**Subject:** Re: Skeena projections: grizzly files
**Date:** Tuesday, July 4, 2017 at 3:12:27 PM Pacific Daylight Time
**From:** Andrew Fall
**To:** Morgan, Don ENV:EX, Dave Daust

Hi Don and Dave,

The Grizzly indicator files are up on the DropBox site. Note the updated file description plus the scenario description (which is close the the doc I sent previously).

A few questions came up for me about the scenarios, but we can talk about this once the file contents seems fine.

I will post the connectivity/isolation outputs once they are done in a bit. Then the updated SSP3 scenario.

Dave: what projected files do you want?
I could run the water balance model, if needed, on the other two climates scenarios (RCP2.6 and RCP8.5).

Cheers,
Andrew

On 04/07/2017 2:44 PM, Andrew Fall wrote:

> Hi Don and Dave,
>
> I hope you had a nice long weekend. Here was very nice (Arts Fest), but I also put my nose to the grindstone to get the projections going. Each of the 5 SSP scenarios involves:
>
> a) a projection of mines and wind farms
>
> b) projection of transmission lines that connect mines and wind farms to existing grid
>
> c) timber supply to estimate harvest area/year
>
> d) projection of landscape dynamics that includes logging, natural disturbance (driven in part by the SSP-specific climate RCP regime), roads from projected mines and wind farms, land-use change (mainly conversion to urban and agriculture)
>
> e) pipelines that are assumed to be built in the first decade
>
> Spatial outputs are done each 10 years (stand age, land use, roads, thlb, etc), so 25 10-year steps.
>
> The grizzly indicators then require, for each SSP scenario and time step analyzed:

f) Assessment of security class (about 15 - 20 minutes per run, so about 8 hours for a full set over 250 years for each SSP scenario). High use roads for security include permanent high use roads (highways and mainlines) plus roads in urban and agriculture areas. Pipelines are also consider to have high human presence.

This produces a time series of GrizzlySecurityCls grids for each SSP, and is used in the GB indicator file.

g) Isolation graph analysis for GBPU isolation. This has a few steps (generate a cost surface based in part on projected roads and land use, extract graph from 100km2 hexagon centroids, analyze graph, and output connectivity/isolation information by focal GBPU and LU). For all steps, it takes about 9 hours per SSP).

h) Generating GB indicator file using time series of stand age, land use, roads, road density and security class. This takes about 25 minutes for SSP (once the GB security class grids are created).

For relative human pressure, I did a simple scaling for now based on population change rates for the SSP. This will underestimate changes in relative human pressure because it does not yet account for faster access due to new roads. But it captures the primary effect of human population. To do a full assessment will take some time to figure out. I would need to separate human population pressure from outside the study area (i.e. entering along the highways) from inside, and then run the diffusion model. The provincial model takes quite a while to run because it needs to spread over the entire province once for each population centre.

Note on "Range" land use: this is modelled to increased (or decrease) at same rate as urban and agriculture. But it isn't used for anything at present, so for now can be treated like lu_Natural.

I am just running the last few steps on the GB indicator file, and will posted output files on the Dropbox shortly. I need to re-run the GB isolation scenarios, so those should be ready this evening.

I need to re-run the SSP3 (Dystopia) scenario since I think I didn't apply the right future roads scenario, but will posted current results for this scenario for now.

Cheers,
Andrew