Supplementary Figure S1. Environmental variables used for modelling recovery potential in the Warwickshire Avon case study catchment. For abbreviations and units see main text Table 1.

Supplementary Table S1. Summary statistics for the linear model predicting recovery potential as a function of environmental variables without interactions. For abbreviations and units see main text Table 1.

	logit(recovery potential)		
Predictors	*Estimates*	*CI*	*p*
(Intercept)	-2.75	-12.49 – 6.99	0.579
CRI	0.03	0.01 – 0.05	**<0.001**
logalt	-0.92	-1.49 – -0.35	**0.002**
gcha	0.87	0.28 – 1.47	**0.004**
groc	-8.38	-19.42 – 2.65	0.136
qcat	-0.03	-0.08 – 0.01	0.175
slop	-0.01	-0.02 – 0.01	0.341
p_liv	1.99	-0.56 – 4.53	0.126
p_stw	-9.63	-16.21 – -3.05	**0.004**
p_urb	6.82	4.27 – 9.38	**<0.001**
p_ara	-4.19	-9.26 – 0.88	0.105
cams30	0.22	0.08 – 0.35	**0.002**
cams95	-0.00	-0.09 – 0.09	0.976
bwd	0.05	-0.05 – 0.15	0.319
ara	0.03	-0.06 – 0.13	0.482
igr	0.04	-0.06 – 0.14	0.417
sgr	0.01	-0.09 – 0.11	0.914
urb	0.03	-0.07 – 0.13	0.536
Observations	739		
R^2 / R^2 adjusted	0.137 / 0.117		

Supplementary Table S2. Summary statistics for the linear model predicting recovery potential as a function of environmental variables with all possible two-way interactions. For abbreviations and units see main text Table 1.

Predictors	Estimates	CI	p
		logit(recovery potential)	
(Intercept)	-86.18	-216.28 – 43.91	0.194
CRI	0.99	-1.15 – 3.13	0.365
logalt	24.67	-37.06 – 86.41	0.433
gcha	52.06	-35.86 – 139.98	0.245
groc	3005.41	-9081.45 – 15092.26	0.625
qcat	-1.00	-8.21 – 6.21	0.786
slop	0.41	-1.77 – 2.60	0.710
p_liv	-226.17	-629.70 – 177.35	0.271
p_stw	253.08	-788.88 – 1295.04	0.634
p_urb	637.90	363.26 – 912.55	**<0.001**
p_ara	-15.11	-1048.58 – 1018.36	0.977
cams30	1.13	-34.69 – 36.95	0.950
cams95	4.15	-15.66 – 23.97	0.681
bwd	0.90	-0.57 – 2.36	0.230
ara	0.91	-0.40 – 2.22	0.171
igr	0.95	-0.35 – 2.26	0.150
sgr	0.23	-1.22 – 1.68	0.755
urb	0.92	-0.39 – 2.23	0.168
CRI * logalt	0.11	-0.00 – 0.23	0.058
CRI * gcha	-0.17	-0.40 – 0.06	0.141
CRI * groc	1.56	-11.18 – 14.31	0.810
CRI * qcat	-0.01	-0.03 – -0.00	**0.006**
CRI * slop	-0.00	-0.01 – -0.00	**0.032**

CRI * p_liv	-0.21	-0.73 – 0.31	0.432
CRI * p_stw	1.59	-0.05 – 3.22	0.057
CRI * p_urb	0.03	-0.61 – 0.67	0.924
CRI * p_ara	0.15	-0.91 – 1.21	0.781
CRI * cams30	0.03	-0.03 – 0.09	0.321
CRI * cams95	-0.02	-0.05 – 0.00	0.087
CRI * bwd	-0.01	-0.03 – 0.01	0.367
CRI * ara	-0.01	-0.03 – 0.01	0.300
CRI * igr	-0.01	-0.03 – 0.01	0.286
CRI * sgr	-0.01	-0.03 – 0.01	0.488
CRI * urb	-0.01	-0.03 – 0.01	0.252
logalt * gcha	-2.65	-11.28 – 5.99	0.547
logalt * groc	-207.90	-2104.05 – 1688.25	0.830
logalt * qcat	-0.22	-0.69 – 0.26	0.371
logalt * slop	-0.10	-0.22 – 0.02	0.090
logalt * p_liv	-5.76	-38.11 – 26.58	0.726
logalt * p_stw	143.24	64.70 – 221.79	**<0.001**
logalt * p_urb	-35.61	-69.67 – -1.55	**0.040**
logalt * p_ara	56.45	-25.38 – 138.29	0.176
logalt * cams30	1.08	-4.29 – 6.45	0.693
logalt * cams95	0.22	-1.80 – 2.24	0.831
logalt * bwd	-0.32	-1.03 – 0.39	0.381
logalt * ara	-0.29	-0.91 – 0.33	0.354
logalt * igr	-0.31	-0.92 – 0.30	0.322
logalt * sgr	-0.15	-0.81 – 0.51	0.660
logalt * urb	-0.28	-0.90 – 0.34	0.373
gcha * groc	38288.08	-7877.63 – 84453.79	0.104

