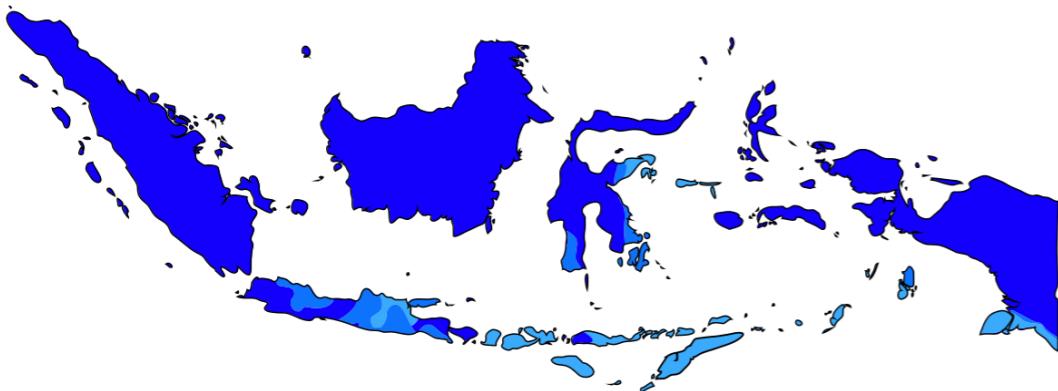


# The historical significance of the Wallace Line

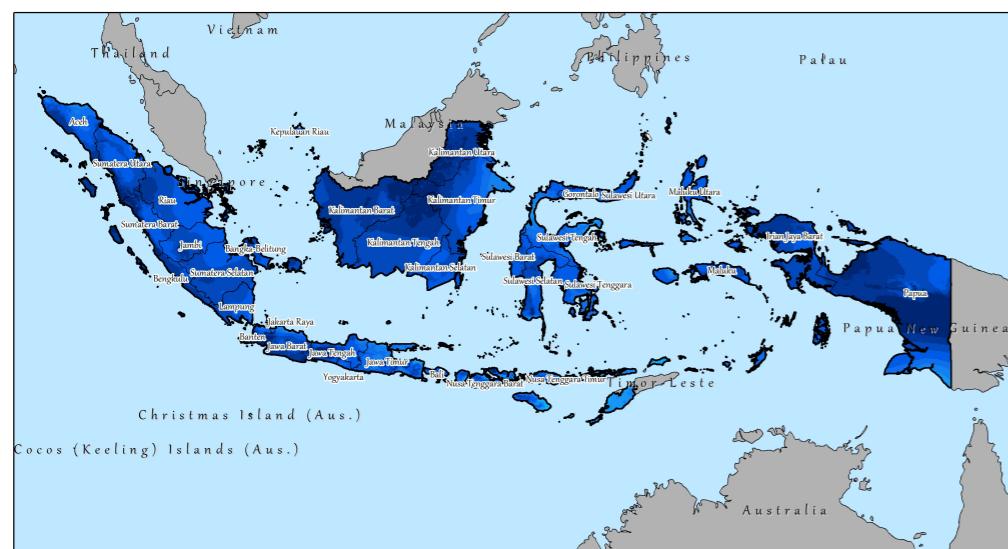


Indonesia map of Köppen climate classification



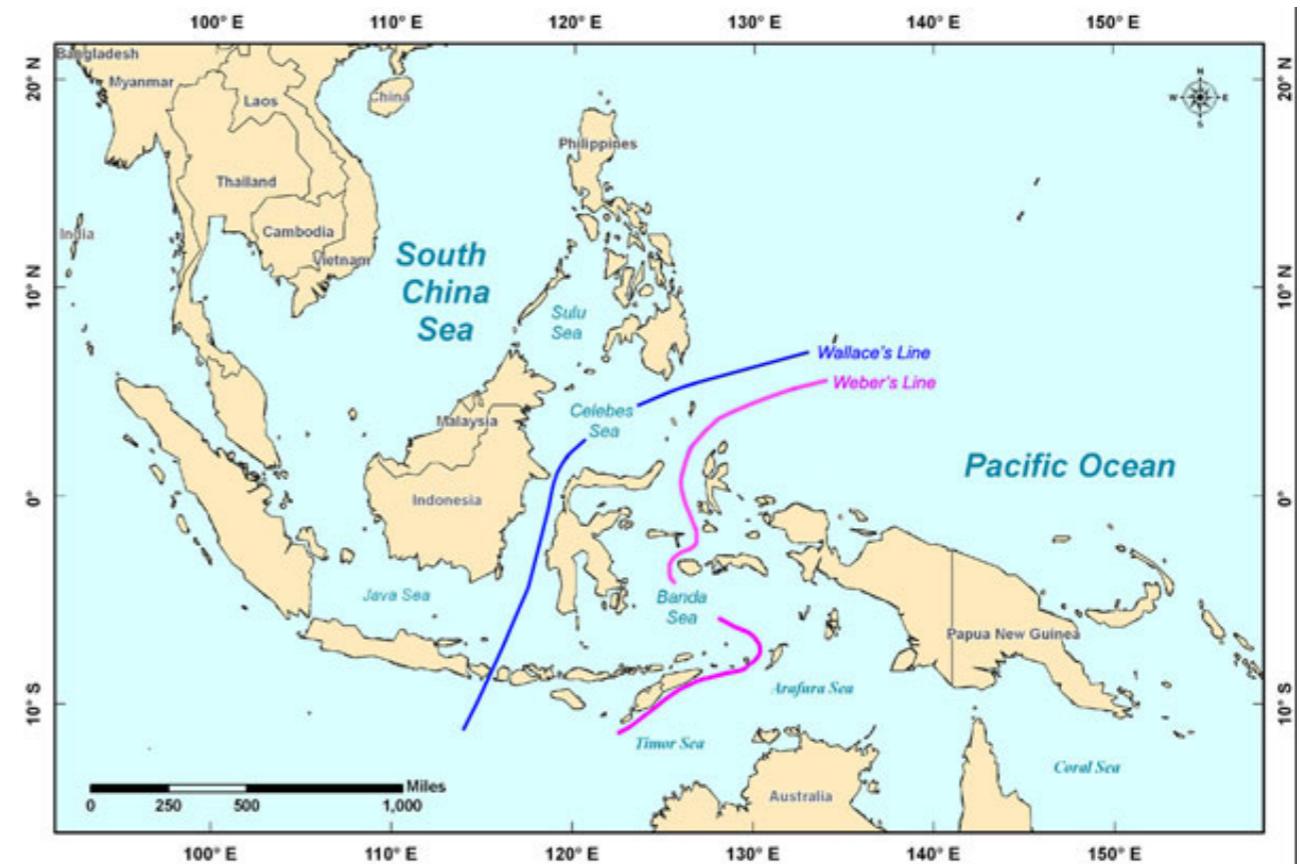
