

1 Carbon stock protection and food production are key targets for conservation planning in a
 2 landscape of public and private lands
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 4 Sarah Halperin, Kelly Hopping, Rebecca Som Castellano, Jodi Brandt
 5 Landscape Ecology

6 Online Resource C: Systematic Conservation Planning

7 C.1 Correlation between NCP data layers

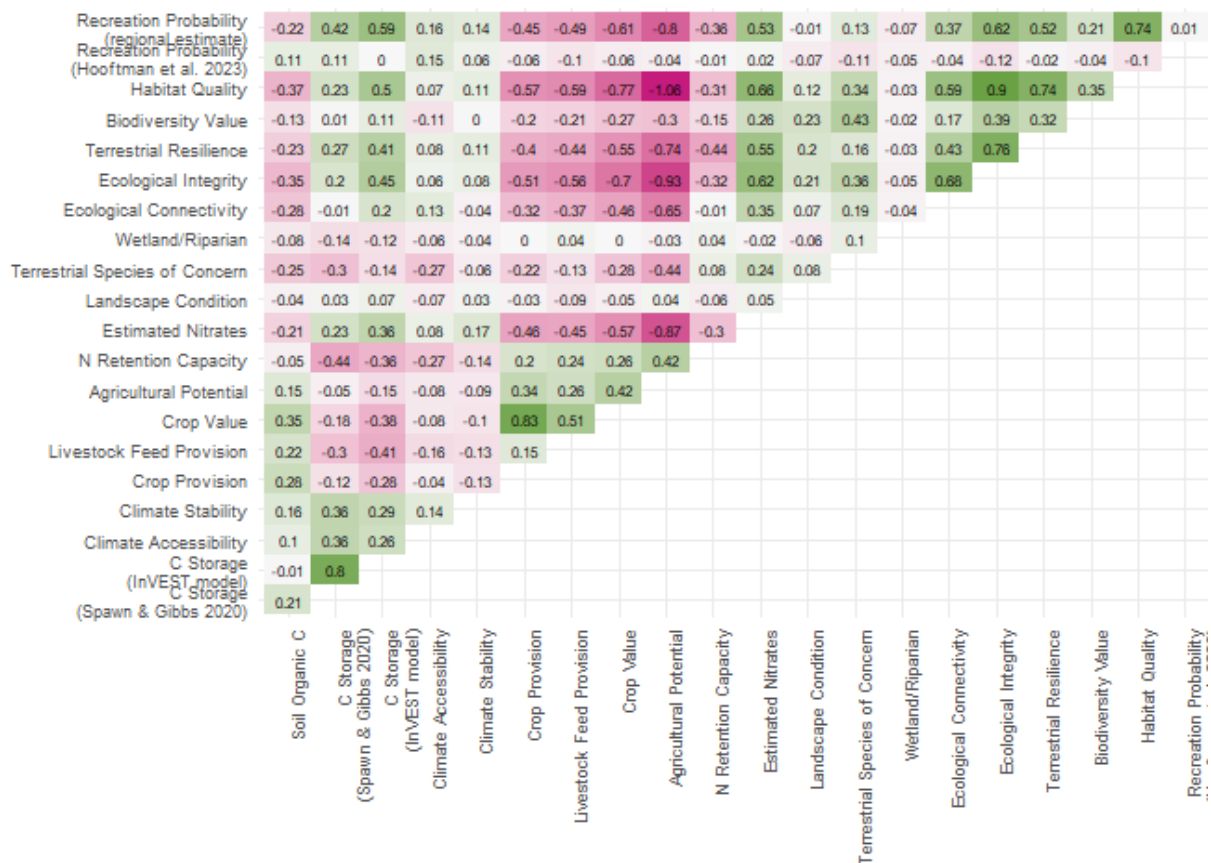


Figure C1: Pearson correlation coefficients between each NCP indicator. Very few (5 pairs) were highly correlated with a correlation coefficient >0.75 .

