

Spectrum Coefficients for YoungGap creation

The output YoungGaps was created to model background levels of disturbance on unmanaged lands, and young forest created by burning prescriptions designed to create young forest.

YoungGap production on unmanaged lands

The assumptions modelled are that within any unmanaged forest type, across the forest, there will be a constant proportion of those lands that have been disturbed by insects, disease, blowdown or other disturbance, and are in a young-forest state. At a finer scale, a patch that has been disturbed will eventually grow back into a closed state, but elsewhere within that forest type, new disturbance will create new young-forest openings.

The table below shows the per-acre coefficients, by forest type, used to calculate the amount of YoungGap created on each acre of unmanaged land. The best way to think of these coefficients is to imagine a large block of a given forest type: for type 08, dry oak, the coefficient of 0.005 means that for every 1000 acres of unmanaged dry oak, you will find a total of 5 acres of those lands in a disturbed, young-forest state. Over time, those acres will become closed and be replaced by other disturbed acres.

Forest types	Acres of YoungGap / acre of forest
04, 07	0.0075
03	0.0075
01, 05	0.005
08	0.005
11, 12	0.006
06	0.006
10	0.006
09	0.007
02	0.001

Source: The Gap Analysis (posted on the website) was used as the basis of information for these coefficients. This information was considered the most relevant and current information about the current state and likely future state of the forest. There is great uncertainty about the likely future forest because the state of this forest has been largely disturbed by human intervention over most of the area within the past 100 years. Since NRV is based on only natural disturbances, with no human intervention, and over 1000 year period, the direct assumptions used in NRV would need to be examined carefully before applying it to future forest conditions. While Spectrum used a 200 year planning horizon, the Ecological Sustainability Evaluation of ecosystem used a 50 year planning horizon because the uncertainty of likely futures increases greatly with time.

YoungGap production by management

The prescription 'Burning for Young Forest creation' models prescribed burning intended to maintain forest composition and create some openings. This prescription can be applied on seven forest types. When applied, lands will be burned every decade. The prescription can be initiated in the first, second or third decade. When first applied, the number of openings created is slightly lower than in subsequent periods.

Forest Types	Acres of YoungGap/acre treated – first treatment	Acres of YoungGap/acre treated – subsequent treatments
04, 07	0.06	0.1
03, 06	0.03	0.05
05, 09	0.01	0.01
08	0.03	0.05

Minimum Level allocations and Regen Acres by Alternative

Source : Spectrum summary tables

The amount of natural disturbance was calculated on the minimum level acres. These are the acreages that have no active management scheduled in the Spectrum model. Tier 1 has about ¾ of the forest with

		Decade					Ave
Alt		D1	D2	D3	D4	D5	D6 - D20
AltDT2	RegenAcre	35,000	31,000	30,999	31,000	31,000	31,049
AltDT1	RegenAcre	11,641	12,000	11,999	12,000	12,000	12,000
AltCT2	RegenAcre	35,007	31,004	30,997	30,998	30,999	31,267
AltCT1	RegenAcre	12,002	12,001	12,001	11,999	11,999	12,001
AltBT2	RegenAcre	34,999	30,996	31,001	30,996	31,000	31,000
AltBT1	RegenAcre	11,593	11,999	12,001	11,999	11,999	11,999
AltA	RegenAcre	6,498	6,497	6,497	7,000	6,999	6,999
		Decade					Ave
Alt		D1	D2	D3	D4	D5	D6 - D20
AltDT2	Minimum Level	414,437	414,506	414,556	414,845	415,327	415,689
AltDT1	Minimum Level	793,909	792,988	793,118	793,805	795,252	796,960
AltCT2	Minimum Level	500,694	500,096	500,198	500,676	501,591	502,707
AltCT1	Minimum Level	791,516	790,312	790,413	791,075	792,495	794,560
AltBT2	Minimum Level	408,051	407,952	408,032	408,337	408,728	409,251
AltBT1	Minimum Level	793,071	792,070	792,218	792,925	794,322	796,100
AltA	Minimum Level	842,079	842,096	842,097	842,097	842,097	842,097
		Decade					Ave
Alt		D1	D2	D3	D4	D5	D6 - D20
AltDT2	YoungGaps	2,670	3,065	3,080	3,087	3,089	3,089
AltDT1	YoungGaps	5,630	6,746	7,370	7,688	7,688	7,688
AltCT2	YoungGaps	3,248	3,710	3,725	3,726	3,726	3,726
AltCT1	YoungGaps	5,510	6,876	7,436	7,575	7,575	7,575
AltBT2	YoungGaps	2,722	3,181	3,211	3,229	3,232	3,232
AltBT1	YoungGaps	5,649	6,971	7,509	7,685	7,685	7,685
AltA	YoungGaps	4,500	4,517	4,518	4,518	4,518	4,518

no active management, whereas, Tier 2 has less than ½ forest with no active management. But, active management includes all possible activities, including prescribed fire, intermediate treatments, and not

just regeneration. The amount of Regeneration Acres are shown for the alternatives because these activities are used to create young forest.

Constraints on Tier 2

Refer to Appendix D: Table 15: Tier 2 Objectives for Alternatives B, C, D

Young Forest + Young Gaps must be at least 60000 in periods 2 to 20

Young Forest + Young Gaps must be at least 57000 in periods 1 to 1

Acres receiving regeneration cuts cannot be more than 35,000 acres in periods 1 to 20

Upper Limit Alt B,C,D: Period 1

This constraint is binding in the first planning period for the action alternatives. Since the starting point of young forest is fairly low, there is enough capacity to handle regen increases in the first planning period

Acres receiving regeneration cuts must be at least 31,000 in periods 1 to 20

Lower limits Alt B,C : Period 2 to 20

Lower limit Alt D: Periods 1-14; 16-20

This constraint is binding. The model was bounded to meet the regeneration harvests of 32,000 acres by within bounds of 31,000 to 35,000 acres. This constraint hits to lower limit—wants to go lower in periods 2-20 ---most likely due to the next constraint, as follows.

Young Forest + Young Gaps cannot be more than 90000 acres in periods 1 to 20:

Upper Limit Alt B: Period 2-20

Upper Limit Alt C: Period 3-20

Upper Limit Alt D: Period 3- 20

This constraint is binding. If young gaps were increased in periods 2 and beyond in Alt B and periods 3 and beyond in Alts C and D, then the constraints would need to be raised above 90,000 acres of young forest+ young gaps to achieve plan objectives.

Or, if the constraints were frozen at 90,000 acres of young forest + young gaps, and the amount of young gaps were increased in periods 2 and beyond, then fewer regen acreages would go into solution. That would involve changing the other constraints above for the minimum amount of regeneration of 31,000 ac.