## GeoWEPP ArcView Interface - Steps for CWE: (analysis for unburned subwatershed)

PLEASE NOTE: The parameters for the suggested management scenario are very extreme and partially unrealistic. They were chosen only to show the capabilities of GeoWEPP to assess spatial and temporal pattern of erosion, runoff, and sediment yield. We assume that the user after getting the idea will use moderate and realistic input parameters for their management scenarios.

1. Double click on the **startgeowepp icon** or navigate to the geowepp folder and double click on **startgeowepp**. You will immediately get the **Important instructions** window. Read through them and click **OK**.



2. This will bring up the GEOWEPP wizard. Click onto the Use example data button.

CeoWEPP ArcX 2004.3	Dpen existing GeoWEPP project saved in a GeoWEPP project folder
Use example data	Download and/or use NRCS Data Gateway zip files
Use own GIS Data	Use own GIS Data in ASCII Format

3. In Example Data Sets, click on Hayman – CWE Analysis.

🍳 Example Data Sets	X
Click which data set you would like to use	
Hayman Fire - BAER Analysis	
Hayman - CWE Analysis	
Rangeland Analysis	
Agriculture Analysis	

4. In the **Remember To Delete** window, click **OK**. Each time you run this example, delete the directory to start over.



You now see DOS screens and layers being created for about a minute. Let the program run until its completion when you see the following screen. You have a view of the area before a forest fire and the **Channel Delineation – Topographic Analysis (TOPAZ)** window, which we will now work from.

We are interested in the network channels and the watershed that is next to The Island in

Cheesman Lake. Using the **Zoom** button from the **TOPAZ** window, zoom into the area next to the red arrow.



We are interested in the slope that is south east of The Island.



A little explanation is now in order. What we are doing here is delineating channel networks to set watershed outlets. As you can see in the **Channel Delineation** window, you have the normal ArcView icons, such as **zoom in** and **pan**. Also, you can see two options by the left arrow. **Critical Source Area (CSA)** is the area required to initiate a channel [1 hectare = 100 m \* 100m = 2.471 acres] (For more information, read 3.1 Fundamental Concepts in OVERVIEW.txt). **Minimum Source Channel Length (MSCL)** is the minimum length of a channel in a drainage pattern (For more information, read 4.4 TOPAZ Input Requirements in the OVERVIEW.txt). We will now remove the channels we have on the screen, set up new ones and map out a watershed.



1. In the CSA, change the 5 to 2 (So, the area needed to create the channel will be reduced and we will see more channels on our view).



2. In the Click here window in the upper right, click once and you remove the channels.

🞗 Channel Delineation - Topographic Analysis (TOPAZ)	×
[If delineation of channel network is acceptable proceed with Step 4-	
If network delineation is not acceptable adjust	1 Click here to remove network
Critical Source Area (hectare):	2. Click here to delete network
Minimum Source Channel Length (m): 100	3. Click here to delineate new
and proceed with Step 1.	
Use these tools to locate your area of interest in view: zoom in zoom out pan max. view	4. Activate tool button and set watershed outlet (NEVER set outlet on a confluence cell!)
🔍 🭳 🖤 🌌 Save Project	Accept watershed and proceed with WEPP

- 3. The second click deletes the network.
- 4. After the second click, you see the Directory ownership window. Simply click OK.



- 5. If you receive an Error window, click OK.
- 11. The third click runs **TOPAZ** and **delineates the new network**. You see a number of DOS screens and then the view has the new channel network. As you can see below, our new network has more channels now.



Now you can make the watershed permanent.

## 7. Click the 4. Activate tool and set watershed outlet

When you move the cursor over the view, you see that it's changed to a **cross in a circle**. We are ready mark off the watershed outlet that we are going to make the watershed for.

8. Put the cross in a circle cursor at the **end of the channel** (It must be at the end in order to delineate the channel). And click.



This process takes a couple of minutes and creates a new watershed.



9. Now the final part. If this is the watershed you want, click on Accept watershed and proceed with WEPP.

🔍 Channel Delineation - Topographic Analysis (TOPAZ)	×
[If delineation of channel network is acceptable proceed with Step 4—	
If network delineation is not acceptable adjust	1 Click here to remove network
Critical Source Area (hectare): 2	2. Click here to delete network
Minimum Source Channel Length (m): 100	3. Click here to delineate new
and proceed with Step 1.	
	4. Activate tool button and set watershed outlet
Use these tools to locate your area of interest in view:	(NEVER set outlet on a confluence cell!)
💽 🖸 🖑 🌌 Save Project	Accept watershed and proceed with WEPP

10. In the Info window, you are setting the watershed parameters. Click on OK.



11. In the **WEPP Climate Selection**, click the **Use Selected Station** to accept the weather station from Cheesman Co.

