within each representative hillslope there are many flowpaths. Each of the flowpaths slope data are combined to arrive at a single representative hillslope profile that is used in WEPP watershed runs.

The major soils and landuses are determined by looking at the landuse grid and SSURGO soil grid over the subcatchment area. When a WEPP watershed simulation is run the dominate landuse and soil on each representative hillslope is used.

**Representative Hillslope Summary**

These are the representative hillslopes (subcatchments) defined by the TOPAZ model.

ID	Major Landuse	Major Soil	Number of Cells	Area(ha)	Percentage of Watershed
101	Evergreen Forest	Tifton loamy sand, 2 to 5 percent slopes	58	5.22	3.8
103	Cultivated Crops	Kinston and Osier soils	80	7.2	5.3
102	Evergreen Forest	Tifton loamy sand, 2 to 5 percent slopes	93	8.37	6.2
83	Cultivated Crops	Dothan loamy sand, 2 to 5 percent slopes	65	5.85	4.3
93	Evergreen Forest	Dothan loamy sand, 2 to 5 percent slopes	31	2.79	2.1
91	Cultivated Crops	Tifton loamy sand, 2 to 5 percent slopes	41	3.69	2.7
73	Cultivated Crops	Tifton loamy sand, 2 to 5 percent slopes	155	13.95	10.3
53	Evergreen Forest	Tifton loamy sand, 2 to 5 percent slopes	63	5.67	4.2
71	Cultivated Crops	Tifton loamy sand, 2 to 5 percent slopes	46	4.14	3.1
92	Cultivated Crops	Dothan loamy sand, 2 to 5 percent slopes	11	0.99	0.7
82	Evergreen Forest	Dothan loamy sand, 2 to 5 percent slopes	28	2.52	1.9
23	Cultivated Crops	Dothan loamy sand, 2 to 5 percent slopes	128	11.52	8.5
33	Evergreen Forest	Leefield loamy sand	50	4.5	3.3
72	Cultivated Crops	Tifton loamy sand, 2 to 5 percent slopes	140	12.6	9.3
22	Cultivated Crops	Tifton loamy sand, 2 to 5 percent slopes	157	14.13	10.4
32	Cultivated Crops	Tifton loamy sand, 2 to 5 percent slopes	70	6.3	4.6
52	Mixed Forest	Tifton loamy sand, 2 to 5 percent slopes	49	4.41	3.2
42	Cultivated Crops	Tifton loamy sand, 2 to 5 percent slopes	27	2.43	1.8
63	Cultivated Crops	Tifton loamy sand, 2 to 5 percent slopes	14	1.26	0.9
62	Cultivated Crops	Tifton loamy sand, 2 to 5 percent slopes	8	0.72	0.5
43	Cultivated Crops	Tifton loamy sand, 2 to 5 percent slopes	14	1.26	0.9
61	Cultivated Crops	Tifton loamy sand, 2 to 5 percent slopes	42	3.78	2.8
41	Cultivated Crops	Tifton loamy sand, 2 to 5 percent slopes	42	3.78	2.8

The representative hillslope summary lists each subcatchment along with the dominate landuse and soil.

The landuse and soils summary that follow show all the landuse classes present and soil types. This information is used in detailed WEPP flowpath simulations.

**Landuse Summary**

The watershed contains the following landuse as determined by the USGS National Land Cover Database 2001 - <http://www.nrlc.gov/nlcd.php>

ID	Name	WEPP File	Number of Cells	Area(ha)	Percentage of Watershed
11	Open Water	Bare.rot	9	0.81	0.6
21	Developed, Open Space	Good grass.rot	18	1.62	1.2
22	Developed, Low Intensity	Poor grass.rot	7	0.63	0.5
41	Deciduous Forest	Mature forest.rot	57	5.13	3.8
42	Evergreen Forest	Mature forest.rot	290	26.1	19.6
43	Mixed Forest	Mature forest.rot	115	10.35	7.8
71	Grasslands/Herbaceous	Good grass.rot	79	7.11	5.3
81	Pasture/Hay	Good grass.rot	45	4.05	3.0
82	Cultivated Crops	corn,soybean-fall mulch till.rot	761	68.49	51.4
90	Woody Wetlands	Good grass.rot	100	9	6.8

The land use and soil summaries show the different classes and the WEPP inputs that are used. The soil data is derived from SSURGO data and the land use from the USGS 2001 Landcover Map.

**Soils Summary**

The watershed contains the following soils as determined by the NRCS Soil Survey. The data is requested directly from the NRCS soils database. Information on the NRCS Soils Data structure and how it can be accessed are found at: <http://sdmdataaccess.nrcs.usda.gov/>

MuKey	Soil Name	Number of Cells	Area(ha)	Percentage of Watershed
325576	Alapaha loamy sand	145	13.05	9.8%
325587	Dothan loamy sand, 2 to 5 percent slopes	221	19.89	14.9%
325596	Kinston and Osier soils	128	11.52	8.6%
325599	Leefield loamy sand	72	6.48	4.9%
325611	Stilson loamy sand	102	9.18	6.9%
325617	Tifton loamy sand, 2 to 5 percent slopes	813	73.17	54.9%

The last section of the watershed review summary lists the WEPP soil files that were generated from the SSURGO data.

### WEPP Soil Files

The following are the soils that will be used in the watershed simulation. The initial saturation value is set to 75% (0.75). The values for parameters interrill erodibility, rill erodibility, critical shear and effective hydraulic conductivity are computed (need equation link).

#### Soil File: 325617.sol

Soil Name: Tifton loamy sand, 2 to 5 percent slopes(Tifton)

Texture: LS

Albedo: 0.3

Initial Saturation: 0.75

Interrill Erodibility: 5897650

Rill Erodibility: 0.016638

Critical Shear: 2.0705

Effective Hydraulic Conductivity: 0

The last section of the watershed summary lists the SSURGO soils used and WEPP specific parameters that are used for the soils.

