

## **Supplementary S2**

### **Summary:**

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**Table S1. List of Environmental Variables**

<b>Environment Variable</b>	<b>Brief Description</b>	<b>Category</b>	<b>Source</b>
BIO1	Annual Mean Temperature	Bioclimatic Variables	[2]
BIO2	Mean Diurnal Range (Mean of monthly (max temp - min temp))	Bioclimatic Variables	[2]
BIO3	Isothermality (BIO2/BIO7) (×100)	Bioclimatic Variables	[2]
BIO4	Temperature Seasonality (standard deviation ×100)	Bioclimatic Variables	[2]
BIO5	Max Temperature of Warmest Month	Bioclimatic Variables	[2]
BIO6	Min Temperature of Coldest Month	Bioclimatic Variables	[2]
BIO7	Temperature Annual Range (BIO5-BIO6)	Bioclimatic Variables	[2]
BIO8	Mean Temperature of Wettest Quarter	Bioclimatic Variables	[2]
BIO9	Mean Temperature of Driest Quarter	Bioclimatic Variables	[2]
BIO10	Mean Temperature of Warmest Quarter	Bioclimatic Variables	[2]
BIO11	Mean Temperature of Coldest Quarter	Bioclimatic Variables	[2]
BIO12	Annual Precipitation	Bioclimatic Variables	[2]
BIO13	Precipitation of Wettest Month	Bioclimatic Variables	[2]
BIO14	Precipitation of Driest Month	Bioclimatic Variables	[2]
BIO15	Precipitation Seasonality (Coefficient of Variation)	Bioclimatic Variables	[2]
BIO16	Precipitation of Wettest Quarter	Bioclimatic Variables	[2]
BIO17	Precipitation of Driest Quarter	Bioclimatic Variables	[2]
BIO18	Precipitation of Warmest Quarter	Bioclimatic Variables	[2]
BIO19	Precipitation of Coldest Quarter	Bioclimatic Variables	[2]
er_PETColdestQuarter	mean monthly PET of coldest quarter	EnviREM Variables	[3]

er_PETDriestQuarter	mean monthly PET of driest quarter	EnviREM Variables	[3]
er_PETseasonality	monthly variability in potential evapotranspiration	EnviREM Variables	[3]
er_PETWarmestQuarter	mean monthly PET of warmest quarter	EnviREM Variables	[3]
er_PETWettestQuarter	mean monthly PET of wettest quarter	EnviREM Variables	[3]
ele_Aspect	Aspect	Topographic Variables	Derived using [2]
ele_Elevation	Elevation	Topographic Variables	[2]
ele_TWI	Topographic wetness index	Topographic Variables	[3]
ele_TRI	Terrain roughness index	Topographic Variables	[3]
ele_Slope	Slope	Topographic Variables	Derived using [2]

**Table S2. Maxent mean variable contribution and importance**

<b>Environmental Variable</b>	<b>Importance (%)</b>	<b>Contribution (%)</b>
ele_TWI	11.42798222	17.91240018
ele_Elevation	7.061566728	7.910826031
ele_TRI	4.55655417	5.462935564
bio_15	4.750370211	4.796358937
bio_4	6.344358753	4.710689368
bio_17	3.201748946	4.57345527
bio_14	2.570315399	4.364445463
bio_7	4.765793676	4.261705316
bio_18	2.072543996	4.053293217
bio_11	5.167149863	3.885799175
bio_12	4.121908433	3.770463795
bio_6	3.238125298	3.659748854
er_PETColdestQuarter	6.254347571	3.512040513
er_PETseasonality	4.079635289	2.993146838
bio_3	3.482303025	2.502534464
bio_1	2.048364986	2.270298075
ele_Slope	0.942204858	2.258669111
bio_13	1.212834739	2.254740972
er_PETWettestQuarter	3.651336389	2.236415949
bio_19	1.410157195	2.118151054
er_PETWarmestQuarter	3.358407424	2.070877819
bio_2	3.008889001	1.952670211
er_PETDriestQuarter	2.162273052	1.887547663
bio_16	0.869171127	0.968815399

bio_5	1.908291384	0.939309899
bio_9	1.494045555	0.914399725
bio_10	2.53813758	0.839864253
bio_8	2.114139047	0.653059853
ele_Aspect	0.187045921	0.265333731