📒 WEPP C	limate Selection		×				
Latitude:	39.1826	Longitude: -105.284					
State	Colorado 💌	Station CHEESMAN CO	-				
Based on the watershed outlet point chosen the selection above is the closest climate station for CLIGEN data which is used in WEPP simulations.							
Distance to	Closest Station (miles): 2.	6 (CHEESMAN CO)					
Use Existi	ing C	e Selected Station Use Closest Stati	on Cancel				

12. In the Cheesman CO window, click OK. This is setting up the data for 100 years.



Now, when you get to the **WEPP Management** window, we want to change the landuse of the catchment to undisturbed forest and the soil to 20-y forest sandy loam.

1. First, for landuse, we will change the first two areas in the WEPP Management column, Mountain Big Sagebrush and 28% cover-short grass prarie.

Area   GIS Landuse	WEPP Management
).2% Grasslands/Herbaceous	GeoWEPP\Mountain Big Sagebrush.rot
11.5% Shrubland 15.5% Deciduous Forest	GeoWEPP\Zo% cover-short grass prane.rot
72.8% Evergreen Forest	GeoWEPP\Tree-20 yr old forest.rot
induse Soils Channels	
run a WEPP simulation the landuse and soils de	fined in the GIS must be assoicated with equivalent WEPP
its. Double-click on any entry in the WEPP man may be used. Where no WEPP management c	agement or soils columns to display a list of WEPP inputs or soil is specified the default soil or management will be used

2. Click on the name of the WEPP Management area and navigate to Forest\Disturbed WEPP Management. Change Sagebrush to Tall grass prarie and 28% cover-short grass prarie to Shrub rangeland. Click OK.

	WEPP M	anagement and Soil Lookup		x
F				
	Area	GIS Landuse		WEPP Management
	0.2%	Grasslands/Herbaceous		Forest\Disturbed WEPP Management\Tall grass prarie.rot
	11.5%	Shrubland		Forest\Disturbed WEPP Management\Shrub rangeland.rot
	15.5%	Deciduous Forest		GeoWEPP\Tree-20 yr old forest.rot
	72.8%	Evergreen Forest		GeoWEPP\Tree-20 yr old forest.rot
	-			
	Landuse	Soils Channels		
T	o run a WE	PP simulation the landuse and soils defin	ed in the GIS must be	assoicated with equivalent WEPP inputs. Double-click on any
e.	ntry in the V	/EPP management or soils columns to di	splay a list of WEPP i	nputs that may be used. Where no WEPP management or soil
IS	specified ti	he default soil of management will be use	d (^)	
			ΟΚ	Cancel

3. In WEPP Management, click onto the Soils tab. You need to click onto each KEITH.sol and change the soils. Again, navigate to Forest\Disturbed WEPP Management.

WEPP Management and Soil Lo	ookup 🔀
A GIS Soil 0.2% Grassland 11 Shrubland 15 Deciduous 72 Evergreen	WEPP Soil (*) KEITH.sol (*) KEITH.sol (*) KEITH.sol (*) KEITH.sol
Landuse Soils Channels To run a WEPP simulation the landuse assoicated with equivalent WEPP input management or soils columns to display Where no WEPP management or soil is	and soils defined in the GIS must be ts. Double-click on any entry in the WEPP a list of WEPP inputs that may be used. s specified the default soil or management
OK	Cancel

4. Change the areas to 1) Tall\_Grass sandy loam, 2) Shrub sandy loam, 3) 20-yr forest sandy loam, 4) 20-yr forest sandy loam. Click OK.

Area	GIS Soil	WEPP Soil
0.2%	Grassland	Forest\Disturbed WEPP Soils\Tall_Grass sandy loam.sol
11.5%	Shrubland	Forest\Disturbed WEPP Soils\Shrub sandy loam.sol
15.5%	Deciduous	Forest\Disturbed WEPP Soils\20-yr forest sandy loam.sol
72.8%	Evergreen	Forest\Disturbed WEPP Soils\20-yr forest sandy loam.sol
Lanuuse .		
forun a WB entry in the <sup>s</sup> pecified the	PP simulation the landuse and soils d VEPP management or soils columns t default soil or management will be us	efined in the GIS must be assoicated with equivalent WEPP inputs. Double-click on an o display a list of WEPP inputs that may be used. Where no WEPP management or soil ed (*)

5. In the **WEPP/TOPAZ Translator**, type in 30 years for **Number of Years** and select Watershed and Flowpaths for **Simulation Method**. Click **Run WEPP**.