gcha * qcat	-2.55	-4.15 – -0.96	**0.002**
gcha * slop	-0.00	-0.07 – 0.07	0.989
gcha * p_liv	-122.73	-197.62 – -47.83	**0.001**
gcha * p_stw	-129.23	-212.00 – -46.46	**0.002**
gcha * p_urb	172.00	61.70 – 282.31	**0.002**
gcha * p_ara	93.05	-6.66 – 192.77	0.067
gcha * cams30	-0.68	-2.51 – 1.14	0.461
gcha * cams95	-1.96	-3.05 – -0.87	**<0.001**
gcha * bwd	-0.34	-1.19 – 0.52	0.439
gcha * ara	-0.34	-1.15 – 0.47	0.411
gcha * igr	-0.34	-1.16 – 0.47	0.407
gcha * sgr	-0.40	-1.26 – 0.45	0.356
gcha * urb	-0.33	-1.16 – 0.49	0.425
groc * qcat	32.39	-50.78 – 115.56	0.445
groc * slop	2.86	-14.19 – 19.91	0.742
groc * p_liv	31110.06	-27854.89 – 90075.01	0.301
groc * p_stw	38529.40	-52952.26 – 130011.06	0.408
groc * p_urb	-21877.46	-68321.54 – 24566.62	0.355
groc * p_ara	-92419.23	-221633.57 – 36795.11	0.161
groc * cams30	-781.70	-4946.68 – 3383.27	0.713
groc * cams95	725.74	-3415.45 – 4866.93	0.731
groc * bwd	-21.12	-115.73 – 73.49	0.661
groc * ara	-22.86	-119.68 – 73.96	0.643
groc * igr	-23.07	-121.00 – 74.86	0.644
groc * sgr	-25.82	-134.97 – 83.33	0.642
groc * urb	-23.94	-124.36 – 76.48	0.640
qcat * slop	0.01	-0.03 – 0.04	0.752

qcat * p_liv	-3.61	-7.90 – 0.68	0.099
qcat * p_stw	-14.76	-31.31 – 1.79	0.080
qcat * p_urb	0.41	-3.10 – 3.93	0.817
qcat * p_ara	16.14	6.47 – 25.82	**0.001**
qcat * cams30	0.11	-0.34 – 0.57	0.624
qcat * cams95	-0.21	-0.40 – -0.02	**0.029**
qcat * bwd	0.02	-0.06 – 0.09	0.665
qcat * ara	0.02	-0.05 – 0.09	0.630
qcat * igr	0.02	-0.05 – 0.09	0.645
qcat * sgr	0.03	-0.05 – 0.10	0.470
qcat * urb	0.02	-0.05 – 0.09	0.635
slop * p_liv	0.21	-0.48 – 0.90	0.552
slop * p_stw	-0.78	-1.99 – 0.42	0.202
slop * p_urb	0.07	-0.77 – 0.92	0.866
slop * p_ara	-0.05	-1.54 – 1.44	0.945
slop * cams30	-0.00	-0.05 – 0.05	0.975
slop * cams95	-0.02	-0.05 – 0.01	0.188
slop * bwd	-0.00	-0.03 – 0.02	0.889
slop * ara	-0.00	-0.02 – 0.02	0.900
slop * igr	-0.00	-0.02 – 0.02	0.904
slop * sgr	0.00	-0.02 – 0.02	0.873
slop * urb	-0.00	-0.02 – 0.02	0.894
p_liv * p_stw	807.12	437.42 – 1176.81	**<0.001**
p_liv * p_urb	-142.35	-286.86 – 2.16	0.054
p_liv * p_ara	-194.20	-328.28 – -60.12	**0.005**
p_liv * cams30	-24.06	-86.24 – 38.12	0.448
p_liv * cams95	-0.18	-20.35 – 19.99	0.986