**Table S3: Changes in species richness across different ecoregions[1]**

Ecoregions	dSR_Current_45_70_mean	dSR_85_70_mean
Northeast India-Myanmar pine forests	-52.86646385	-81.00800576
Brahmaputra Valley semi-evergreen forests	-47.41873503	-61.06667755
Chin Hills-Arakan Yoma montane forests	-44.89880952	-57.4702381
Mizoram-Manipur-Kachin rain forests	-37.90521703	-56.70007125
Meghalaya subtropical forests	-39.21412385	-55.17912998
Eastern Himalayan broadleaf forests	-34.18994034	-51.64399846
North Western Ghats moist deciduous forests	-36.91333401	-49.336717
Northern Triangle temperate forests	-33.30172414	-47.87068966
North Western Ghats montane rain forests	-36.75422028	-45.4492362
Himalayan subtropical broadleaf forests	-32.96095328	-43.98693954
Terai-Duar savanna and grasslands	-25.94408087	-42.83684313
Himalayan subtropical pine forests	-19.6075643	-39.45425868
Khathiar-Gir dry deciduous forests	-28.10581755	-38.13405217
North Deccan dry deciduous forests	-33.38505446	-36.16576589
Sundarbans freshwater swamp forests	-33.42941109	-34.90399908
Narmada Valley dry deciduous forests	-27.93338178	-34.85656585
Chhota-Nagpur dry deciduous forests	-27.54560935	-33.38658065
Indus River Delta-Arabian Sea mangroves	-23.32889382	-32.84239734
East Deccan moist deciduous forests	-26.7477349	-32.44766466
Malabar Coast moist forests	-27.78430168	-32.32008353
Central Deccan Plateau dry deciduous forests	-31.45471153	-31.6221608
Aravalli west thorn scrub forests	-20.02928212	-30.19855286
Upper Gangetic Plains moist deciduous forests	-22.30635106	-29.04027577
Thar desert	-20.44804317	-28.03068834
Rann of Kutch seasonal salt marsh	-18.45244676	-26.56205495
South Western Ghats moist deciduous forests	-20.82418479	-24.12046269
Lower Gangetic Plains moist deciduous forests	-17.51010494	-22.1218992
Orissa semi-evergreen forests	-25.9255878	-21.90066297
South Western Ghats montane rain forests	-16.666083	-21.2520304
Deccan thorn scrub forests	-14.81884294	-18.1138902
Andaman Islands rain forests	-8.155971986	-14.26859739
Sundarbans mangroves	-12.26735975	-13.39446842
Western Himalayan broadleaf forests	-2.237970149	-10.00626866
South Deccan Plateau dry deciduous forests	-13.34109771	-8.545451758
Godavari-Krishna mangroves	-9.195394988	-8.484416741
Baluchistan xeric woodlands	1.666666667	-7.583333333
East Deccan dry-evergreen forests	-10.23444341	-1.949582062
Nicobar Islands rain forests	-1.293060719	-1.324039653
Western Himalayan subalpine conifer forests	6.055622503	-0.482843915
Maldives-Lakshadweep-Chagos Archipelago tropical moist forests	0	0

Pamir alpine desert and tundra	5.849498328	1.742474916
North Tibetan Plateau-Kunlun Mountains alpine desert	8.174158007	8.156379116
Central Tibetan Plateau alpine steppe	9.010576222	8.775138064
Karakoram-West Tibetan Plateau alpine steppe	9.975932457	10.65514428
Rock and Ice	14.93090778	18.33452379
Eastern Himalayan subalpine conifer forests	19.49318508	20.31294835
Northwestern Himalayan alpine shrub and meadows	19.53808704	28.82289585
Northeast Himalayan subalpine conifer forests	31.49497451	34.85433358
Eastern Himalayan alpine shrub and meadows	36.92287006	43.04143748
Western Himalayan alpine shrub and meadows	40.04491892	50.948