File View Help						
WEPP Watershed Sel	tings		Name	Management	Soil	1 % of Area
Change Seil A	Channel Arr	and all and a	Hill 51	GeoWEPP\Tree-20 v	Forest\Disturbed WE	6.7%
Change Solitz	Change Channel Ass	sociations	Hill 52	GeoWEPP\Tree-20 v	Forest\Disturbed WE	2.6%
			Hill 32	GeoWEPP\Tree-20 v	Forest\Disturbed WE	18.3%
Change Managem	ent Associations		Hill 62	GeoWEPP\Tree-20 v	Forest\Disturbed WE	8.5%
			Hill 53	GeoWEPP\Tree-20 y	Forest\Disturbed WE	0.8%
Watershed has 17 H	illslopes and 7 Channels.		Hill 42	GeoWEPP\Tree-20 v	Forest\Disturbed WE	0.3%
			Hill 22	GeoWEPP\Tree-20 y	Forest\Disturbed WE	4.1%
	Colorado\CHEESMAN CO.cli		Hill_61	GeoWEPP\Tree-20 y	Forest\Disturbed WE	6.2%
Climate			Hill_43	GeoWEPP\Tree-20 y	Forest\Disturbed WE	1.5%
Number of Years	30	Change Climate	Hill_63	GeoWEPP\Tree-20 y	Forest\Disturbed WE	10.1%
			Hill_72	GeoWEPP\Tree-20 y	Forest\Disturbed WE	3.4%
Simulation Method	Watershed and Flowpaths		Hill_33	GeoWEPP\Tree-20 y	Forest\Disturbed WE	10.8%
7			Hill_23	GeoWEPP\Tree-20 y	Forest\Disturbed WE	5.9%
	Dum 11/EPD		Hill_73	GeoWEPP\Tree-20 y	Forest\Disturbed WE	1.5%
	HUR WEFF		Hill_71	GeoWEPP\Tree-20 y	Forest\Disturbed WE	7.2%
			Hill_81	GeoWEPP\Tree-20 y	Forest\Disturbed WE	6.7%
			Hill_83	GeoWEPP\Tree-20 y	Forest\Disturbed WE	5.4%

- 6. In WEPP Complete, click OK.
- 7. In WEPP results, leave the names Offsite1thy and Onsite1thy.

<b>Q WEPP Results in relative measures of T</b>	X
Use max.13 letters and numbers only; no blanks!	OK
Sediment yield into Channel (Watershed Method): Offsite1thy	UK
Soil Loss from each raster (Flowpath Method): Onsite1thy	Cancel

From the simulation, you get two results. First, you get a new layers. The **Onsite1thy**, as seen below, shows the erosion for each subcatchment. The entire catchment area is in green, showing tolerable limits.



Second, you get a Notepad file with the actual results for the Watershed and the Flowpath. Here you can find the numbers for the Runoff Volume, Soil Loss, Sediment Yield, etc. Please minimize the Notepad window. Do not close it. We'll need it for later.

🚺 onsite File Edit	1 thy - Not Format	epad View Help							_ 8 ×
1	WATERSH	ED SUMMARY (wat	ershed method,	off-site as:	sesment)				
Hillsl WEPP TO	opes OPAZ	Runoff Volume (m^3/yr)	soil Loss (tonne/yr)	Sediment Yield (tonne/yr)	Area (ha)	soil Loss (tonne/ha/yr)	*Mapped Sediment Yield (tonne/ha/yr)	)	
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17	22 23 32 42 51 52 61 63 72 73 71 81 83 CHANNEL	2.9 3.0 8.4 6.0 0.4 2.2 3.6 1.1 11.8 2.0 7.6 4.7 2.2 3.1 2.5 3.8 SUMMARY (water	0.0 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	0.0 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	1.4 2.1 6.4 3.8 0.1 0.5 2.3 0.9 3.0 2.2 3.5 1.2 0.5 2.3 1.9 sment)	0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0			
Channe <sup>:</sup> NUM WEI	ls pp topaz	Discharge Volume Z (m^3/yr)	soil Loss (tonne/yr	sedir Yieli ') (ton	nent d ne/yr)	Length (m)	Length (cells)		
1 2 3 4 5 6 7	4 54 3 64 2 74 1 84 5 44 6 34 7 24	4 8 4 22 4 10, 4 6, 4 33, 4 57, 4 72,	3 n. 0 n. 4 n. 9 n. 7 n. 9 n. 2 n. 2	 a. a. a. a. a. a. a.	0.0 0.1 0.0 0.0 0.1 0.4 0.6	102.4 427.3 247.3 187.3 127.3 264.9 102.4	3 13 7 5 3 8 3		
***WEPI	P Water: FLOWPATH	shed Simulation	n for all flowpa wpath method, or	aths average n-site assesm	d over subc ment)	atchments (flowpa *Mapped	th method)***		
🛃 Start	💌 GeoW	/EPP 🖉 http://rac	dio 📋 My Docume	. 🙊 ArcView GIS		Paint 🖉 The New Yo 🛛	」 onsite1th 🤰	* 🕫 🛛 🍓 🏦 诸 🕹 🍐	2:39 PM

Next, we would like to remap the simulation output for the target value 'T' to .1 t/ha soil loss and sediment yield.

1. In the Erosion – Water Erosion Prediction Project (WEPP) window, go to the Tolerable Soil Loss. In the t/hectares/year box, type in .1 and press enter. Observe how the other numbers in the T value classes window change.