■ Equatorial climate (Af) ■ Monsoon climate (Am) ■ Tropical savanna climate (Aw)

Rainfall

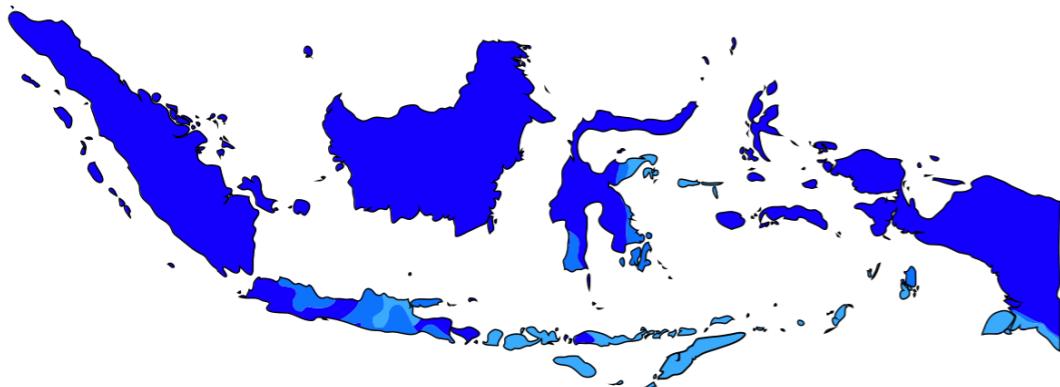


Precipitation (mm/year)

0 - 250	1,001 - 1,250	2,001 - 2,500
251 - 500	1,251 - 1,500	2,501 - 3,000
501 - 750	1,501 - 1,750	3,001 - 3,500
751 - 1,000	1,751 - 2,000	> 3500

