

# Video 2 of 5: Change probability of a disturbance across all states

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## Welcome and goals

Hi everyone, Randy Swaty here hoping to get you started with modifying a LANDFIRE Biophysical Settings model in a way that better represents current conditions. In this the 2nd of 5 videos in the “Modify your Model” series we will work through our trusty Sage Steppe model as an example, learning how to change the probability of a disturbance across all states.

## Apply a change across the entire ecosystem

This just might be the most rewarding thing you do in SyncroSim. By adding a “0” in the correct place you can suppress all replacement fires (just as easy with any disturbance) across the Biophysical Setting. If you are not careful it will be “too good to be true” however!

In our example we have the most incredible fire suppression program possible. In fact, it’s perfect. There are no replacement fires. This may be due to removal of fuels that would typically make a replacement fire possible, or removing all people and lightning. OK not the most plausible example. Anyways let’s learn how to turn off all replacement fires.

1. As in the 1st of these videos you will copy, paste and rename a scenario, followed by adding in some descriptive text. This is always important, but maybe even more so with the technique we’ll explore. Since we are not “adding on to” an existing scenario, I will copy and paste the original (aka “Reference” scenario). I named it “Zero replacement fire”.
2. About that descriptive text. We are going to perform a “universal” technique that will not be highlighted in the usual spots, so I have made sure to include this in my description: “Turned off” replacement fires by setting the transition multiplier to “0” for replacement fires.
3. Excited?
4. Make it a habit to spin through the tabs while convenient. Run control parameters as you want them? Initial conditions as you want them?
5. Now click the “Advanced” tab. Explore, asking yourself “I wonder what this is for?” of some of the options.
6. Click “Transitions-Multipliers” on the left, then use the dropdown in the first row under “Transition Type/Group” and select “Replacement Fire”.

7. In the cell to the right of “Replacement Fire”, in the “Multiplier” column type a “0”. Can you imagine what this is doing in the model? Here you can multiply by any number you want. Maybe your fire suppression is almost perfect (you could enter “0.1” to essentially turn off all but 10% of the fires, or you could double the amount of replacement fires, etc.).
8. Check out the transitions tables of any of the states. You will not see that “0” anywhere. If you are like me and forget things quickly, without documenting what you have done you might not realize that little “0” is there and wonder why there’s no replacement fire in your outputs. If you don’t like this approach, can you think of another one, or two?
9. Done with parameterizing. Now run the model and look at your results. Did they turn out as you expected?