🍭 Erosio	n - Water Erosion Prediction Project (WEPP)	×
	Change main WEPP model input (repeat 13. for scenarios)	
	1. Change a single hillslope/channel	WEPP database
Q	2. Dum htt/EDD (an unshare hand ifference hand	
	2. Run WEPP for watershed/flowpaths	Tolerable Soil Loss or Target (T)
<b>(</b> )	3. Get and remap simulation results based on Target (T)	t/hectare/year
4	4. Run WEPP for a single hillslope/channel (optional)	tons/acre/year 0.04
Cur	rent Active Scenario View1 Run New Scenario	Delete a theme in view Save Project

2. In the Erosion – Water Erosion Prediction Project (WEPP) window again, click on Step 3. Get and remap simulation results based on Target (T).

🍭 Erosion	- Water Erosion Prediction Project (WEPP)		X
•	Change main WEPP model input (repeat 13. for scenarios) 1. Change a single hillslope/channel	WEF	P database
	2. Run WEPP for watershed/flowpaths 3. Get and remap simulation results based on Target (T)	Tolerable Soil t/hectare/ye	Loss or Target (T) ear 0.10
Ł	4. Run WEPP for a single hillslope/channel (optional)	tons/acre/ye	ear 0.04
Curre	ent Active Scenario View1 💽 Run New Scenario Dele	ete a theme in view	Save Project

3. In the WEPP Results window, leave the name as **Offsite0thy** and click **OK**.



As you can see below, two new layers with the new soil loss were created. If you compare **Onsite1thy** and **Onsite0thy**, you see that **Onsite0thy** has more red pixels, meaning less tolerable levels of erosion.



Also, a Notepad file was created. If you compare this new file to the first one that we created, you see the numbers are the same. The amount of erosion is the same, but the amount of what was tolerable was considered different and this was depicted in the view.

📕 onsite	Othy - Notep	pad										_ 8 ×
File Edit	Format Vie	ew Help										
30	) YEAR AV	ERAGE ANNUAL	VALUES FOR WA	TERSHED								
***WEPP	Watersh	ned simulation	for Represen	tative Hillsl	opes and e	channels (w	atershed	method)***				
v	ATERSHED	SUMMARY (wat	ershed method	l, off-site as	sesment)							
								"Mapped				
ні]]slo	pes	volume	Loss	Yield	Area	Loss		vield				
WEPP TO	PAZ	(m^3/yr)	(tonne/yr)	(tonne/yr)	(ha) 	(tonne	/ha/yr) 	(tonne/ha/yr	-)			
1	22	2.9	0.0	0.0	1.4	0	.0	0.0				
3	32	8.4	0.1	0.1	6.4	0	.0	0.0				
5	42	0.4	0.0	0.0	0.1	ő	.0	0.0				
7	45 51	3.2	0.0	0.0	2.3	0	.0	0.0				
9	52	3.6 1.1	0.0	0.0	0.9	0	.0	0.0				
10	62 61	11.8 2.0	0.0	0.0	3.0 2.2	0	.0	0.0				
12	63 72	7.6	0.0	0.0	3.5	0	.0	0.0				
14	73	2.2	0.0	0.0	0.5	0	.0	0.0				
16	81	2.5	0.0	0.0	2.3	ő	.0	0.0				
1/	85	5.8	0.0	0.0	1.9	U	.0	0.0				
0	HANNEL S	SUMMARY (water	shed method,	off-site asse	sment)							
Channe	s	Discharge Volume	soil	Sedi Yiel	ment d	Length		Length				_
NUM WEF	PP TOPAZ	(m^3/yr)	(tonne/	yr) (ton	ne/yr)	(m)		(cells)				_
1	4 54	. 8.	3 n	i.a.	0.0	102.4		3				_
3	2 74	10.	4 n	i.a.	0.0	247.3		7				_
5	5 44	33.	9 n 7 n	1.a.	0.1	127.3		3				_
6	6 34 7 24	57.	9 n 2 n	1.a. 1.a.	0.4 0.6	264.9 102.4		3				_
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🛃 Start	🕙 GeoWEI	P 📀 Windows	🗀 geowepp 🧕	🔍 ArcView 🖉 T	he New 🧾	onsite1th	onsite0t	. 🦉 untitled	e 👳	2	🍓 🚖 🔊 🔞 ව 🄗 🖬	8:50 PM

It's always a good idea to save your files often in case of crashes.