Layer	Depth(mm)	Sand %	Clay %	Organic %	CEC	Rock %
1	250	85.3	5.5	0.75	0	7
2	380	67.2	17.5	0.75	0	6
3	970	55.1	27.5	0.25	0	7
4	1650	53.5	32.5	0.25	0	6

#### Soil File: 325587.sol

Soil Name: Dothan loamy sand, 2 to 5 percent slopes(Dothan)

Texture: LS

Albedo: 0.3

Initial Saturation: 0.75

Interrill Erodibility: 5129250

Rill Erodibility: 0.030106

Critical Shear: 2.595

Effective Hydraulic Conductivity: 0

Layer	Depth(mm)	Sand %	Clay %	Organic %	CEC	Rock %
1	360	85.7	10	0.25	0	2
2	1070	55.8	26.5	0.25	0	2
3	1520	53.9	29	0.25	0	2

After reviewing the watershed for the first time there are some links available to make changes. These include:

**Change Properties of Hillslopes** – For a representative hillslope override the default settings and select a new dominant land use or soil. The hillslope to change is selected by clicking the area on the map.

**Change Properties of Channel** – Select a different channel parameter set or change the width. The channel is selected by clicking the area on the map.

Type: Choices are ditch, Graded, Ungraded, Waterway, Earth Channel, Gravel Channel, Ditch in forest, Forest road ditch, Waterway through channel

**Add/Change Impoundment at end of channel** – WEPP watershed impoundments can be placed in the watershed only at the ends of channels. These structures will be used in the WEPP watershed simulation but not in the flowpath runs.



## WEPP Watershed Online GIS Interface

### Change Impoundment at End of Channel

The location clicked was: 31.741657351504088;-83.72560162412883 this represents channel [24] in the watershed.

-83.724915 31.740343 Nearest station: TIFTON 2 N GA 21.9 miles (GA098703)

New Impoundment:

- default
- drop spillway with rect riser and barrel
- drop spillway with rect riser and circ barrel
- emergency spillway
- filter fence**
- perforated riser
- rock fill dam
- straw bales
- straw bales - no stage discharge
- Culvert for forest road-2' diameter
- Sediment basin-small

[Statements and Disc](#) [Information](#)

When the impoundment is added it will be indicated in the Review Watershed window:

Channel Summary						
ID	Order	Name	Length (m)	Width (m)	Upstream Drainage Area (ha)	Impoundment
124	1	OnEarth (Earth Channel)	404.7	1.0	8.46	---
114	1	OnEarth (Earth Channel)	132.3	1.0	4.77	---
94	1	OnEarth (Earth Channel)	632.1	1.0	3.96	---
44	1	OnEarth (Earth Channel)	84.9	1.0	4.86	---
84	1	OnEarth (Earth Channel)	144.9	1.0	4.23	---
64	1	OnEarth (Earth Channel)	217.2	1.0	4.14	---
104	2	OnEarth (Earth Channel)	327	2.0	30.15	---
74	2	OnEarth (Earth Channel)	312.3	2.0	40.86	---
54	2	OnEarth (Earth Channel)	277.2	2.0	59.13	---
34	2	OnEarth (Earth Channel)	60	2.0	67.95	---
24	3	OnGravel (Gravel Channel)	621.9	2.0	109.8	filter fence

**Remove All Impoundments** – Removes any added impoundments.

WEPP Watershed  
Online GIS Interface September 2011

---

**Finished Removing Impoundments**

All impoundments in the watershed have been removed.

Click the Review Watershed link below to update the any files before running WEPP.

[Review Watershed](#)

## 6. Set Up WEPP Model Runs

Click on the **Setup WEPP Model** button to proceed to run WEPP with the defined watershed. Once this button is clicked the general watershed structure (size, number of channels, representative hillslopes, flowpaths) defined by TOPAZ is finalized and cannot be changed. Landuse and soils inside the watershed can still be changed between WEPP, just not the overall watershed structure.

The screenshot displays the 'WEPP Watershed Online GIS Interface' from January 2011. The interface includes a navigation menu with 'Mapping' and 'Help' options. Below the menu, there are instructions for zooming and panning, and a search bar for 'Zoom to Zip Code or City, State:' with a 'Go' button and an example 'Pullman, WA'. The main area features a map of a watershed with a blue channel network and a central watershed boundary. A red arrow points to the 'Setup WEPP Model' button, with a text box stating: 'After the watershed data has been reviewed the 'Setup WEPP Model' button can be clicked.' To the right of the map is a control panel with several buttons and input fields: 'Start Over with New Area', 'Show Legend' (checked), 'Minimum Source Channel Length(m):' (60), 'Critical Source Area (ha):' (3), 'Build Channel Network', 'Set Outlet Point', 'Build Subcatchments', 'Review Watershed Summary', 'Change properties of hillslope', 'Change properties of channel', 'Add/Change impoundment at end of channel', 'Remove all impoundments', and 'Setup WEPP Model'. The bottom of the interface contains links for 'Statements and Disclaimers', 'Privacy Policy', and 'Contact Information'.

Below the map window some fields are displayed that can be used to customize a WEPP run. The following are the fields:

Climate Station – The nearest CLIGEN station to the watershed outlet.

Default Soil – If the soil grid is not used this defines the soil that is used for the whole watershed.

Default Landuse – If the landuse grid is not used this defines the landuse that is used for the whole watershed.

Simulation Type – Can be both Watershed and Flowpaths. This will run a WEPP watershed simulation using the representative hillslopes and also run WEPP simulations for each of the flowpaths in the watershed. This may result in hundreds or thousands of WEPP runs. To get the detail cell by cell soil loss results the flowpaths simulations must be run.

Years to Simulate – How long the WEPP simulations are, 1 to 10 years. This is limited by computer processing power on the server, to do much longer runs use the desktop versions of the software.

Soil Loss Tolerance – This defines how the output soil loss maps colors will be set in. Shades of red are soil loss values greater than T while shades of green are soil loss values below T.