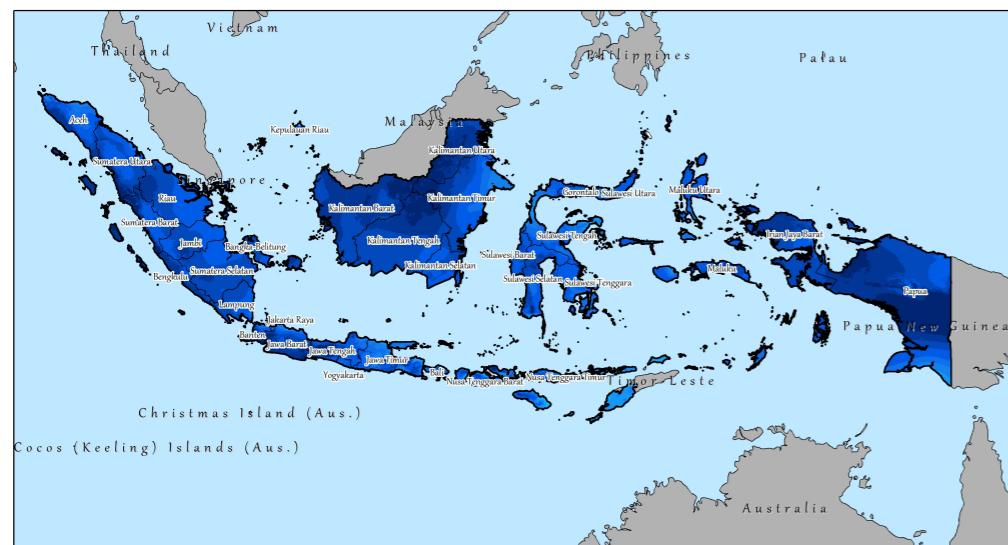


Indonesia map of Köppen climate classification



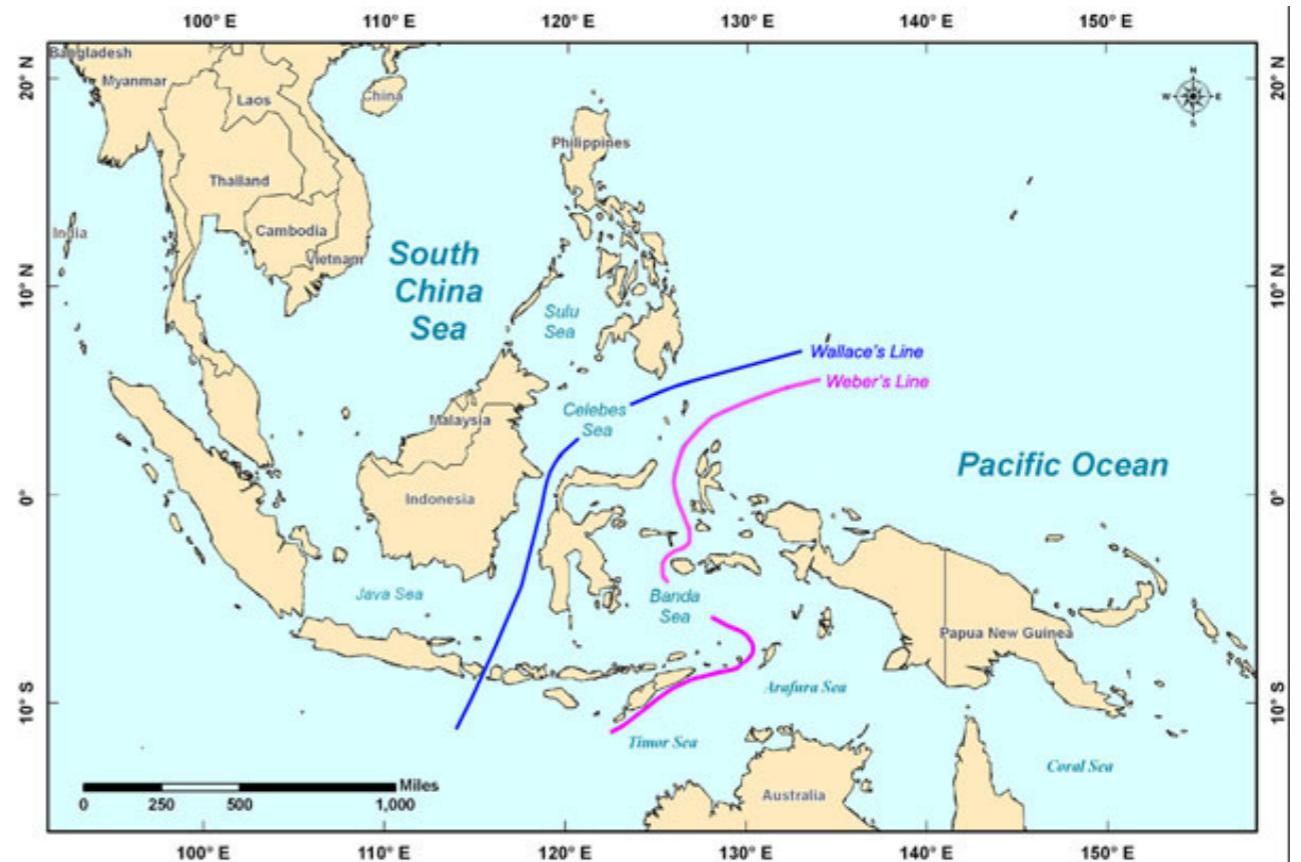
■ Equatorial climate (Af) ■ Monsoon climate (Am) ■ Tropical savanna climate (Aw)