8 C.2 Sensitivity analysis for NCP categories

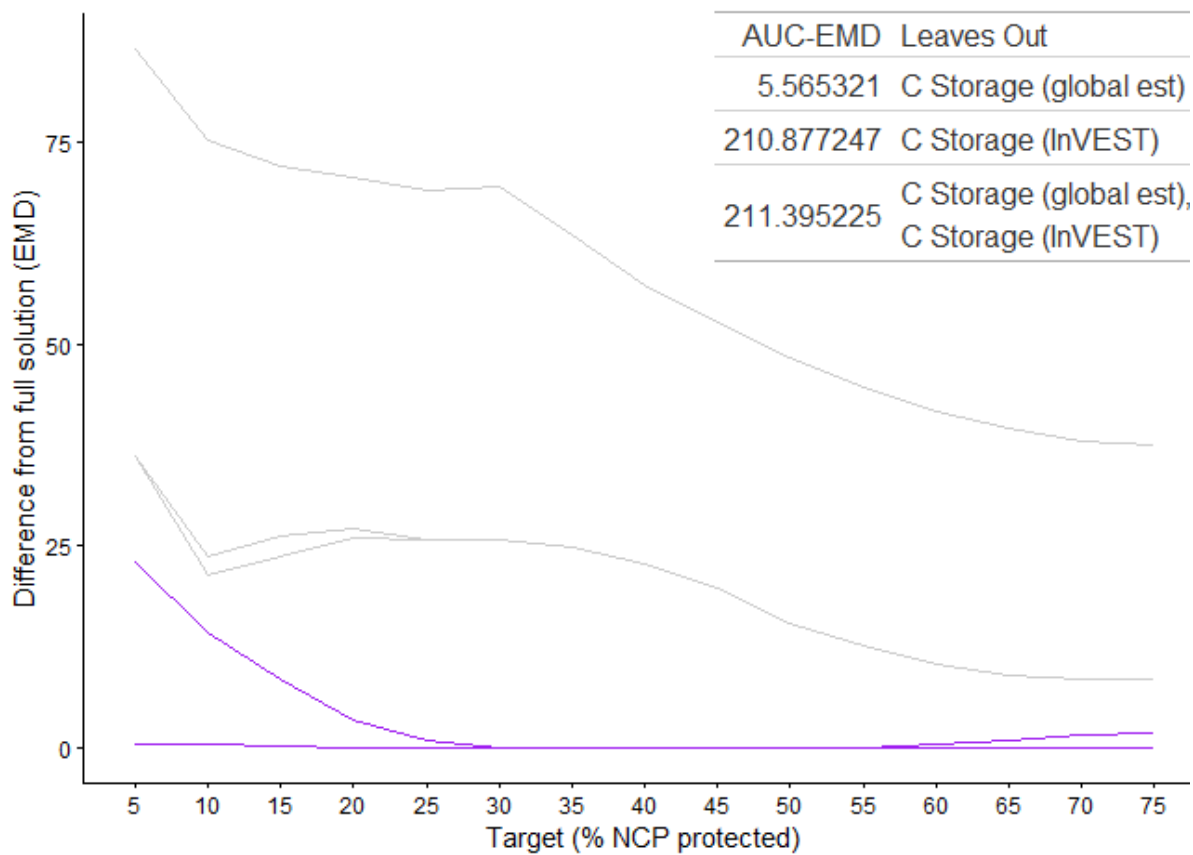


Figure C2: We measured the Earth Mover's Distance [EMD] between every possible combination of our three C stock protection indicators and the optimal solution using all three indicators the “full solution”) at different protection targets. The solutions with the lowest area under the EMD curve [AUC-EMD], showing that they are closest to the full solution across all targets, are depicted in purple. The table reports the AUC-EMD values for the closest solutions as well as the indicators that these solutions omit. The EMDs of the other solutions are shown in gray.