**Table S4: Changes in species richness across the different states.**

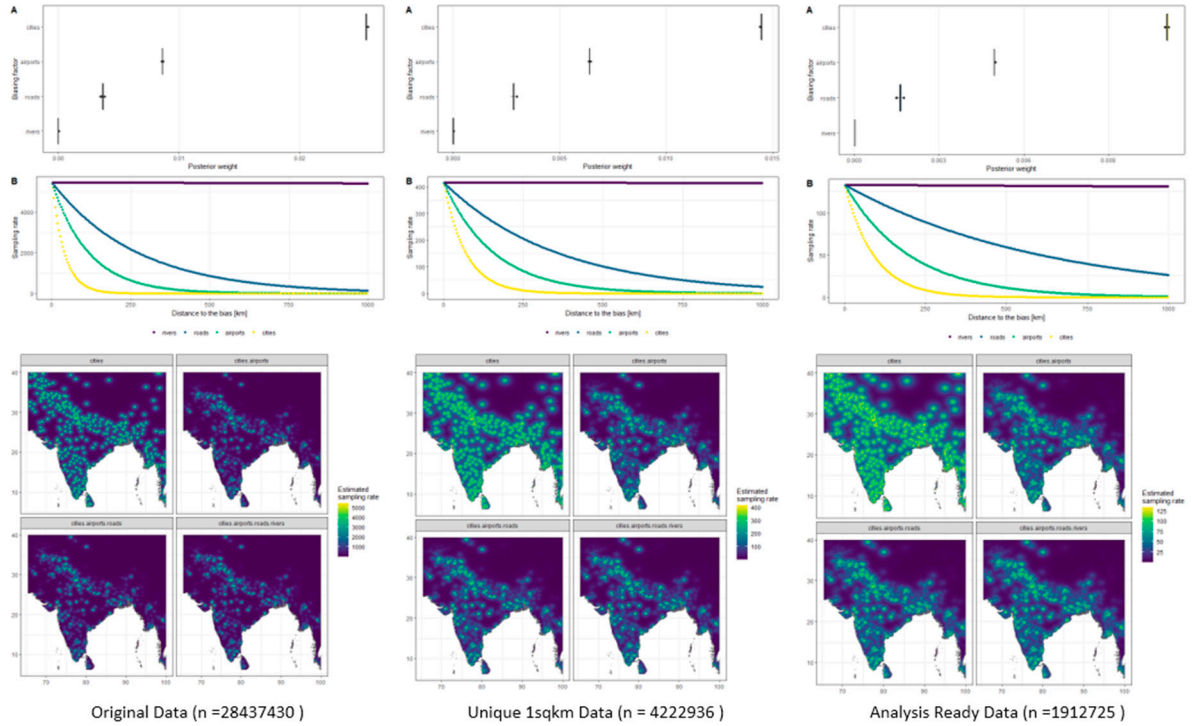
State	dSR_Current_45_70_mean	dSR_Current_85_70_mean
NAGALAND	-47.80065071	-75.49254009
DADRA & NAGAR HAVE	-46.63371151	-62.60291734
ASSAM	-45.66177206	-59.73086543
MANIPUR	-44.98957062	-64.88600928
GOA	-41.15395221	-52.28538603
MEGHALAYA	-35.04838654	-50.76148404
MIZORAM	-32.1375937	-47.45715892
WEST BENGAL	-30.35137721	-30.04499048
CHHATTISGARH	-29.9350211	-39.01415125
MAHARASHTRA	-29.88003495	-34.32578787
TELANGANA	-29.82367524	-29.8808532
ODISHA	-28.81823675	-30.66478863
MADHYA PRADESH	-27.82325729	-35.98788481
GUJARAT	-27.80399546	-37.08454894
JHARKHAND	-26.68060837	-33.61734508
DAMAN & DIU	-25.76744186	-35.53488372
UTTAR PRADESH	-22.24939018	-28.59175213
RAJASTHAN	-22.05326597	-32.12974269
KARNATAKA	-21.27028859	-28.32645677
KERALA	-20.02527708	-23.20620318
DELHI	-16.61608498	-34.04400607
HARYANA	-15.19577329	-22.33241326
BIHAR	-13.21928297	-19.47739148
ANDHRA PRADESH	-13.19914963	-12.52752581
ARUNACHAL PRADESH	-12.97065806	-23.57277988
TRIPURA	-12.75850991	-31.59917387
PUDUCHERRY	-12.32931034	-3.94137931
CHANDIGARH	-11.28387097	-30.57419355
TAMIL NADU	-9.899032679	-1.563658231
PUNJAB	-9.499281377	-17.53628311
ANDAMAN & NICOBAR	-6.630026416	-11.3736425
UTTARAKHAND	-6.364377766	-22.1639853
LAKSHADWEEP	0	0
JAMMU & KASHMIR	1.075776248	-1.316875184
HIMACHAL PRADESH	6.371578052	2.655640573
LADAKH	9.693300283	9.838250416
SIKKIM	12.32207596	19.03690117



**Table S5: Changes in species richness across the different elevation gradients.**

<b>Elevation (Meters)</b>	<b>dSR_45_70_MEAN</b>	<b>dSR_45_70_SD</b>	<b>dSR_85_70_MEAN</b>	<b>dSR_85_70_SD</b>
500	-24.94740477	13.92441235	-30.0108764	16.16797924
1000	-23.75975023	14.54031276	-34.87587006	17.01901641
1500	-32.94794271	20.60836869	-52.48474653	27.61849598
2000	-24.3225885	13.71919756	-39.59285482	22.44133562
2500	-8.018410022	12.40782608	-19.25843098	18.66247969
3000	8.102109149	11.14690492	4.851615488	16.19893713
3500	17.06853908	12.89031601	17.72927888	16.52073734
4000	23.20388179	15.89215162	25.24441608	20.5061475
4500	24.12196216	20.26588432	29.06727687	25.58123856
5000	18.5605001	19.29581598	25.56298393	26.60505745
5500	13.09100057	11.88194588	17.32033205	19.24733796
6000	10.10109218	7.745328918	11.45845527	11.35113859
6500	4.375736417	6.190815907	4.487235435	8.574671093
7000	3.585760518	4.877787095	2.449838188	6.006057485
7500	3.572463768	3.465958012	2.463768116	4.63314996
8500	3.956521739	2.926316291	3.47826087	4.799180774

**Figure S1. Bias correction results for presence data using sampbias packages.**



We obtained the following bias weights of cities =  $2.551440e-02 \pm 4.130647e-05$ , rivers =  $8.432725e-06 \pm 3.715149e-06$ , and roads =  $3.699871e-03 \pm 5.759420e-05$ , while for the final analysis-ready data we obtained following bias weights of cities =  $1.107066e-02 \pm 2.315558e-05$ , rivers =  $1.573538e-05 \pm 8.218483e-06$ , and roads =  $1.618656e-03 \pm 4.402534e-05$  with default settings of sampbias package. This result indicates that our final analysis-ready data had a lower level of sampling bias compared to the original data.

## References

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