Rainfall

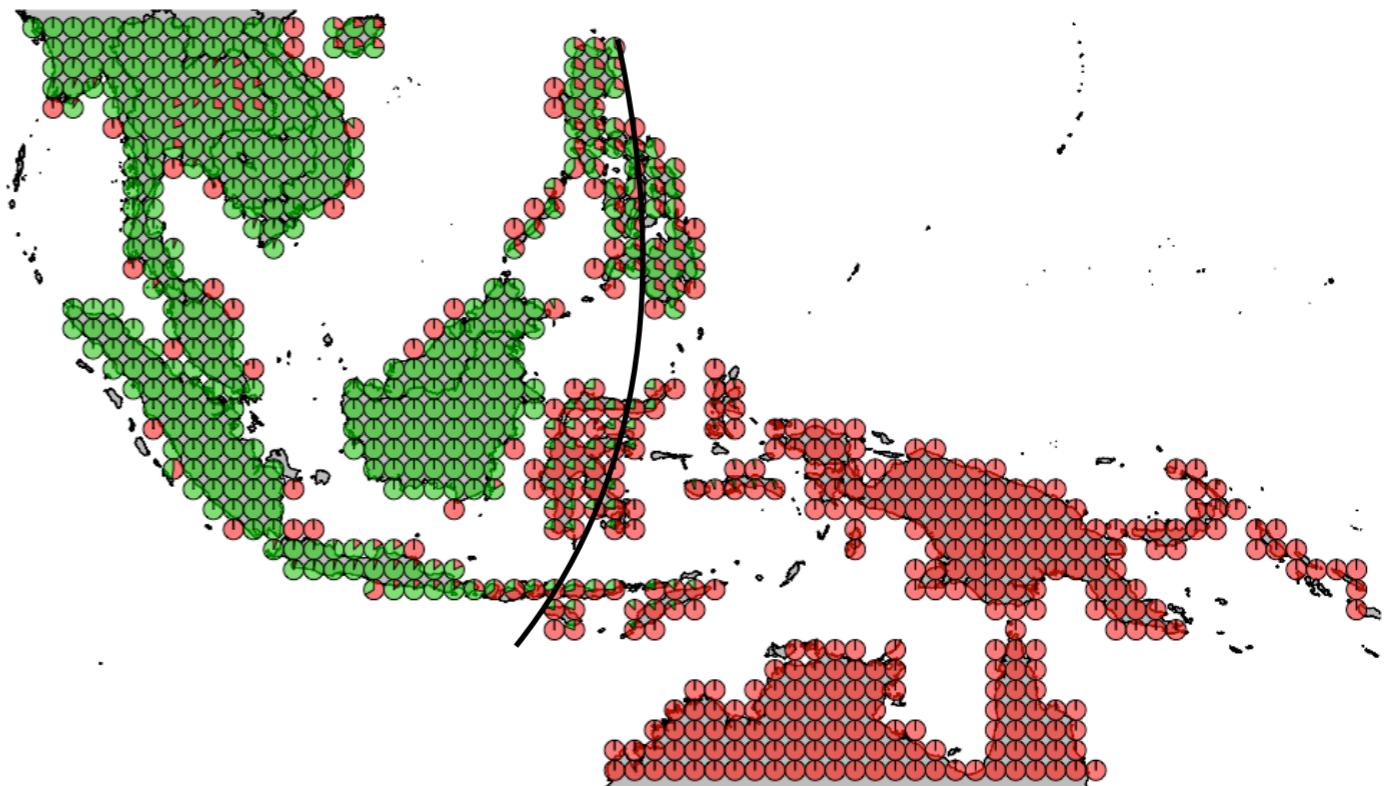


Precipitation (mm/year)