Climate Generator – This defines the CLIGEN program version to use when producing the synthetic climate data. Version 5.2

Adjust for PRISM – The PRISM climate data (<http://www.prism.oregonstate.edu/>) can be used to adjust the CLIGEN station data values for precipitation, minimum and maximum temperature. This is useful in areas where the CLIGEN station is quite a distance from the watershed or there is a significant elevation difference.

Land use Processing Options – Use either landuse layer or manually set landuse.

Soil Processing Options - Use either soil layer or manually set landuse.



Mapping Help

Double-click to zoom in, and drag to pan. Hold down the shift key and drag to zoom to a particular region.  
 Zoom to Zip Code or City, State:  Go Example: Pullman, WA

Start Over with New Area

Show Legend

Minimum Source Channel Length(m):

Critical Source Area (ha):

Build Channel Network

To select the outlet point for your watershed click on the **Set Outlet Point** button and then click on a channel location on the map.

Set Outlet Point

To determine the watershed area that drains to the outlet point click on the **Build Subcatchments** button.

Build Subcatchments

Review the watershed soils, landuse, channels.

Review Watershed Summary

Change properties of hillslope

Change properties of channel

Add/Change impoundment at end of channel

Remove all impoundments

Once the channel network and watershed are correct click on the **Setup WEPP Model** button to proceed with setting up a WEPP simulation for the watershed.

Setup WEPP Model

Nearest station: TIFTON 2 N GA 21.9 miles (GA098703)

Climate Station:  Default Soil:  Default Landuse:

Simulation Type:  Years to Simulate:  (10 years maximum)

Soil Loss Tolerance (T Value)  (t/ha/yr) **Run WEPP**

**Climate Processing Options**

Climate Generator:   Adjust climate (precip, tmax, tmin) using PRISM data. [View PRISM Adjustmer](#)

**Landuse Processing Options** Landcover information is based on the NLCD 2001 coverage.

**Soils Processing Options** Soils information is based on the NRCS SSURGO Soil Survey


**Annotations:**

- Red arrow pointing to the 'Run WEPP' button: Set the number of years for the simulation and the soil loss tolerance and then click the 'Run WEPP' button.
- Red arrow pointing to the 'Determine landuse by individual grid cells' dropdown: To use the grid layers for landuse and soils change the processing options.

## 7. Run WEPP and View Output

When the WEPP simulation starts a window will be displayed while the model is running indicating the simulation time. The number of years to run, size of the watershed and number of different land uses along with any freeze thaw winter processes influence how long the simulation will take to finish.

Running WEPP...



Estimated simulation time is 37 to 185 seconds.

00:01

After the WEPP run completes the following window will be displayed. Click the 'View Erosion Maps' button to return to the map window to see the results displayed on the map and also in report form.

**WEPP Runs are done. Click the button below to view the results.**

00:10

---

**Status Output from WEPP Runs**

```
Starting prepwepp version Oct 10 2012
In loadCommands
#In loadCommands#
workingDir = "/home/wepp/1a558e2b2c987fb673f7ce3ff4a62846"
Root = /home/wepp
climate = "/home/wepp/1a558e2b2c987fb673f7ce3ff4a62846/runs/wepp.cli"
management = "/home/wepp/data/managements/Shrubs.rot"
soil = "/home/wepp/1a558e2b2c987fb673f7ce3ff4a62846/runs/wepp.sol"
channel = "DITCH"
channelWidth = 3
years = 1
SoilLossGrid
SedimentGrid
Unknown command: SedimentGrid
```

Mapping Help

Double-click to zoom in, and drag to pan. Hold down the shift key and drag to zoom to a particular region.  
 Zoom to Zip Code or City,State:  Go Example: Pullman,WA

Base Layer

- Google Physical
- Google Streets
- Google Hybrid
- Google Satellite

Overlays

- USGS Landuse (2001)
- USGS Topo Maps
- NRCS SSURGO Soils
- USGS Impervious (2001)
- Annual Precipitation
- Channel Network
- Outlet
- Subcatchments
- Hill-slopes Dominate Landuses
- Hill-slopes Dominate Soils
- Flowpath Soil Loss
- Representative Hillslope Soil Loss
- Representative Hillslope Sediment Leaving
- Representative Hillslope Runoff

### Hillslope Soil Loss

- Soil Deposition > 5 t/ha/yr
- Soil Deposition 5 - 0.0001 t/ha/yr
- Soil Loss 0 - 1.25 t/ha/yr
- Soil Loss 1.25 - 2.5 t/ha/yr
- Soil Loss 2.5 - 3.75 t/ha/yr
- Soil Loss 3.75 - 5 t/ha/yr
- Soil Loss 5 - 10 t/ha/yr
- Soil Loss 10 - 15 t/ha/yr
- Soil Loss 15 - 20 t/ha/yr
- Soil Loss 20 - 1000 t/ha/yr

[Start Over with New Area](#)

Show Legend

Minimum Source Channel Length(m):

Critical Source Area (ha):

[Build Channel Network](#)

[Summary of Simulation Results](#)

[WEPP Model Text Output](#)

[Reclassify Output Maps](#)

[Review Watershed](#)

[Change properties of hillslope](#)

[Change properties of channel](#)

[Add/Change impoundment at end of channel](#)

[Remove all impoundments](#)

[Download Watershed Project](#)

[Save Watershed Project](#)

This is the flowpath output from the WEPP run. It shows the soil loss for each grid cell. The legend to the upper right indicates what the