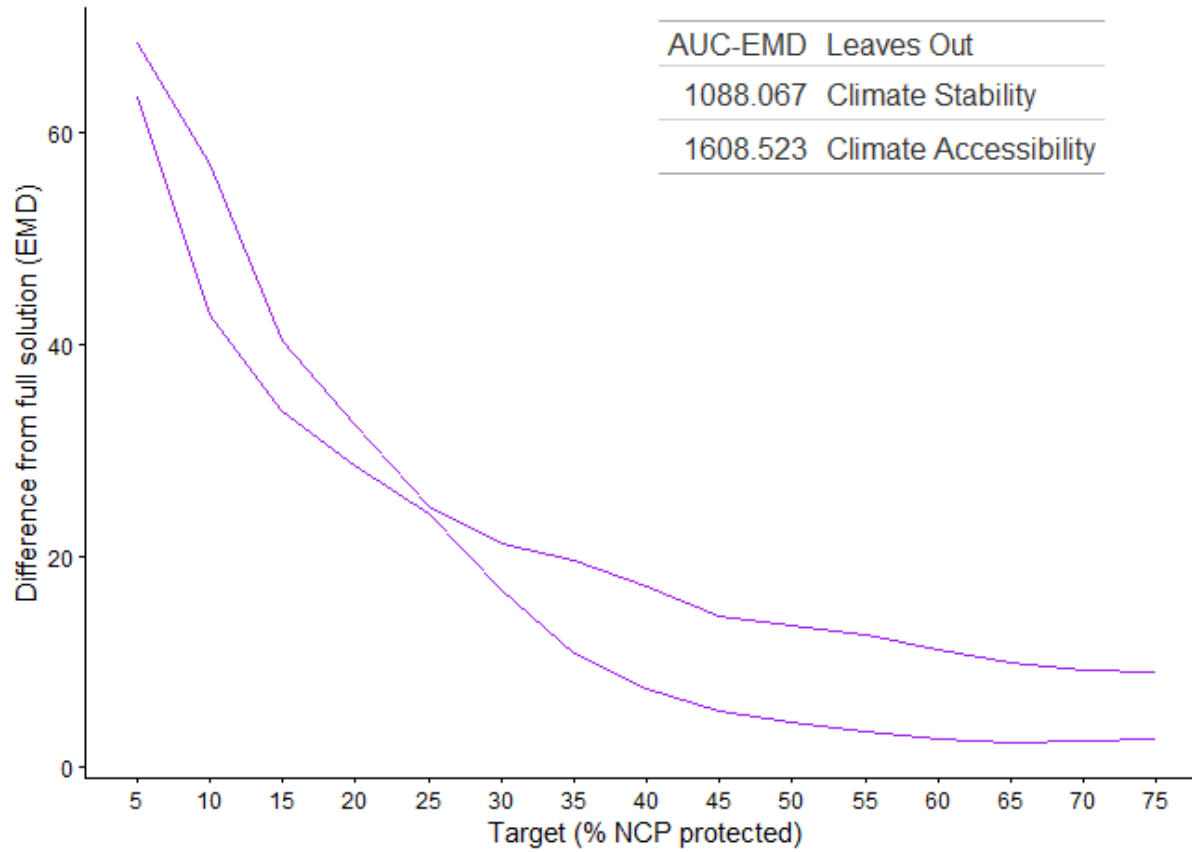


Figure C3: We measured the Earth Mover's Distance [EMD] between each solution for our two climate adaptation indicators and the optimal solution using both indicators (the "full solution") at different protection targets. The EMD of each solution to the full solution is depicted in purple. The table reports the AUC-EMD values for the closest solutions as well as the inputs that these solutions omit.

AUC-EMD	Leaves Out
116.9903	Crop Value
405.1230	Crop Provision
683.2011	Crop Provision, Crop Value
781.5239	Crop Provision, Agricultural Potential