1. In the Erosion – Water Erosion Prediction Project (WEPP) window, click on the Save **Project** button.

Change main WEPP model input (repeat 13. for scenarios)     Image: Change main WEPP model input (repeat 13. for scenarios)     Image: Change main WEPP model input (repeat 13. for scenarios)     Image: Change main WEPP model input (repeat 13. for scenarios)     Image: Change main WEPP model input (repeat 13. for scenarios)     Image: Change main WEPP model input (repeat 13. for scenarios)     Image: Change main WEPP for watershed/flowpaths     Image: Change main WEPP for watershed/flowpaths     Image: Change main weight of the scenario of the	🔍 Erosio	n - Water Erosion Prediction Project (WEPP)	X
Image: New Year of the stand remap simulation results based on Target (T) WEPP database   Image: New Year of the stand remap simulation results based on Target (T) Tolerable Soil Loss or Target (T)   Image: New Year of the stand remap simulation results based on Target (T) the ctare/year (0.10)   Image: New Year of the stand remap simulation results based on Target (T) tons/acre/year (0.04)	Ð	Change main WEPP model input (repeat 13. for scenarios)	
2. Run WEPP for watershed/flowpaths   Tolerable Soil Loss or Target (T)     3. Get and remap simulation results based on Target (T)   t/hectare/year     0.10   t/hectare/year     1   4. Run WEPP for a single hillslope/channel (optional)     tons/acre/year   0.04		1. Change a single hillslope/channel	WEPP database
3. Get and remap simulation results based on Target (T)   t/hectare/year   0.10     1   4. Run WEPP for a single hillslope/channel (optional)   tons/acre/year   0.04	Q	2. Run WEPP for watershed/flowpaths	Tabashin California Tarash(T)
4. Run WEPP for a single hillslope/channel (optional) tons/acre/year 0.04	80	3. Get and remain simulation results based on Target (T)	I olerable Soli Loss of Larget (1) t/bectare/uear 0.10
4. Run WEPP for a single hillstope/channel (optional) tons/acre/year 0.04			
	4	4. Hun WEPP for a single hillslope/channel (optional)	tons/acre/year 0.04
Current Active Scenario View1 💽 Run New Scenario Delete a theme in view Save Project	Cur	rent Active Scenario View1 🗾 Run New Scenario D	elete a theme in view Save Project 🧹

2. In the **GeoWEPP Watershed Directory**, note that you are saving this project in **C:\geowepp\ExampleSet\Haymancwe**. Click **OK**.



3. In the Save Project As window, give the project the name Hayman. Click OK.

🔍 Save Project As		×
File Name: Havman	Directories: C:\geowepp\ExampleSet\Havmancv	ОК
	C:\ geowepp ExampleSet Haymancwe haymancwe hishd info landcov	Cancel
	Drives:	

4. In the **Thank you for using GeoWEPP!** window, it prompts you to exit GeoWEPP. Click **No**.



Now, we will work with the Culmulative Watershed Effects (CWE) Analysis worksheet. We will do some prescribed burns in selected areas at different times in our watershed. We perform a sequence of prescribed burns in four subcatchments (hillslopes) and then see how each recovers over time. We specifically will investigate the effect of vegetation coverage on soil loss, runoff and sediment discharges from the hillslopes, subwatersheds (channel outlets) and at the main watershed outlet (main channel segment outlet). We want to manage these hillslopes differently in four consecutive years and do a 20-year simulation for each year. A simulation this long can show us how the burn will affect the area over time. We will work with hillslopes **83**, **81**, **71** and **61** (Oval text box). You see in the chart below the map how the management and soil is changed in each of the four years. With these prescribed burns, we do not want too much erosion, and this is why we will go from one subcatchment to a different subcatchment each year. Also, we will work with channel networks, specifically the watershed outlet 24 and channels **84**, **74**, and **64** (square text box).



	Hillslo	pe 83	Hillslope 81		Hillslope 71		Hillslope 61	
	Landuse	Soil	Landuse	Soil	Landuse	Soil	Landuse	Soil
Year 1	High	High	-	-	-	-	-	-
Year 2	Medium	High	High	High	-	-	-	-
Year 3	Low	Low	Medium	High	High	High	-	-
Year 4	Forest	Forest	Low	Low	Medium	High	High	High

1. In the Erosion – Water Erosion Prediction Project (WEPP) window, click on Step. 1. Change a single hillslope/channel icon . This will allow you to select the individual subcatchments.

đ	Received a construction Project (WEPP)
	Change main WEPP model input (repeat 13. for scenarios)
	1. Change a single hillslope/channel WEPP database
	2. Run WEPP for watershed/flowpaths Tolerable Soil Loss or Target (T)
	3. Get and remap simulation results based on Target (T)     t/hectare/year     10.00
	4. Run WEPP for a single hillslope/channel (optional) tons/acre/year 4.46
	Current Active Scenario View1 Run New Scenario Delete a theme in view Save Project

2. You now notice that the cursor has changed into a cross with a label symbol. Click this onto the Hillslope 83, and you get the **Change Management** window. Click **Yes**.

