**SETS:**

j – barriers at location j

i – barriers at location i

k – barriers between two sets of barriers j (i)

months – months to model each scenario /1\*12/

s – budget scenarios to loop across /s1\*s22/

w – weights on the objective function to cycle through each scenario and month /w1\*w48/

rad\_infl – the dispersal thresholds or radius of influences to cycle through /r1\*r4/

**PARAMETERS (IMPORTED FROM EXCEL)**

|  |  |  |
| --- | --- | --- |
|  | distance (j,i) | The distance between the two barriers in km |
|  | cost (k) | The cost of removing barriers in $ |
|  | penalty (j,i) | The penalty or barrier passage associated with the barrier |
|  | IICnum\_month (months) | The precalculated ICC numerator value for the entire basin in each month |
|  | A (j, months) | The habitat upstream of each barrier |
|  | links (j,i) | The topological distance between the barriers |
|  | path\_up (j, j, k) | The barriers located between two barriers as well as the upward |
|  | economic\_cost (k, months) | The normalized economic losses ($) of the barriers |
|  | dam\_costs (k, months) | The actual economic losses ($) of barriers |
|  | objweights (w) | The weights applied to the objectives (0-1) |
|  | habitat (k,months) | The monthly habitat without penalty |
|  | Rem\_budget (scenarios) | The budget removal scenario |
|  | R (rad\_infl) |  |
|  | area (months) | The total quality-weighted habitat area by month |
|  | trib (i,j) | Bonus provided to tributary reaches |