0 - 250	1,001 - 1,250	2,001 - 2,500
251 - 500	1,251 - 1,500	2,501 - 3,000
501 - 750	1,501 - 1,750	3,001 - 3,500
751 - 1,000	1,751 - 2,000	>3500



our line



## Cluster 1



grey teal



pacific koel



Nankeen night heron



Pacific black duck



Willie wagtail

## Cluster 2



white breast waterhen



Lesser coucal



Asian palm swift



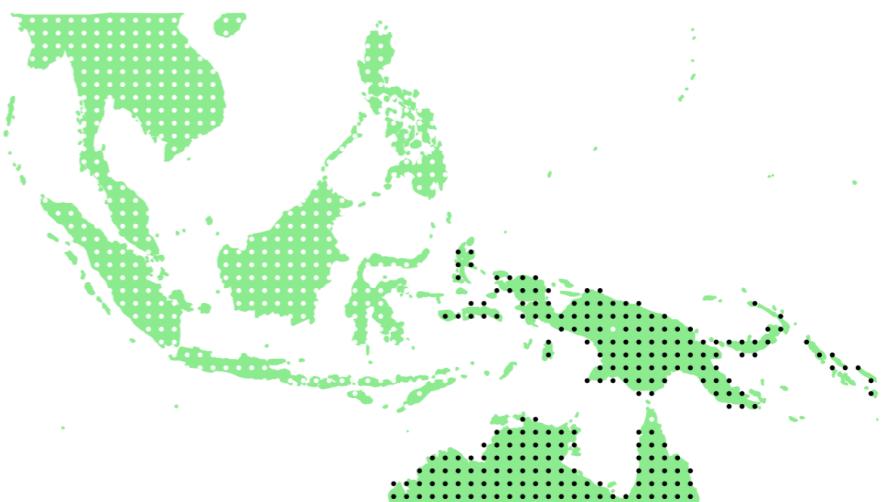
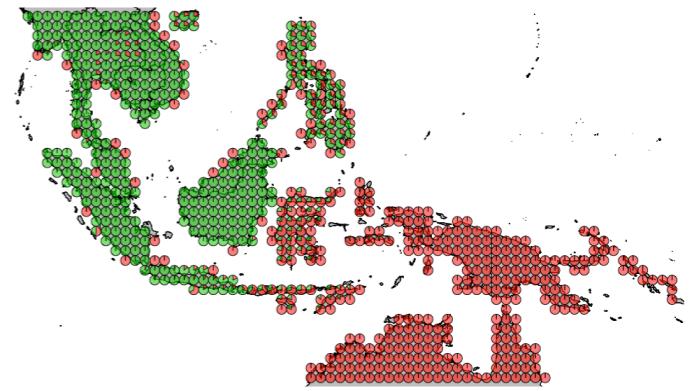
common moorhen