Change H	fanagement
?	Hillslope No : 83 Climate : "Colorado\CHEESMAN CO.cli" Management : "GeoWEPP\Tree-20 yr old forest.rot" Soil : "Forest\Disturbed WEPP Soils\20-yr forest
	Do you want to change Management for this representative hillslope?
	Yes No

3. In Select a management file, navigate to GeoWEPP and choose 25% cover-high severity burn. Click OK.

Select a management file ID 83	×
managements Agriculture Agriculture GeoWEPP 18% cover short grass prarie 25% cover-high severity burn 28% cover-short grass prarie 45% cover-moderate severity bu 90% cover-low severity burn alfalfa with cuttings corn,soybean-fall mulch till	Browse OK Cancel

4. We now want to change the soil. In the Change Soil window, click Yes.



5. In the Select a soil file, navigate to GeoWEPP and choose High severity fire-sandy loam. Click OK.

E Select a soil file ID 83	×
soils € CO € Forest GeoWEPP 20-yr forest sandy loam High severity fire-sandy loam Low severity fire-sandy loam € OR ASCALON ATHENA BACA	Browse OK Cancel More Soils

6. Now, we want to run the simulation. For the Tolerable Soil Loss, type in 5 for the t/hectare.

🎗 Erosio	n - Water Erosion Prediction Project (WEPP)	x
<b>(</b>	Change main WEPP model input (repeat 13. for scenarios)	
	1. Change a single hillslope/channel	WEPP database
Q	2. Duri MCDD (secondard Managella	1
	2. Hun WEPP for watershed/flowpaths	Tolerable Soil Loss or Target (T)
<u> </u>	3. Get and remap simulation results based on Target (T)	t/hectare/year 5.00
	4. Run WEPP for a single hillslope/channel (optional)	tons/acre/year 2.23
É		
Curr	ent Active Scenario View1 Run New Scenario	Delete a theme in view Save Project

7. Click on 2. Run WEPP for watershed/flowpaths.

🍭 Ero	sion - Water Erosion Prediction Project (WEPP)
	Change main WEPP model input (repeat 13. for scenarios)
	Image: Instance     WEPP database
Θ	2. Due M/CDD for we have bed When a the
	2. Run wEPP for watershed/flowpaths Tolerable Soil Loss or Target (T)
3	3. Get and remap simulation results based on Target (T) t/hectare/year 5.00
đ	4. Run WEPP for a single hillslope/channel (optional) tons/acre/year 2.23
	Current Active Scenario View1 Run New Scenario Delete a theme in view Save Project

8. In WEPP Management and Soil Lookup, click Cancel.

WEPP	Management and Soil Lookup	X
Area	GIS Landuse	WEPP Management
0.2%	Grasslands/Herbaceous	Forest\Disturbed WEPP Management\Tall gr
10.2%	Shrubland	Forest\Disturbed WEPP Management\Shrub
16.0%	Deciduous Forest	GeoWEPP\Tree-20 yr old forest.rot
4.9%	25% cover-high severity burn	GeoWEPP\25% cover-high severity burn.rot
68.6%	Evergreen Forest	GeoWEPP\Tree-20 yr old forest.rot
Landuse To run a V	Soils Channels /EPP simulation the landuse and soils defined in	the GIS must be assoicated with equivalent WEPP
inputs. Do	uble-click on any entry in the WEPP managemen	t or soils columns to display a list of WEPP inputs
that may b	e used. Where no WEPP management or soil is	specified the default soil or management will be used
(*)	OK	Cancel

11. In WEPP/TOPAZ Translator, type 30 for Number of Years and select Watershed for Simulation Method. Click Run WEPP.

VEPP/TOPAZ Tra	nslator					_ [] >
WEPP Watershed Set	itings .		Name	Management	Soil	% of Area
Change Soil A	ssociations Change Channel Associations		Hill_51	GeoWEPP\Tree-20 y	Forest\Disturbed WE	6.7%
			Hill_52	GeoWEPP\Tree-20 y	Forest\Disturbed WE	2.6%
			Hill_32	GeoWEPP\Tree-20 y	Forest\Disturbed WE	18.3%
Lhange Managem	ent Associations		Hill_62	GeoWEPP\Tree-20 y	Forest\Disturbed WE	8.5%
			Hill_53	GeoWEPP\Tree-20 y	Forest\Disturbed WE	0.8%
Watershed has 17 Hi	ilisiopes and 7 Channels.		Hill_42	GeoWEPP\Tree-20 y	Forest\Disturbed WE	0.3%
			Hill_22	GeoWEPP\Tree-20 y	Forest\Disturbed WE	4.1%
CT-1	Colorado\CHEESMAN CO.cli		Hill_61	GeoWEPP\Tree-20 y	Forest\Disturbed WE	6.2%
			Hill_43	GeoWEPP\Tree-20 y	Forest\Disturbed WE	1.5%
Number of Years	30 Change Climate		Hill_63	GeoWEPP\Tree-20 y	Forest\Disturbed WE	10.1%
			Hill_72	GeoWEPP\Tree-20 y	Forest\Disturbed WE	3.4%
Simulation Method	Watershed		Hill_33	GeoWEPP\Tree-20 y	Forest\Disturbed WE	10.8%
			Hill_23	GeoWEPP\Tree-20 y	Forest\Disturbed WE	5.9%
	Dum tr/CDD		Hill_73	GeoWEPP\Tree-20 y	Forest\Disturbed WE	1.5%
	HUN WEFF		Hill_71	GeoWEPP\Tree-20 y	Forest\Disturbed WE	7.2%
			Hill_81	GeoWEPP\Tree-20 y	Forest\Disturbed WE	6.7%
			Hill_83	GeoWEPP\25% cove	GeoWEPP\High sev	5.4%
			1			E F
		E I F	1			