POWERED BY Google  
 Map data © 2011 - Terms of Use

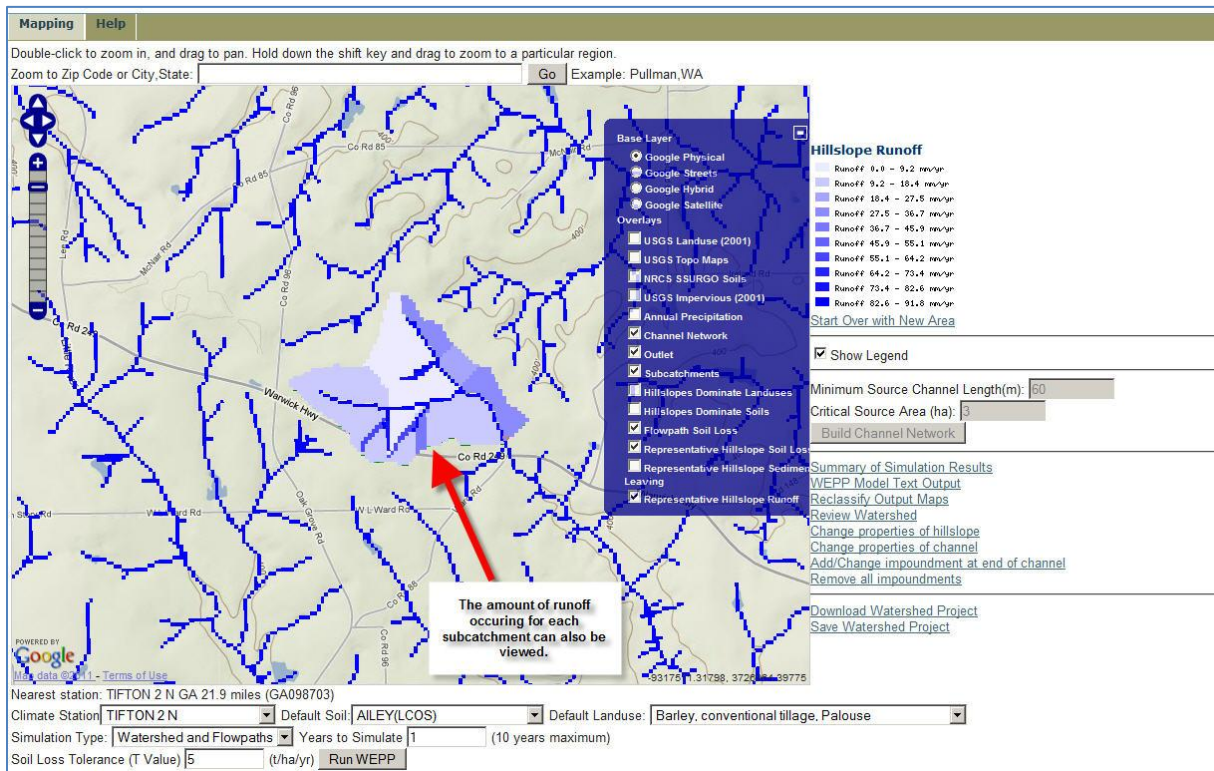
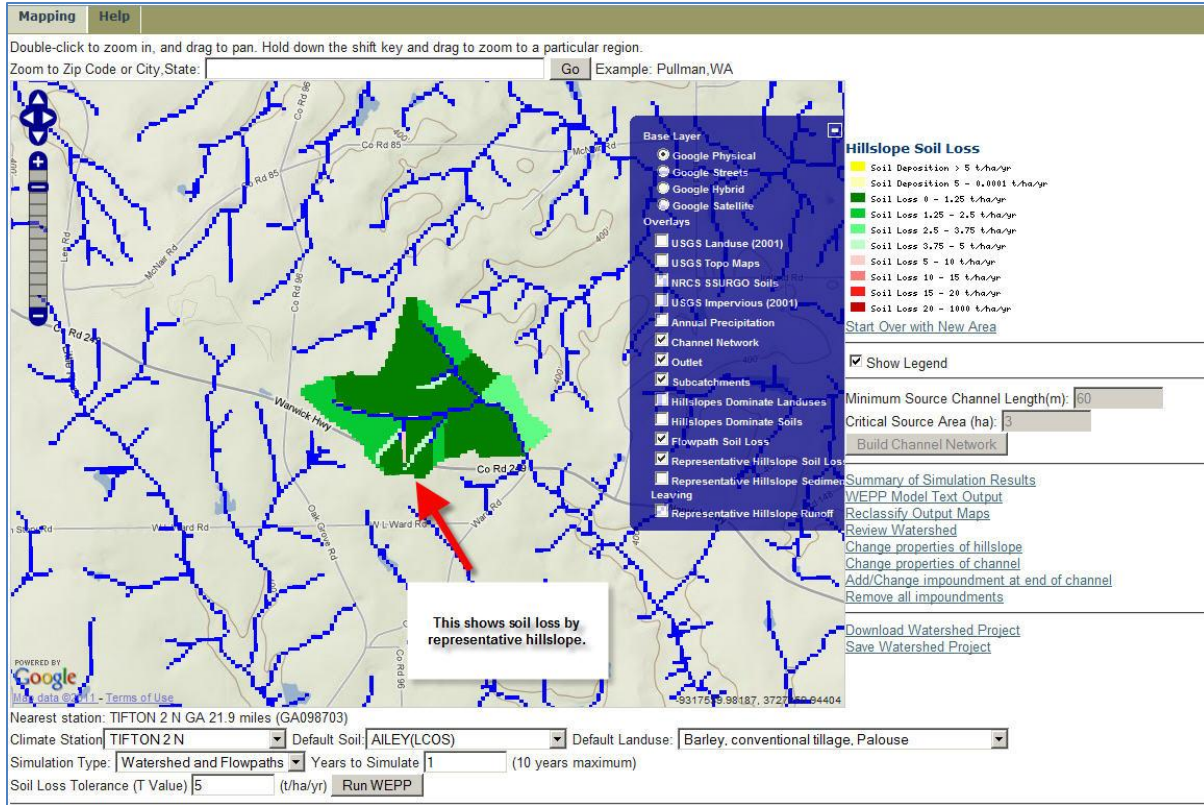
Nearest station: TIFTON 2 N GA 21.9 miles (GA098703)

Climate Station:  Default Soil:  Default Landuse:

Simulation Type:  Years to Simulate:  (10 years maximum)

Soil Loss Tolerance (T Value)  (t/ha/yr) [Run WEPP](#)





**1 YEAR AVERAGE ANNUAL VALUES FOR WATERSHED**

**WEPP Watershed Simulation for Representative Hillslopes and Channels (watershed method)**

Watershed Area(ha) = 127.6  
 Watershed Discharge Volume (m<sup>3</sup>/yr) = 20169.0  
 Watershed Sediment Yield (tonne/yr) = 51.7  
 Watershed Sediment Yield (tonne/ha/yr) = 0.4  
 Watershed Sediment Delivery Ratio = 0.386  
 Precipitation Volume in Watershed (m<sup>3</sup>/yr) = 1565106.0

Clicking the Simulations Results link will show WEPP results. The first section is from a WEPP watershed simulation, each hillslope is a subcatchment.