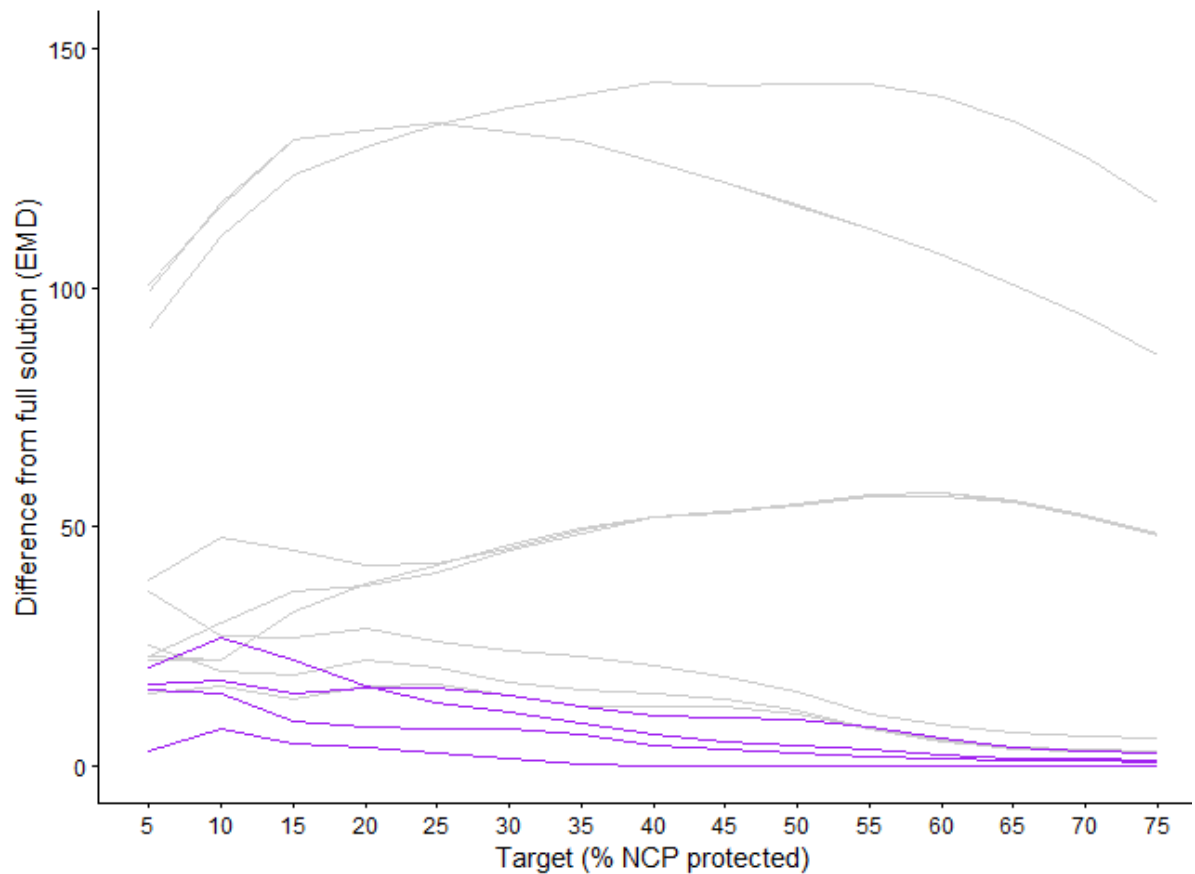


Figure C4: We measured the Earth Mover's Distance [EMD] between every possible combination of our four food and feed indicators and the optimal solution using all four indicators (the "full solution") at different protection targets. The solutions with the lowest area under the EMD curve [AUC-EMD], showing that they are closest to the full solution across all targets, are depicted in purple. The table reports the AUC-EMD values for the closest solutions as well as the inputs that these solutions omit. The EMDs of the other solutions are shown in gray.