## 10. In WEPP Results, name this Offsite5thy1. Click OK.



As we can see from the view below, Hillslope 83 is now redder than the other hillslopes due to erosion. Also, if you look at the bottom of the results sheet, you see the numbers for the channels.



Now, we want to change Hillslope 83 and 81.

	Hillslope 83		Hillslope 81	
	Landuse Soil		Landuse	Soil
Year 1	High	High	-	-
Year 2	Medium High		High	High

1. In the **Table of Contents** of the view on the left, turn off the checkmark for **Offsite5thy1** to display the subcatchments.



2. In the Erosion – Water Erosion Prediction Project (WEPP) window, click on Step. 1. Change a single hillslope/channel icon

۵	Erosio	n - Water Erosion Prediction Project (WEPP)	×
	<u>.</u>	Change main WEPP model input (repeat 13. for scenarios)	
		1. Change a single hillslope/channel	WEPP database
			1
		2. Hun WEPP for watershed/flowpaths	Tolerable Soil Loss or Target (T)
	37	3. Get and remap simulation results based on Target (T)	t/hectare/year 5.00
	<u>+</u>	4. Run WEPP for a single hillslope/channel (optional)	tons/acre/year 2.23
	Curr	ent Active Scenario View1 Run New Scenario D	elete a theme in view Save Project

3. Click onto Hillslope 83. When prompted in the **Change Management** window to change the landuse, navigate to the **GeoWEPP** folder and select **45% cover-moderate severity burn**. Click **OK**.

<u> Select a management file ID</u> 83	×
■ → → → → → → → → → → → → → → → → → → →	Browse OK Cancel
alfalfa with cuttings	

4. In the Change Soil, click No. We want to leave it at high.

Change	Soil
?	Hillslope No : 83 Climate : "Colorado\CHEESMAN CO.cli" Management : "GeoWEPP\45% cover-moderate severity burn.rot" Soil : "GeoWEPP\High severity fire-sandy loam.sol"
	Do you want to change Soil for this representative hillslope?
	Yes No

5. Now we want to change Hillslope 81. In the Erosion – Water Erosion Prediction Project (WEPP) window, click on Step. 1. Change a single hillslope/channel icon and click on to the hillslope.



6. In Change Management, you are prompted to change the landuse. Click Yes.

Change H	fanagement second s
?	Hillslope No : 81 Climate : "Colorado\CHEESMAN CO.cli" Management : "GeoWEPP\Tree-20 yr old forest.rot" Soil : "Forest\Disturbed WEPP Soils\20-yr forest
	Do you want to change Management for this representative hillslope?
	No

7. In Select a management file, navigate to GeoWEPP and select 25% cover-high severity burn. Click OK.



8. In Change Soil, click Yes.

Change	Soil
?	Hillslope No : 81 Climate : ''Colorado\CHEESMAN CO.cli'' Management : ''GeoWEPP\25% cover-high severity burn.rot'' Soil : ''Forest\Disturbed WEPP Soils\20-yr forest
	Do you want to change Soil for this representative hillslope?
	Yes No

9. In Select a soil file, navigate to GeoWEPP and select High severity fire-sandy loam. Click OK.

Ē	Select a soil file ID 81	×
	⊡ <del>©</del> soils	Browse
	Emilia CO Emilia Forest	
	🖻 - 🗁 GeoWEPP	
	High severity fire-sandy loam	Cancel
	🛄 Low severity fire-sandy loam 🗕	

10. In Erosion – Water Erosion Prediction Project (WEPP), click on 2. Run WEPP for watershed/flowpaths.

à I	Erosion -	Water Erosion Prediction Project (WEPP)	X
G		hange main WEPP model input (repeat 13. for scenarios)	
Ľ	<u> </u>	1. Change a single hillslope/channel	WEPP database
[			
		2. Run WEPP for watershed/flowpaths	Tolerable Soil Loss or Target (T)
	9 i	3. Get and remap simulation results based on Target (T)	t/hectare/year 5.00
ź	≰	4. Run WEPP for a single hillslope/channel (optional)	tons/acre/year 2.23
	Curren	t Active Scenario View1 Run New Scenario Delet	te a theme in view Save Project