WATERSHED SUMMARY (watershed method, off-site assesment)									
Hillslope IDs		Landuse	Soil	Runoff Volume	Soil Loss	Sediment Yield	Area	Mapped Soil Loss	Sediment Yield
WEPP	TOPAZ	(Majority)	(Majority)	(m <sup>3</sup> /year)	(tonne/year)	(tonne/year)	(ha)	(tonne/ha/year)	(tonne/ha/year)
1	23	Cultivated Crops	Dothan loamy sand, 2 to 5 percent slopes	3511.1	31.9	31.9	11.5	2.8	2.8
2	22	Cultivated Crops	Tifton loamy sand, 2 to 5 percent slopes	2085.3	11.1	11.1	14.1	0.8	0.8
3	33	Evergreen Forest	Leefield loamy sand	0	0	0	4.5	0	0
4	32	Cultivated Crops	Tifton loamy sand, 2 to 5 percent slopes	1112.7	5.8	5.8	6.3	0.9	0.9
5	42	Cultivated Crops	Tifton loamy sand, 2 to 5 percent slopes	894.4	5.3	5.3	2.4	2.2	2.2
6	43	Cultivated Crops	Tifton loamy sand, 2 to 5 percent slopes	788.1	5.6	5.6	1.3	4.4	4.4
7	41	Cultivated Crops	Tifton loamy sand, 2 to 5 percent slopes	525.2	3.2	3.1	3.8	0.8	0.8
8	53	Evergreen Forest	Tifton loamy sand, 2 to 5 percent slopes	0	0	0	5.7	0	0
9	52	Mixed Forest	Tifton loamy sand, 2 to 5 percent slopes	0	0	0	4.4	0	0
10	63	Cultivated Crops	Tifton loamy sand, 2 to 5 percent slopes	709.4	5.7	5.7	1.3	4.5	4.5

CHANNEL SUMMARY (watershed method, off-site assesment)						
Channel ID's		Discharge Volume	Soil Loss	Sediment Yield	Length	Length
WEPP	TOPAZ	(m <sup>3</sup> /year)	(tonne/year)	(tonne/year)	(m)	(cells)
1	104	2156.7	n.a.	3	507	14
2	94	1182.4	n.a.	3.2	217.3	6
4	74	4948.6	n.a.	5.5	632.1	19
5	64	1844	n.a.	5.3	174.9	5
7	44	2256.5	n.a.	4.2	259.7	7
3	84	4628.7	n.a.	3	297	7
6	54	6782.8	n.a.	3.4	312.4	10
8	34	10148.3	n.a.	6.5	337.3	10
9	24	20169.4	n.a.	51.7		

The next section shows the channel outputs from the WEPP watershed run.

IMPOUNDMENT SUMMARY (watershed method, off-site assesment)		
Impoundment ID's	Discharge Volume	Sediment Yield
---	(m <sup>3</sup> /year)	(tonne/year)

WEPP Watershed Simulation for all flowpaths averaged over subcatchments (flowpath method)

FLOWPATH SUMMARY (watershed method, off-site assesment)							
Hillslope ID's		Runoff Volume	Soil Loss	Sediment Yield	Area	Mapped Soil Loss	Sediment Yield
WEPP	TOPAZ	(m <sup>3</sup> /year)	(tonne/year)	(tonne/year)	(ha)	(tonne/ha/year)	(tonne/ha/year)
1	23	984.8	28	n.a.	11.5	2.4	n.a.
2	22	924.8	10.4	n.a.	14.1	0.7	n.a.
3	33	115.5	3.2	n.a.	4.5	0.7	n.a.
4	32	126.9	3.9	n.a.	6.3	0.6	n.a.
5	42	159.8	1.9	n.a.	2.4	0.8	n.a.
6	43	106.5	0.9	n.a.	1.3	0.7	n.a.
7	41	535.4	4.5	n.a.	3.8	1.2	n.a.
8	53	103.3	4.2	n.a.	5.7	0.7	n.a.
9	52	44.9	2.9	n.a.	4.4	0.7	n.a.
10	63	110.9	1.6	n.a.	1.3	1.3	n.a.
11	62	37.4	0.8	n.a.	0.7	1.1	n.a.
12	61	202	6.1	n.a.	3.8	1.6	n.a.
13	73	1343	23.4	n.a.	13.9	1.7	n.a.
14	71	664.1	8.8	n.a.	4.1	2.1	n.a.
15	72	870	19.3	n.a.	12.6	1.5	n.a.
16	83	568	10.4	n.a.	5.8	1.8	n.a.
17	82	82	2.2	n.a.	2.5	0.9	n.a.
18	93	126.8	6.6	n.a.	2.8	2.4	n.a.
19	91	570.8	2.9	n.a.	3.7	0.8	n.a.
20	92	276.9	2.7	n.a.	1	2.8	n.a.
21	101	385.8	1.9	n.a.	5.2	0.4	n.a.
22	103	792.7	4.4	n.a.	7.2	0.6	n.a.
23	102	84.8	4.5	n.a.	8.4	0.5	n.a.

The last section shows the flowpath results, which combine all the flowpaths within each subcatchment.