black naked monarch

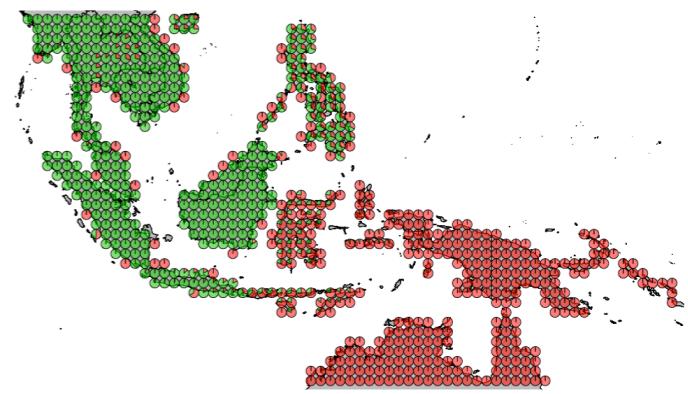


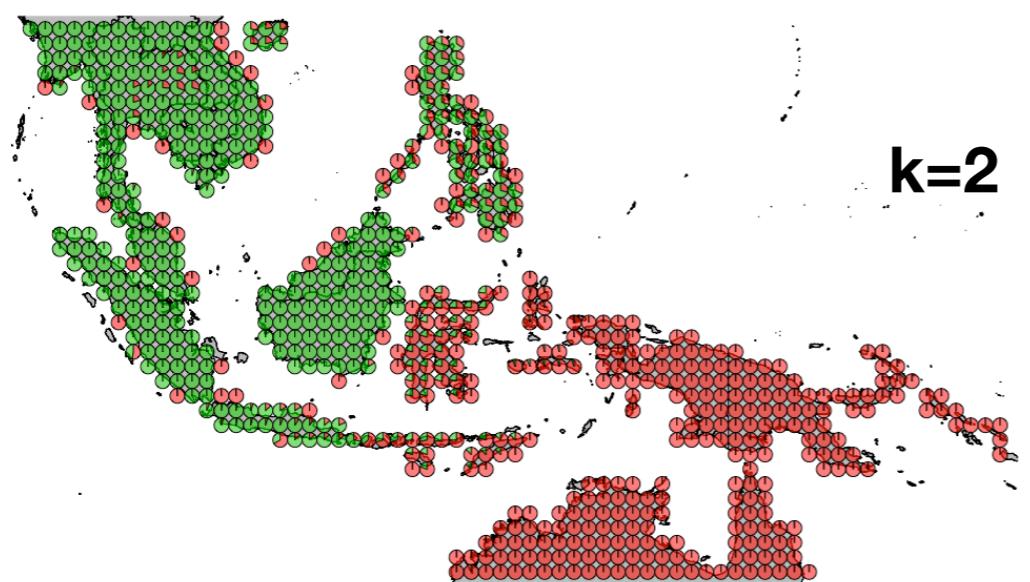
## Cluster 1 Top Birds Distribution



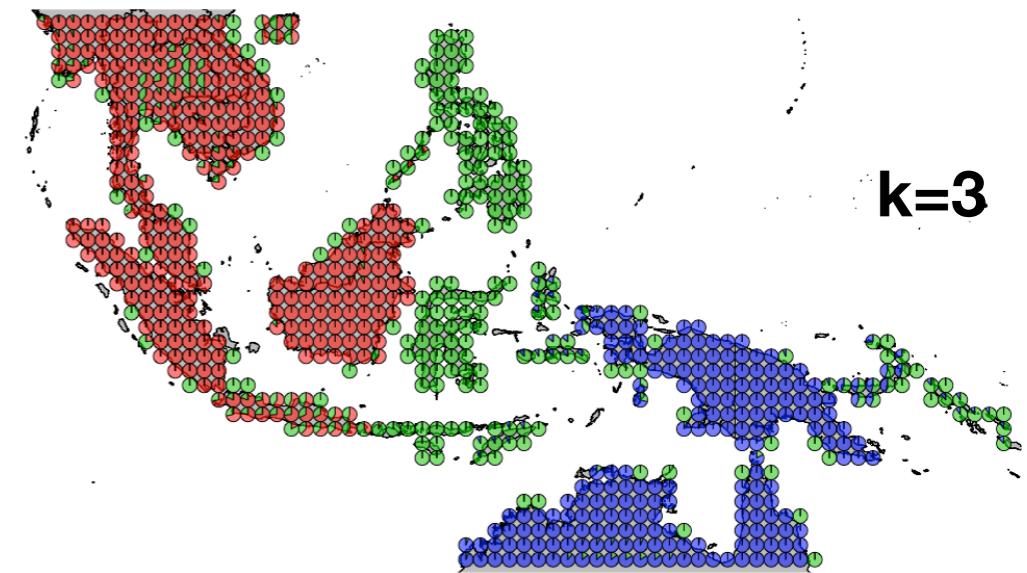