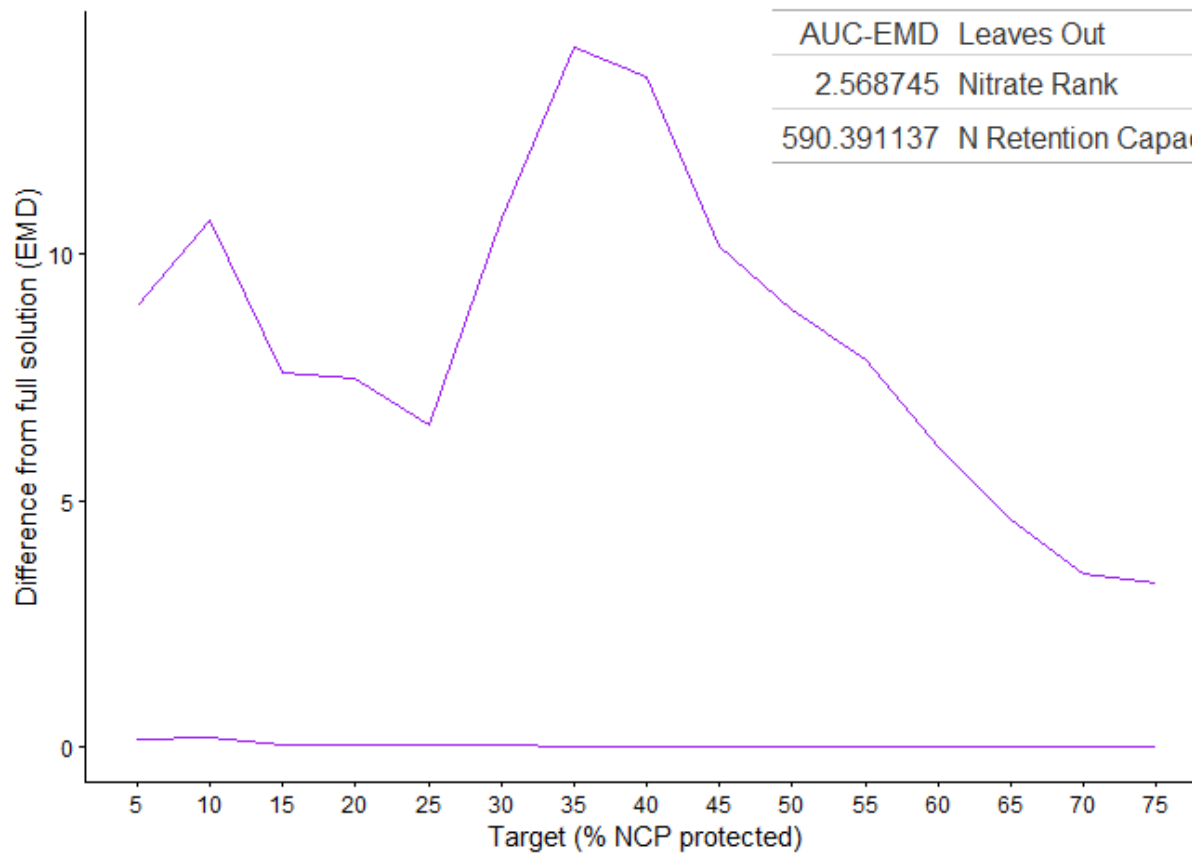


Figure C5: We measured the Earth Mover’s Distance [EMD] between each solution for our two water quality indicators and the optimal solution using both indicators (the “full solution”) at different protection targets. The EMD of each solution to the full solution is shown in purple. The table reports the AUC-EMD values for both solutions as well as the inputs that these solutions omit.