WEPP Model Text Output - Mozilla Firefox  
 http://milford.nserl.purdue.edu/ol/wepp/weppOutput.php

**WEPP Watershed Online GIS Interface** January 2011

Yearly average watershed values;Abbreviated

USDA WATER EROSION PREDICTION PROJECT  
 -----  
 HILLSLOPE PROFILE AND WATERSHED MODEL  
 VERSION 2010.100  
 January 28, 2010

TO REPORT PROBLEMS OR TO BE PUT ON THE MAILING LIST FOR FUTURE WEPP MODEL RELEASES, PLEASE CONTACT:

WEPP TECHNICAL SUPPORT  
 USDA-AGRICULTURAL RESEARCH SERVICE  
 NATIONAL SOIL EROSION RESEARCH LABORATORY  
 275 SOUTH RUSSELL STREET  
 WEST LAFAYETTE, IN 47907-2077 USA

PHONE: (765) 494-8673  
 FAX: (765) 494-5948  
 email: wepp@ecn.purdue.edu  
 URL: http://topsoil.nserl.purdue.edu

WATERSHED INPUT DATA FILES - VERSION 2010.100  
 January 28, 2010

WATERSHED PASS: ../output/pass\_pw0.txt  
 WAT. STRUCTURE: pw0.str  
 WAT. CHANNEL: pw0.chn  
 IMPOUNDMENT: pw0.imp  
 MANAGEMENT: pw0.man  
 MAN. PRACTICE: description 1  
                   description 2  
                   description 3  
 SLOPE: pw0.slp  
 CLIMATE: pw0.cli  
 Station: TIFTON 2 N GA  
 SOIL: pw0.sol  
 CHANNEL 1 Kinston FSL  
 CHANNEL 2 Dothan 1 LS

CLIGEN VERSION 4.30

Clicking on the 'WEPP Model Text Output' link will show the WEPP watershed output file.

Distribution of Primary Particles and Organic Matter in the Eroded Sediment:

type	fraction
clay	0.163
silt	0.172
sand	0.665
organic matter	0.029

Index of specific surface = 48.99 m\*\*2/g of total sediment  
 Enrichment ratio of specific surface = 1.06

You can also view and save the WEPP model output in a PDF file.

[Summary as PDF File](#)

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**WEPP Watershed Online GIS Interface** January 2011

### Reclassifying WEPP Output Maps

This allows the output erosion maps from a WEPP simulation to be reclassified based on what is a tolerable soil loss. Initially the classification is set a low T value of 1 t/ha/yr. Depending on your area of the climate, soil and landuse you may want to adjust this to a higher value. These settings do not change the WEPP model results they are only for changing the coloring on the erosion image. T value (or T level) . For a specific soil, the maximum average annual soil loss expressed as tons per acre per year that will permit current production levels to be maintained economically and indefinitely, the soil loss tolerance level.

As an alternative to setting a T value the individual classification may be changed by typing in new minimum and maximum values. After the classifications have been changed click the Reclassify WEPP Output button to produce new erosion maps based on the settings.

Tolerable Soil Loss (T):  t/ha/yr  Note: 5 t/ha/yr equals 2.23 tons/acre/year

Allow background to show under maps

Minimum (t/ha/yr)	Maximum (t/ha/yr)	Description
-999	-5	Soil Deposition > 5 t/ha/yr
-5	-0.0001	Soil Deposition 5 - 0.0001 t/ha/yr
-0.0001	1.25	Soil Loss 0 - 1.25 t/ha/yr
1.25	2.5	Soil Loss 1.25 - 2.5 t/ha/yr
2.5	3.75	Soil Loss 2.5 - 3.75 t/ha/yr
3.75	5	Soil Loss 3.75 - 5 t/ha/yr
5	10	Soil Loss 5 - 10 t/ha/yr
10	15	Soil Loss 10 - 15 t/ha/yr
15	20	Soil Loss 15 - 20 t/ha/yr
20	1000	Soil Loss 20 - 1000 t/ha/yr

Clicking on the 'Reclassify' button will allow the map legend to be changed to correspond to a new T value. The WEPP simulations are not rerun, only the map colors and legend will be changed.

Fill in a new T value and automatically have the classes defined, or enter in custom minimum and maximum values. Click the 'Set Classes' button.

After the new classes are setup click the 'Reclassify' button to generate new legends and maps.

## 8. (Optional) Change subcatchment, channel, or impoundment properties

**WEPP Watershed Online GIS Interface** January 2011

**Mapping Help**

Double-click to zoom in, and drag to pan. Hold down the shift key and drag to zoom to a particular region.  
 Zoom to Zip Code or City, State:  Go Example: Pullman, WA

**Base Layer**

- Google Physical
- Google Streets
- Google Hybrid
- Google Satellite

**Overlays**

- USGS Landuse (2001)
- USGS Topo Maps
- NRCSS SURGO Soils
- USGS Impervious (2001)
- Annual Precipitation
- Channel Network
- Outlet
- Subcatchments
- Hillslopes Dominate Landuses
- Hillslopes Dominate Soils
- Flowpath Soil Loss
- Representative Hillslope
- Representative Hillslope
- Leaving
- Representative Hillslope Runoff

[Start Over with New Area](#)

Show Legend

Minimum Source Channel Length(m):

Critical Source Area (ha):

**Summary of Simulation Results**

- [WEPP Model Text Output](#)
- [Reclassify Output Maps](#)
- [Review Watershed](#)
- [Change properties of hillslope](#)
- [Change properties of channel](#)
- [Add/Change impoundment at end of channel](#)
- [Remove all impoundments](#)

[Download Watershed Project](#)

[Save Watershed Project](#)

To modify the landuse or soil for a subcatchment click the 'Change properties of hillslope' link.

Change Subcatchment Landuse or Soil - Mozilla Firefox  
http://milford.nserl.purdue.edu/ol/wepp/change\_subcatchment.php?LOC=31.746854158955166;-83.73332976129305

**WEPP Watershed Online GIS Interface** January 2011

### Change Subcatchment

The location clicked was: 31.746854158955166;-83.73332976129305 this represents Hillslope [102] in the watershed.  
Nearest station: TIFTON 2 N GA 21.9 miles (GA098703)

### Change Hillslope Properties

This will change the landuse or soil in the selected subcatchment to be all the same type. This will override properties only for the selected subcatchment.