p_liv * bwd	3.01	-1.13 – 7.16	0.154
p_liv * ara	2.76	-1.19 – 6.71	0.170
p_liv * igr	2.83	-1.11 – 6.77	0.158
p_liv * sgr	2.49	-1.63 – 6.60	0.236
p_liv * urb	2.66	-1.32 – 6.65	0.190
p_stw * p_urb	961.70	279.01 – 1644.39	**0.006**
p_stw * p_ara	-16.99	-899.58 – 865.60	0.970
p_stw * cams30	-12.15	-159.99 – 135.69	0.872
p_stw * cams95	-3.09	-54.25 – 48.07	0.906
p_stw * bwd	-5.66	-16.60 – 5.28	0.310
p_stw * ara	-6.15	-16.34 – 4.03	0.236
p_stw * igr	-6.27	-16.45 – 3.90	0.226
p_stw * sgr	-6.56	-16.64 – 3.52	0.202
p_stw * urb	-6.70	-16.93 – 3.52	0.198
p_urb * p_ara	459.20	-27.51 – 945.91	0.064
p_urb * cams30	13.52	-13.88 – 40.92	0.333
p_urb * cams95	-16.29	-27.14 – -5.43	**0.003**
p_urb * bwd	-5.97	-8.79 – -3.15	**<0.001**
p_urb * ara	-5.69	-8.35 – -3.03	**<0.001**
p_urb * igr	-5.96	-8.57 – -3.35	**<0.001**
p_urb * sgr	-4.98	-7.89 – -2.08	**0.001**
p_urb * urb	-5.77	-8.44 – -3.10	**<0.001**
p_ara * cams30	24.03	-102.00 – 150.07	0.708
p_ara * cams95	-5.12	-47.15 – 36.92	0.811
p_ara * bwd	-2.06	-12.80 – 8.68	0.707
p_ara * ara	-1.21	-11.59 – 9.16	0.818
p_ara * igr	-1.16	-11.51 – 9.19	0.826

p_ara * sgr	-2.00	-12.79 – 8.78	0.715
p_ara * urb	-0.87	-11.23 – 9.50	0.870
cams30 * cams95	-0.06	-0.67 – 0.55	0.847
cams30 * bwd	-0.02	-0.39 – 0.35	0.897
cams30 * ara	-0.03	-0.40 – 0.33	0.858
cams30 * igr	-0.03	-0.40 – 0.33	0.859
cams30 * sgr	-0.09	-0.45 – 0.28	0.637
cams30 * urb	-0.04	-0.39 – 0.32	0.844
cams95 * bwd	-0.04	-0.25 – 0.17	0.704
cams95 * ara	-0.03	-0.22 – 0.17	0.803
cams95 * igr	-0.03	-0.23 – 0.17	0.776
cams95 * sgr	0.04	-0.16 – 0.24	0.727
cams95 * urb	-0.02	-0.22 – 0.17	0.827
bwd * ara	0.00	-0.00 – 0.00	0.162
bwd * igr	0.00	-0.00 – 0.00	0.301
bwd * sgr	0.01	-0.00 – 0.01	0.210
bwd * urb	0.00	-0.00 – 0.00	0.951
ara * igr	-0.00	-0.00 – 0.00	0.420
ara * sgr	0.00	-0.00 – 0.01	0.244
ara * urb	0.00	-0.00 – 0.00	0.376
igr * sgr	0.00	-0.00 – 0.01	0.105
igr * urb	0.00	-0.00 – 0.00	0.854
sgr * urb	0.00	-0.00 – 0.01	0.298

Observations	739
R^2 / R^2 adjusted	0.518 / 0.392