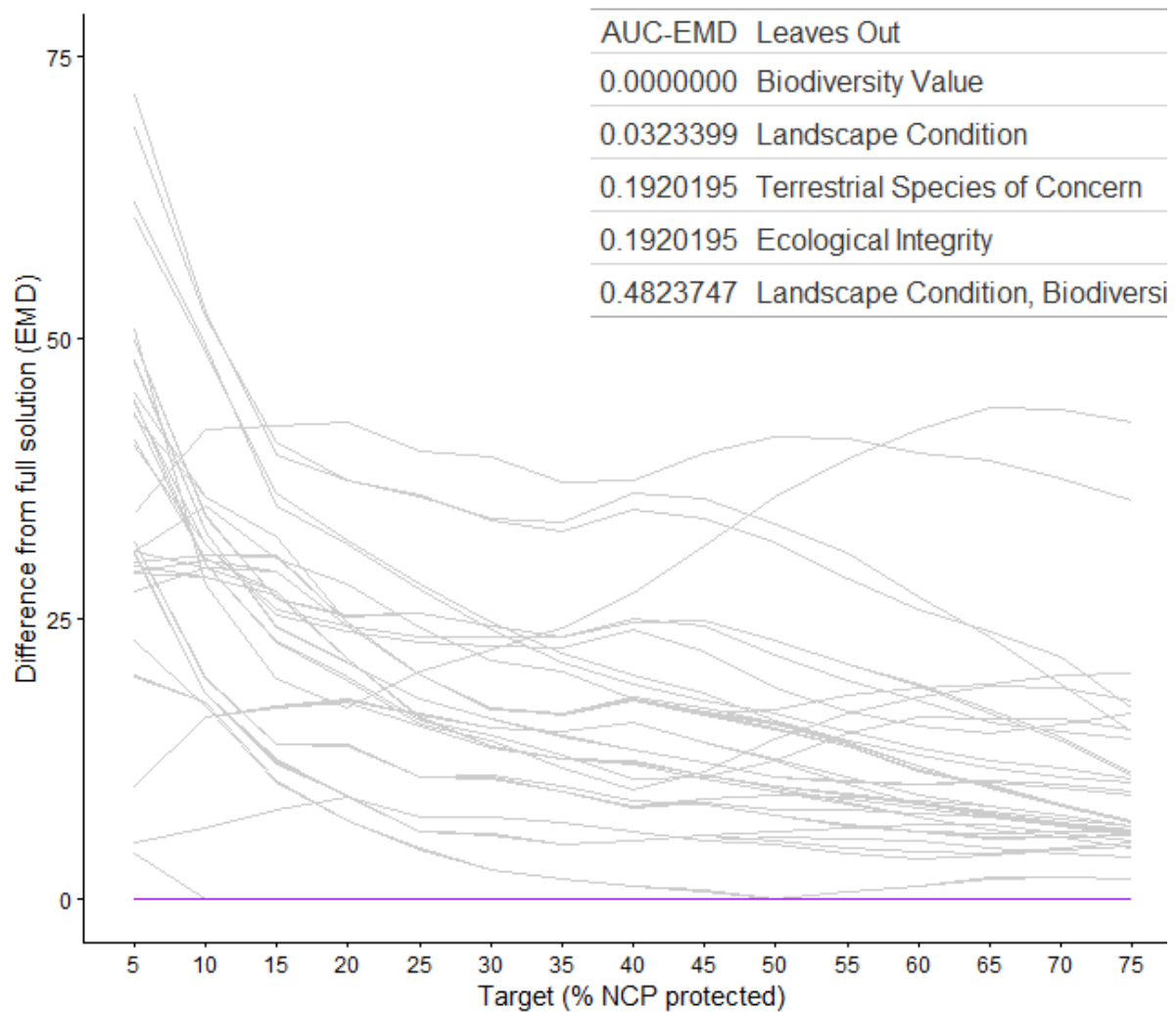


Figure C6: We measured the Earth Mover's Distance [EMD] between every possible combination of our eight habitat indicators and the optimal solution using all eight indicators (the "full solution") at different protection targets. The solutions with the lowest area under the EMD curve [AUC-EMD], showing that they are closest to the full solution across all targets, are depicted in purple. The table reports the AUC-EMD values for the closest solutions as well as the inputs that these solutions omit. The EMDs of the other solutions are shown in gray.

- 13 Additionally, because there were many habitat indicators, we assessed whether there were low
 14 AUC-EMD solutions with fewer inputs than shown in the 5 lowest AUC-EMD solutions.

Table C1: We measured the Earth Mover's Distance [EMD] between every possible combination of our eight habitat indicators and the optimal solution using all eight indicators at different protection targets (Figure C6). This is an expanded table with the lowest AUC-EMD values for each number of inputs as well as the indicators included in each solution. Since a lower number of inputs is desired for ease of computation, the solution with a low AUC-EMD (<1) and 4 inputs was chosen.

AUC-EMD	Num Inputs	Landscape Condition	Terrestrial Species of Concern	Wetland / Riparian	Ecological Connectivity	Ecological Integrity	Terrestrial Resilience	Biodiversity Value	Habitat Quality
0.0000	7	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes
0.0323	7	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
0.1920	7	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes
0.1920	7	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes
0.4824	6	No	Yes	Yes	Yes	Yes	Yes	No	Yes
0.4895	6	Yes	No	Yes	Yes	Yes	Yes	No	Yes
0.5754	6	No	No	Yes	Yes	Yes	Yes	Yes	Yes
0.5754	6	No	Yes	Yes	Yes	No	Yes	Yes	Yes
0.5754	6	Yes	Yes	Yes	Yes	No	Yes	No	Yes
0.6088	5	No	No	Yes	Yes	Yes	Yes	No	Yes
0.6088	5	No	Yes	Yes	Yes	No	Yes	No	Yes
0.6950	5	No	No	Yes	Yes	No	Yes	Yes	Yes
0.6950	5	Yes	No	Yes	Yes	No	Yes	No	Yes
0.8135	4	No	No	Yes	Yes	No	Yes	No	Yes
11.0353	4	No	No	Yes	Yes	Yes	Yes	No	No
11.0739	4	No	No	Yes	Yes	No	Yes	Yes	No
11.0739	4	No	Yes	Yes	Yes	No	Yes	No	No
11.0739	4	Yes	No	Yes	Yes	No	Yes	No	No
11.1899	3	No	No	Yes	Yes	No	Yes	No	No
35.3412	3	No	No	No	Yes	No	Yes	No	Yes
45.5630	3	No	No	No	Yes	Yes	Yes	No	No
45.5630	3	No	Yes	No	Yes	No	Yes	No	No
45.7487	2	No	No	No	Yes	No	Yes	No	No
282.3020	2	No	No	Yes	No	No	Yes	No	No
316.4685	1	No	No	No	No	No	Yes	No	No
316.4968	2	No	Yes	No	No	No	Yes	No	No
541.9727	1	No	No	No	No	No	No	No	Yes
735.5426	1	No	No	No	No	Yes	No	No	No