Current Landuse: **Evergreen Forest [GeoWEPP/Tree-20 yr old forest.rot]** (class: 42)  
Current Soil: **Tifton loamy sand, 2 to 5 percent slopes**

**New Landuse:**

**New Soil:**

Select the new landuse from the list. All landuse cells in the subcatchment will be set to the selected type.

Click submit to use the new selected landuse.

If there is no landuse class that matches what the subcatchment represents a new landuse class can be created. For example, the USGS only specifies an Cultivated Crops landuse so all agricultural land is associated with one WEPP input file. A new class such as "Crops - Winter Wheat" can be setup that will be associated with a different WEPP management file. A subcatchment's landuse can then be changed to the new landuse type.

[Add New Landuse Type](#)

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Done

Change Subcatchment Finish - Mozilla Firefox

http://milford.nserl.purdue.edu/ol/wepp/change\_subcatchment\_finish.php?OLDVAL=102&LOC=31.746854158955166%3B-83.73332976129305&CURLAND=Evergreen+Fc

**WEPP Watershed Online GIS Interface** January 2011

**Change Subcatchment Landuse Class**

All landuse for subcatchment 102 has ben changed to Cultivated Crops.

[Review Watershed](#)

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On the next screen after selecting a new landuse for the subcatchment click the 'Review Watershed' link.

http://milford.nserl.purdue.edu/ol/wepp/change\_subcatchment.php?LOC=31.747146113681087;-83.73315809991674

**WEPP Watershed Online GIS Interface** January 2011

**Change Subcatchment**

The location clicked was: 31.747146113681087;-83.73315809991674 this represents Hillslope [102] in the watershed.

Nearest station: TIFTON 2 N GA 21.9 miles (GA098703)

**Change Hillslope Properties**

This will change the landuse or soil in the selected subcatchment to be all the same type. This will override the NLCD and SSURGO layer properties only for the selected subcatchment.

Current Landuse: **Cultivated Crops [GeoWEPP/corn,soybean-fall mulch till.rot]** (class: 82)

Current Soil: **Tifton loamy sand, 2 to 5 percent slopes**

---

**New Landuse:**

**New Soil:**

A new landuse can also be defined. This might occur if there are several different kinds of crops in the watershed.

If there is no landuse class that matches what the subcatchment represents a new landuse class can be created. For example, the USGS only specifies an Cultivated Crops landuse so all agricultural land is associated with one WEPP input file. A new class such as "Crops - Winter Wheat" can be setup that will be associated with a different WEPP management file. A subcatchment's landuse can then be changed to the new landuse type.

[Add New Landuse Type](#)

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**WEPP Watershed Online GIS Interface** January 2011

**Add New Landuse Class**

Landuse Class  WEPP Management

[Close Window](#)

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After clicking the 'Add New Landuse' button type in a name for the landuse class and select a WEPP management input that will

Finally, click the 'Submit' button.

http://milford.nserl.purdue.edu/ol/wepp/add\_landuse.php?STATE=GA&LOC=31.747146113681087%3B-83.733158099916748&SUB=YES&CLASS=fallow&FILE=fallow+tilled&Submit1: ☆

**WEPP Watershed Online GIS Interface** January 2011

**Add New Landuse Class**

Landuse class **fallow** added. File: **fallow tilled.rot** [Close Window](#)

This is the screen that is shown after adding a new landuse class.

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### Change Subcatchment

The location clicked was: 31.746051278711658;-83.73504637506245 this represents Hillslope [102] in the watershed.

Nearest station: TIFTON 2 N GA 21.9 miles (GA098703)

### Change Hillslope Properties

This will change the landuse or soil in the selected subcatchment to be all the same type. This will override the NLCD and SSURGO layer properties only for the selected subcatchment.

Current Landuse: **Cultivated Crops [GeoWEPP/corn,soybean-fall mulch till.rot]** (class: 82)

Current Soil: **Tifton loamy sand, 2 to 5 percent slopes**

After adding a new landuse class it is available to be used for subcatchments.

New Landuse:

New Soil:

If there is no landuse class that matches what the subcatchment represents a new landuse class can be created. For example, the USGS only specifies an Cultivated Crops landuse so all agricultural land is associated with one WEPP input file. A new class such as "Crops - Winter Wheat" can be setup that will be associated with a different WEPP management file. A subcatchment's landuse can then be changed to the new landuse type.

[Add New Landuse Type](#)

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### Change Channel Properties

The location clicked was: 31.74247472760539,-83.73693465020907 this represents Channel [74] in the watershed.

Nearest station: TIFTON 2 N GA 21.9 miles (GA098703) Channel ID: 74

This will change the channel properties for the selected channel.

Current Channel Properties: **Rock Channel**

Current Soil: **Alapaha loamy sand**

Current Width: **1.0 (meters)**

Basic channel properties can  
be changed. This is still be  
worked on...

**New Channel Parameters:**

**New Soil:**

**New Width:**

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## WEPP Watershed Online GIS Interface

### Change Impoundment at End of Channel

The location clicked was: 31.74262071198723;-83.73633383538929 this represents channel [74] in the watershed.

Nearest station: TIFTON 2 N GA 21.9 miles (GA098703)

New Impoundment:

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Impoundments can be  
added only at the end of  
channels.

## 9. Saving a WEPP Watershed Run

To save the WEPP simulation click on the 'Save Watershed Project' link on the map page. This will display a window similar to the following:

WEPP Watershed  
Online GIS Interface September 2011

### Save WEPP Watershed Project

The following information can be entered directly when loading a project to return to the same watershed:

```
CSA:4.000000
MSCL:60.000000
EXTENT:-83.771502,31.717551,-83.694255,31.768645
ZOOM:10.000000
OUTLET:-83.724915;31.740343
YEARS:1
STATE:GA
STATION:TIFTON 2 N
ARCHIVE:1a558e2b2c987fb673f7ce3ff4a62846-2013-11-18-10-27-15.zip
DESCRIPTION:
DATE:2013-11-18-10-27-15
```

Select the above text in your browser and type ctrl-c to copy the information. Save the text to a file on your desktop (be sure to give it a meaningful name). When returning to the online WEPP GIS interface paste the text into the load project screen to recreate the watershed. Note that managements and soil setting are not saved so these will have to be reentered. **As part of saving the project temporary files are deleted. Rerun the WEPP simulation to recreate the output files.**

Select the text between the two lines and hit ctrl-c to copy the information. Next, paste the text into Notepad or Wordpad and save the file. This text can then be used load the project at a later time.

