

Rolling Thunder Prairie Management – Part A – Key

Reduce the number of alternatives in this table by finding and eliminating any dominated alternatives, in the process also deleting any irrelevant objectives that result as alternatives are dropped.

CONSEQUENCES TABLE		Treatment (Alternative)				
Objective	Goal	Spring Burn	Fall Burn	Mowing	Grazing	No Action
Cost (\$/year)	Min	10,000	10,000	15,000	7,000	2,000
Rancher Support (# of Grazing Units)	Max	0	0	0	50	0
Neighbor Complaints (Estimated Number)	Min	5	5	0	1	1
Maintain Cover for Birds (Yes = 1, No = 0)	Max	1	0	1	1	1
Effects on Listed Plants (Stem density / m2)	Max	10	9	2	1	1
Effects on Butterflies (Emergence Index % hatch)	Max	0.05	0.03	0.1	0.2	0.01
Effects on Beetles (% Area Occupied)	Max	0.02	0	0.35	0.2	0.02

Simplifying a consequence table. First, look for an alternative (*column*) that ‘can’t win’ because at least one of the other alternatives ranks better (or ties) on *all* objectives. Cross that alternative off the table and then see if any objectives have become irrelevant (no difference between the remaining alternatives). Repeat (we’ve set this up so you can reduce the table at least to four alternatives, but maybe you can go farther?). *Optional tip for finding dominated alternatives:* Convert the performance measures on each objective (every row) to simple relative ranks, from 1-5 for best to worst performance (remember to pay attention to whether your goal is to *minimize* or *maximize* each objective!). For example, the top row, Cost, would have ranks 3, 3, 5, 2, 1 from left to right (e.g., no action is best or 1, spring and fall burn alternatives tie for relative rank 3).

Step 1: Fall Burn is dominated by Spring Burn

CONSEQUENCES TABLE		Treatment (Alternative)				
Objective	Goal	Spring Burn	Fall Burn	Mowing	Grazing	No Action
Cost (\$/year)	Min	10,000	10,000	15,000	7,000	2,000
Rancher Support (# of Grazing Units)	Max	0	0	0	50	0
Neighbor Complaints (Estimated Number)	Min	5	5	0	1	1
Maintain Cover for Birds (Yes = 1, No = 0)	Max	1	0	1	1	1
Effects on Listed Plants (Stem density / m2)	Max	10	9	2	1	1
Effects on Butterflies (Emergence Index % hatch)	Max	0.05	0.03	0.1	0.2	0.01
Effects on Beetles (% Area Occupied)	Max	0.02	0	0.35	0.2	0.02

Step 2: Maintain Cover for Birds is now irrelevant

CONSEQUENCES TABLE		Treatment (Alternative)				
Objective	Goal	Spring Burn	Fall Burn	Mowing	Grazing	No Action
Cost (\$/year)	Min	10,000	10,000	15,000	7,000	2,000
Rancher Support (# of Grazing Units)	Max	0	0	0	50	0
Neighbor Complaints (Estimated Number)	Min	5	5	0	1	1
Maintain Cover for Birds (Yes = 1, No = 0)	Max	1	0	1	1	1
Effects on Listed Plants (Stem density / m2)	Max	10	9	2	1	1
Effects on Butterflies (Emergence Index % hatch)	Max	0.05	0.03	0.1	0.2	0.01
Effects on Beetles (% Area Occupied)	Max	0.02	0	0.35	0.2	0.02

Step 3: Convert Rancher Support to revenue and do an even swap: 50 grazing units * \$120 per unit = \$6000, which can be combined with Cost.

CONSEQUENCES TABLE		Treatment (Alternative)				
Objective	Goal	Spring Burn	Fall Burn	Mowing	Grazing	No Action
Cost (\$/year)	Min	10,000	10,000	15,000	7,000 1,000	2,000
Rancher Support (# of Grazing Units)	Max	0	0	0	50 0	0
Neighbor Complaints (Estimated Number)	Min	5	5	0	1	1
Maintain Cover for Birds (Yes = 1, No = 0)	Max	1	0	1	1	1
Effects on Listed Plants (Stem density / m2)	Max	10	9	2	1	1
Effects on Butterflies (Emergence Index % hatch)	Max	0.05	0.03	0.1	0.2	0.01
Effects on Beetles (% Area Occupied)	Max	0.02	0	0.35	0.2	0.02

Step 4. Rancher Support is now irrelevant

CONSEQUENCES TABLE		Treatment (Alternative)				
Objective	Goal	Spring Burn	Fall Burn	Mowing	Grazing	No Action
Cost (\$/year)	Min	10,000	10,000	15,000	7,000 1,000	2,000
Rancher Support (# of Grazing Units)	Max	0	0	0	50 0	0
Neighbor Complaints (Estimated Number)	Min	5	5	0	1	1
Maintain Cover for Birds (Yes = 1, No = 0)	Max	1	0	1	1	1
Effects on Listed Plants (Stem density / m2)	Max	10	9	2	1	1
Effects on Butterflies (Emergence Index % hatch)	Max	0.05	0.03	0.1	0.2	0.01
Effects on Beetles (% Area Occupied)	Max	0.02	0	0.35	0.2	0.02

Step 5. No Action is now dominated by Grazing

CONSEQUENCES TABLE		Treatment (Alternative)				
Objective	Goal	Spring Burn	Fall Burn	Mowing	Grazing	No Action
Cost (\$/year)	Min	10,000	10,000	15,000	7,000 1,000	2,000
Rancher Support (# of Grazing Units)	Max	0	0	0	50 0	0
Neighbor Complaints (Estimated Number)	Min	5	5	0	1	1
Maintain Cover for Birds (Yes = 1, No = 0)	Max	1	0	1	1	1
Effects on Listed Plants (Stem density / m2)	Max	10	9	2	1	1
Effects on Butterflies (Emergence Index % hatch)	Max	0.05	0.03	0.1	0.2	0.01
Effects on Beetles (% Area Occupied)	Max	0.02	0	0.35	0.2	0.02

Step 6: The final consequences table

CONSEQUENCES TABLE		Treatment (Alternative)		
Objective	Goal	Spring Burn	Mowing	Grazing
Cost (\$/year)	Min	10,000	15,000	1,000
Neighbor Complaints (Estimated Number)	Min	5	0	1
Effects on Listed Plants (Stem density / m2)	Max	10	2	1
Effects on Butterflies (Emergence Index % hatch)	Max	0.05	0.1	0.2
Effects on Beetles (% Area Occupied)	Max	0.02	0.35	0.2