## Cluster 2 Top Birds Distribution

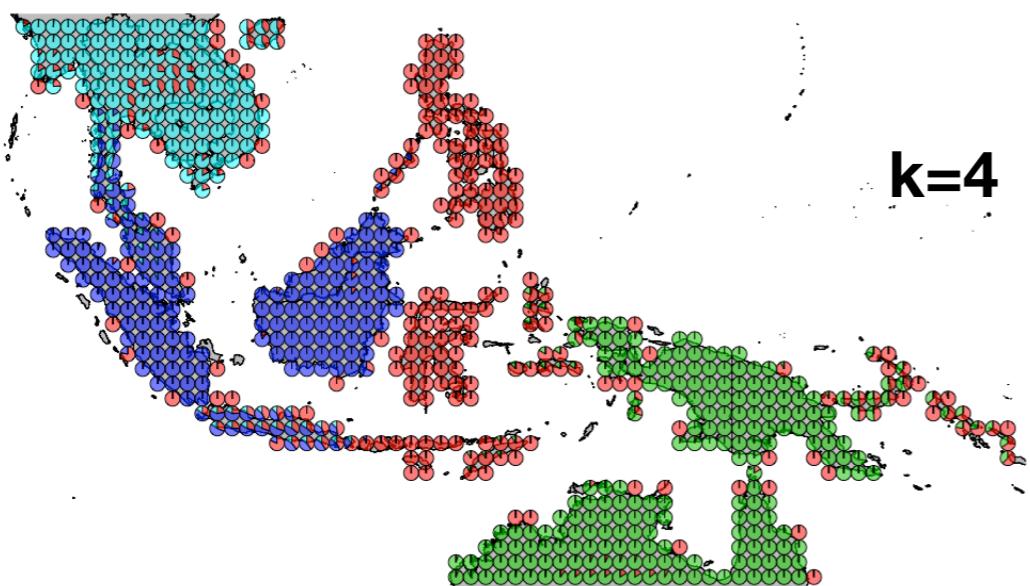




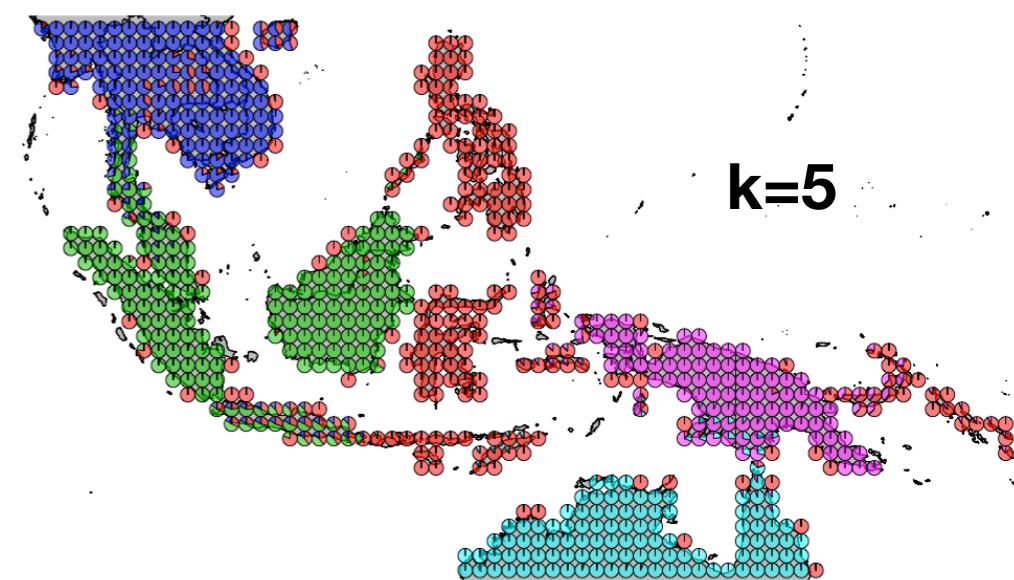
**$k=2$**



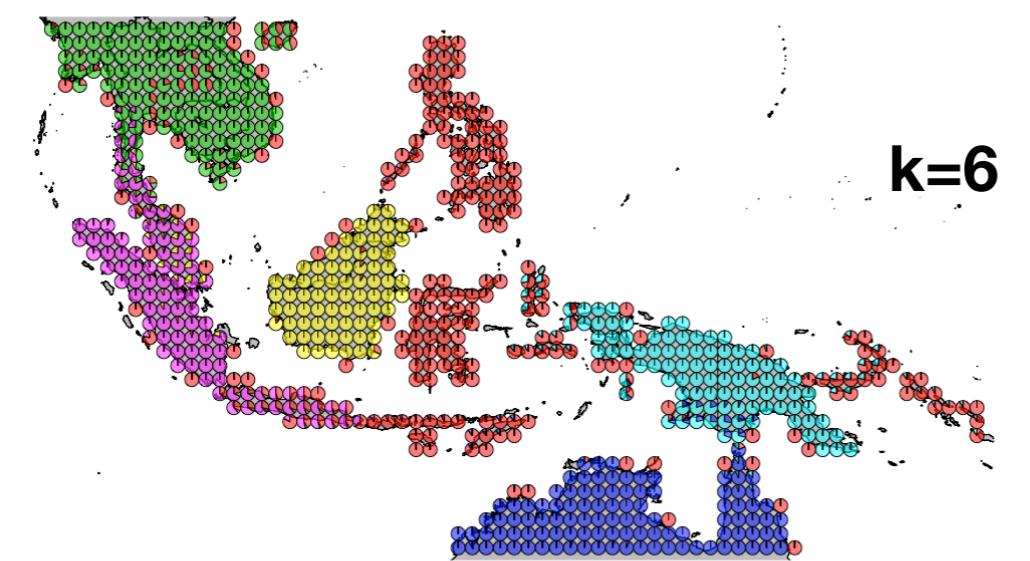
**$k=3$**



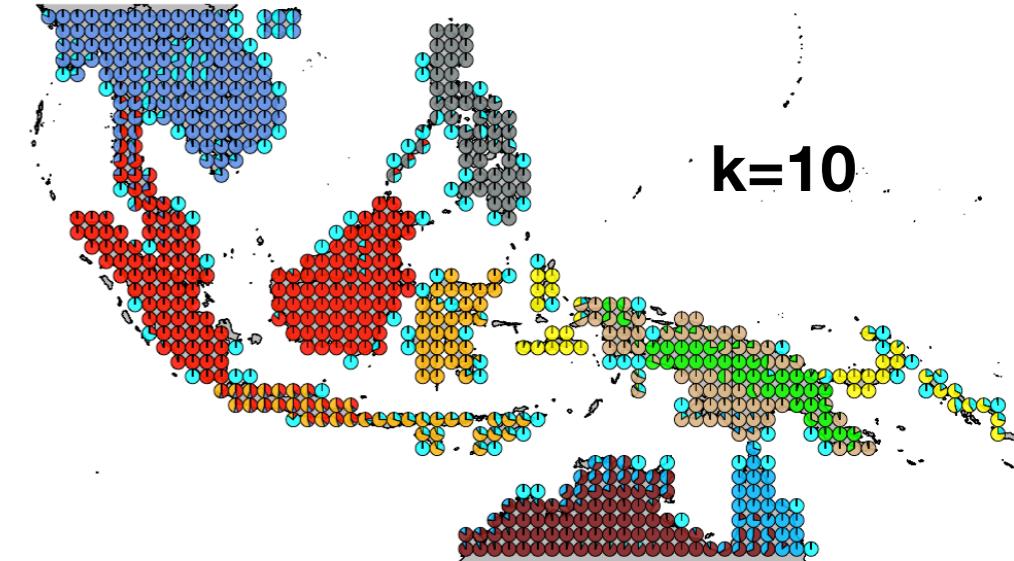