## 10. Loading a Saved Watershed Project

Clicking on the 'Projects' tab on the main map window there are two options:

1. Load a Project – This uses the extent and outlet to recreate the channel network and watershed delineation. The user can make changes to the channel delineation or outlet point.
2. Load a Project Archive – This restores all files from the saved run, no changes can be made to the channel delineation and watershed subcatchments.

### Load a Project

Paste in the information when the project was saved:



The screenshot shows the 'WEPP Watershed Online GIS Interface' with a header bar containing the title and the date 'September 2011'. Below the header, there is a text prompt: 'Enter the information when project was saved:'. A large text input field contains the following project information:

```
CSA:4.000000  
MSCL:60.000000  
EXTENT:-83.771502,31.717551,-83.694255,31.768645  
ZOOM:10.000000  
OUTLET:-83.724915:31.740343  
YEARS:1  
STATE:GA  
STATION:TIFTON 2 N  
ARCHIVE:1a558e2b2c987fb673f7ce3ff4a62846-2013-11-18-10-27-15.zip  
DESCRIPTION:  
DATE:2013-11-18-10-27-15
```

At the bottom left of the form is a 'submit' button.

And then click the submit button. This will recreate the channel delineation and watershed subcatchments. The next step is the 'Review Watershed' which will process the land use and retrieve any SSURGO soils for the area.



Start Over with New Area  
Load a Project | Load a Project Archive

Show Legend  
 Measure Distance  
Distance:

Minimum Source Channel Length (m): 60 ?  
Critical Source Area (ha): 4 ?  
Build Channel Network

To select the outlet point for your watershed click on the **Set Outlet Point** button and then click on a channel location on the map.  
Set Outlet Point

To determine the watershed area that drains to the outlet point click on the **Build Subcatchments** button.  
Build Subcatchments

Review the watershed soils, landuse, channels.  
Review Watershed Summary

Once the channel network and watershed are correct click on the **Setup WEPP Model** button to proceed with setting up a WEPP simulation for the watershed.  
Setup WEPP Model

### Load a Project Archive

The 'Load a Project' archive option goes further and also applies any user customizations that were done to the original watershed. The information pasted into the load project archive window is the same as above, expect that the zip file archive is processed:

**WEPP Watershed  
Online GIS Interface**

September 2011

Enter the information when project was saved:

```

CSA:4.000000
MSCL:60.000000
EXTENT:-83.771502,31.717551,-83.694255,31.768645
ZOOM:10.000000
OUTLET:-83.724915:31.740343
YEARS:1
STATE:GA
STATION:TIFTON 2 N
ARCHIVE:1a558e2b2c987fb673f7ce3ff4a62846-2013-11-18-10-27-15.zip
DESCRIPTION:
DATE:2013-11-18-10-27-15

```

After clicking the submit button the following window will be displayed:

## Load a Saved WEPP Watershed Archive Project

Setting extent:-83.771502,31.717551,-83.694255,31.768645:

Click [here](#) to restore this project archive.

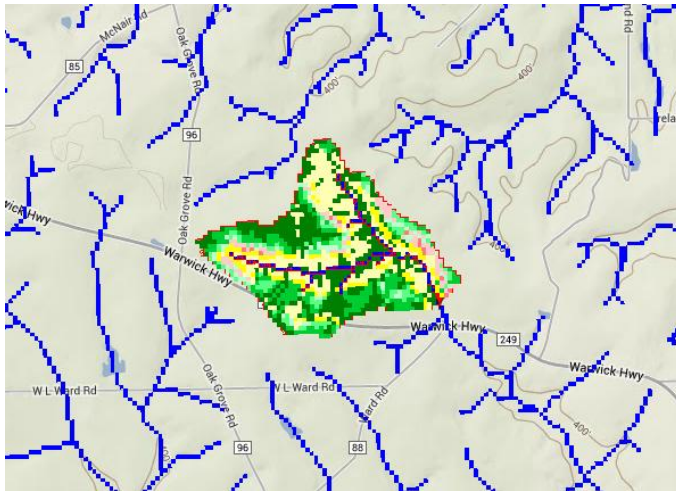
After all the files are restored the following window will be displayed:

Click [here](#) to return to the last saved WEPP run for this project. The WEPP model should be rerun to complete restoring all the files.

Done restoring files....A WEPP run still needs to be done to recreate all the temporary model files. Click the link above and then click the 'Run WEPP' button on the next page.

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The main map window is then displayed, showing the output from the run that was saved:



Not all the output files are saved so the WEPP files should be re-run by clicking on the 'Run WEPP' button.

## 11. Download WEPP project for other uses

### Download WEPP Watershed Project

Project packaged for download to WEPP Windows.

Click [here](#) to download the WEPP Project.

Unzip the project and copy the soil files (\*.sol) to the soil subdirectory in WEPP Windows - this is normally:

```
c:/program files/usda-ars/wepp/data/soils
```

Next copy the climate file (wepp.cl) to the climate subdirectory - this is normally:

```
c:/program files/usda-ars/wepp/data/climates/cligen
```

Finally copy the watershed project file to:

```
c:/program files/usda-ars/wepp/data/projects
```

There are some GIS related files that can be used in GeoWEPP but this requires more work.

- soilsmap.asc - SSURGO soil ids
- landuse.asc - Lancover ids
- utmSlice.asc - 30m DEM

The 'Download Watershed' link packages up the WEPP inputs so they can be downloaded to run with WEPP Windows and

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