11. Again, in WEPP Management and Soil Lookup, you don't need to change anything. Click Cancel.

	WEPP I	Management and Soil Lookup	×
		CIC Landara	
	0.2% 15.3% 4.9% 6.0% 64.2%	Grasslands/Herbaceous Deciduous Forest 45% cover-moderate severity burn 25% cover-high severity burn Evergreen Forest	Forest\Disturbed WEPP Management\Tall gr GeoWEPP\Tree-20 yr old forest.rot GeoWEPP\45% cover-moderate severity bur GeoWEPP\25% cover-high severity burn.rot GeoWEPP\Tree-20 yr old forest rot
	9.3%	Shrubland	Forest\Disturbed WEPP Management\Shrub
T ( inj th (*)	Landuse pirun a W puts, Dou at may be	Soils Channels (EPP simulation the landuse and soils defined in the uble-click on any entry in the WEPP management e used. Where no WEPP management or soil is sp	ne GIS must be assoicated with equivalent WEPP or soils columns to display a list of WEPP inputs becified the default soil or management will be used
		ОК	Cancel

12. In WEPP/TOPAZ Translator, type 30 for Number of Years and select Watershed for Simulation Method. Click Run WEPP.

🋂 WEPP/TOPAZ Tra	nslator					
File View Help						
WEPP Watershed Settings			ame	Management	Soil	% of Area
Change Soil A	Associations Change Channel Associations	H	il_51	GeoWEPP\Tree-20 y	Forest\Disturbed WE	6.7%
	Change Channer Associations	Hi	il_52	GeoWEPP\Tree-20 y	Forest\Disturbed WE	2.6%
		Hi	il_32	GeoWEPP\Tree-20 y	Forest\Disturbed WE	18.3%
Lhange Managem	ient Associations	H	il <u>6</u> 2	GeoWEPP\Tree-20 y	Forest\Disturbed WE	8.5%
	The second 7 Channel	H	il_53	GeoWEPP\Tree-20 y	Forest\Disturbed WE	0.8%
Watershed has 17 H	ilisiopes and 7 Channels.	Hi Hi	il_42	GeoWEPP\Tree-20 y	Forest\Disturbed WE	0.3%
		Hi	il_22	GeoWEPP\Tree-20 y	Forest\Disturbed WE	4.1%
Climate	Colorado\CHEESMAN CO.cli	H	ill_61	GeoWEPP\Tree-20 y	Forest\Disturbed WE	6.2%
Climate		H	il_43	GeoWEPP\Tree-20 y	Forest\Disturbed WE	1.5%
Number of Years	30 Change Climate	Hi	il_63	GeoWEPP\Tree-20 y	Forest\Disturbed WE	10.1%
		Hi	il_72	GeoWEPP\Tree-20 y	Forest\Disturbed WE	3.4%
Simulation Method	Watershed 🔽	H	il_33	GeoWEPP\Tree-20 y	Forest\Disturbed WE	10.8%
		H	il_23	GeoWEPP\Tree-20 y	Forest\Disturbed WE	5.9%
	Bun W/EPP	Hi	il_73	GeoWEPP\Tree-20 y	Forest\Disturbed WE	1.5%
	Harrwert	H	il_71 —	GeoWEPP\Tree-20 y	Forest\Disturbed WE	7.2%
		Hi	il <u>8</u> 1	GeoWEPP\25% cove	GeoWEPP\High sev	6.7%
		Hi	il_83	GeoWEPP\45% cove	GeoWEPP\High sev	5.4%
		•				F
1		- I - E				

13. In WEPP Results, name this Offsite5thy2. Click OK.



## As you can see, the Runoff for Hillslope 83 has gone down, while it has gone up for Hillslope 81



You can also see in this visualized in the views.



	Hillslope 83		Hillslope 81		Hillslope 71		Hillslope 61	
	Landuse	Soil	Landuse	Soil	Landuse	Soil	Landuse	Soil
Year 1	High	High	-	-	-	-	-	-
Year 2	Medium	High	High	High	-	-	-	-
Year 3	Low	Low	Medium	High	High	High	-	-
Year 4	Forest	Forest	Low	Low	Medium	High	High	High

Now, your job is to finish the simulation for the Year 3 and Year 4. The paths for the files are given below.

Management
High: GeoWEPP\25% cover-high severity burn
Medium:GeoWEPP\45% cover-moderate severity burn
Low:GeoWEPP\90% cover-low severity burn
Forest: GeoWEPP\Tree-20 yr old forest

Soil
High: GeoWEPP\High severity fire-sandy loam
Low: GeoWEPP\Low severity fire-sandy loam
Forest: GeoWEPP\20-yr forest sandy loam

Name the results for year 3 Offsite5thy3 and year 4 Offsite5thy4

Write down all the results on CWE worksheet.

If you wish, you can go farther and do the following:

- 1. Make the catchment area all forest and do the simulation.
- 2. Make the catchment area all burned and do the simulation.