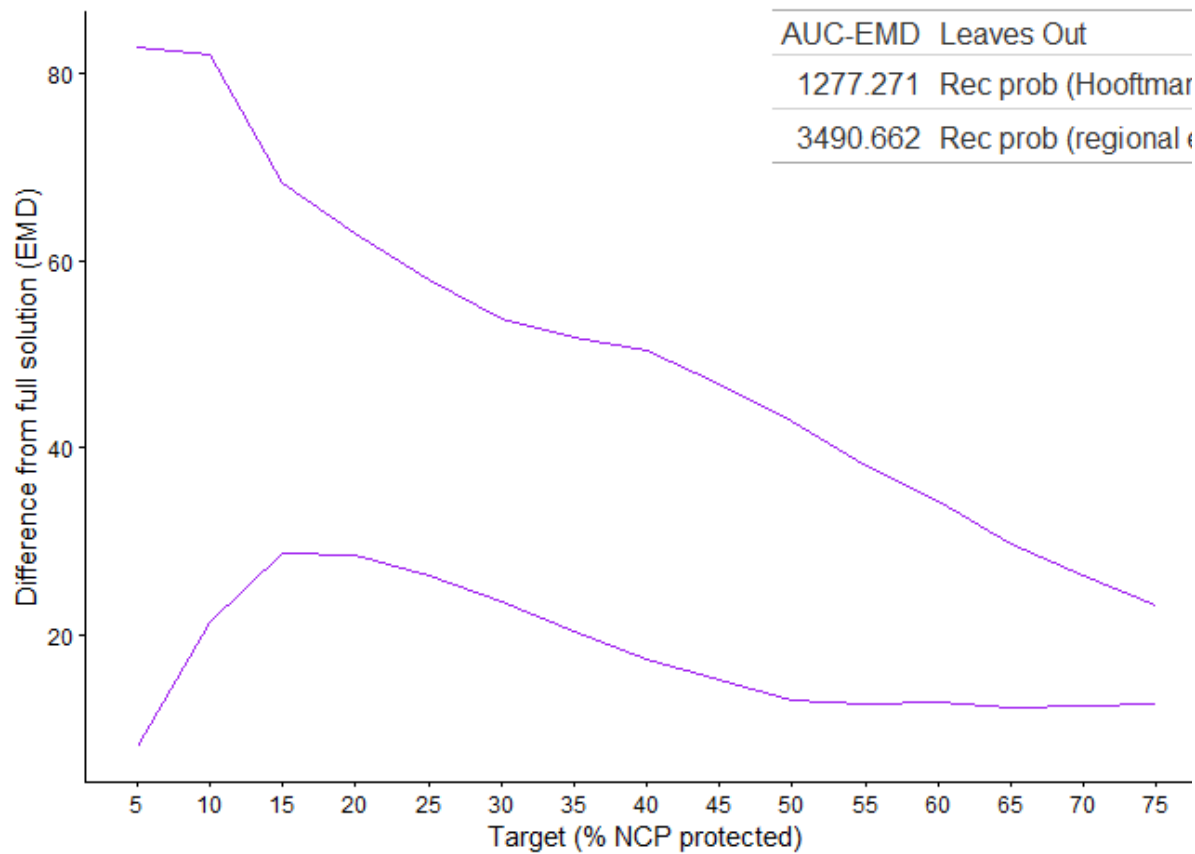


Figure C7: We measured the Earth Mover's Distance [EMD] between each solution for our two recreation indicators and the optimal solution using both indicators (the "full solution") at different protection targets. The EMD of each solution to the full solution is shown in purple. The table reports the AUC-EMD values for both solutions as well as the inputs that these solutions omit.