**$k=4$**



**$k=5$**



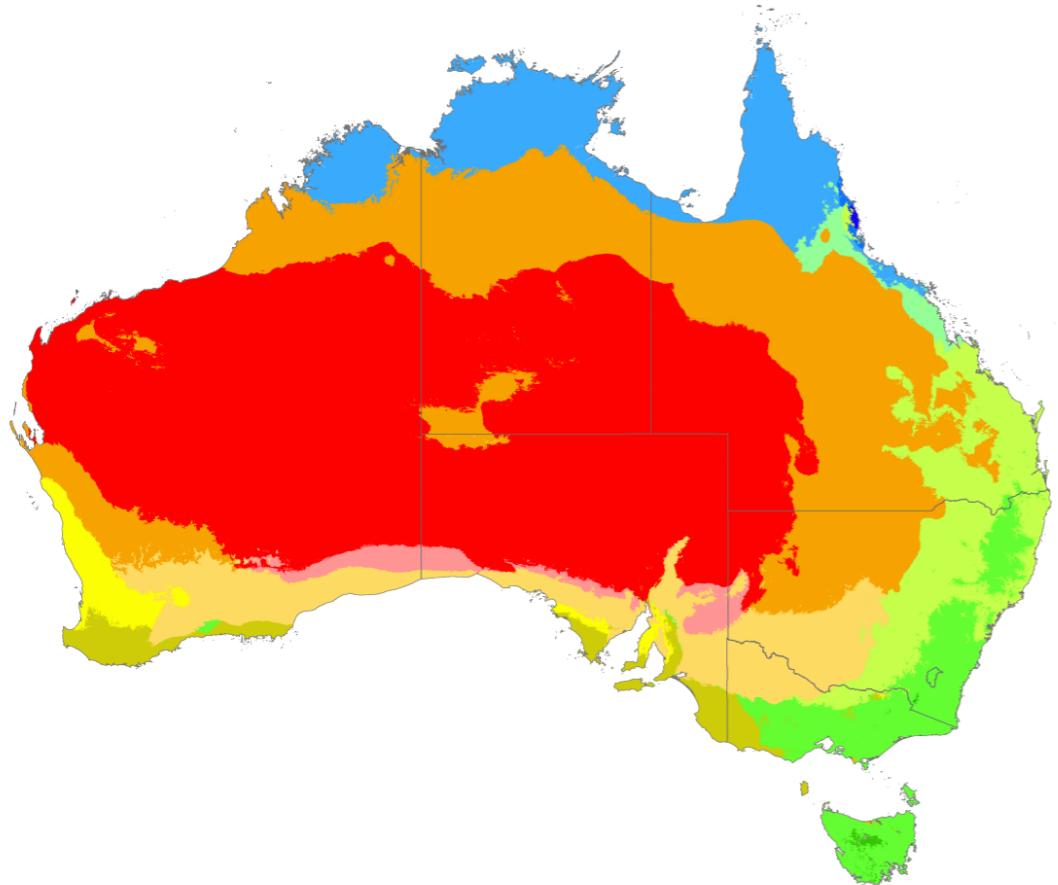
**$k=6$**



**$k=10$**

# **Continental Analysis of Birds presence absence using Binomial GoM models**

# Köppen climate types of Australia



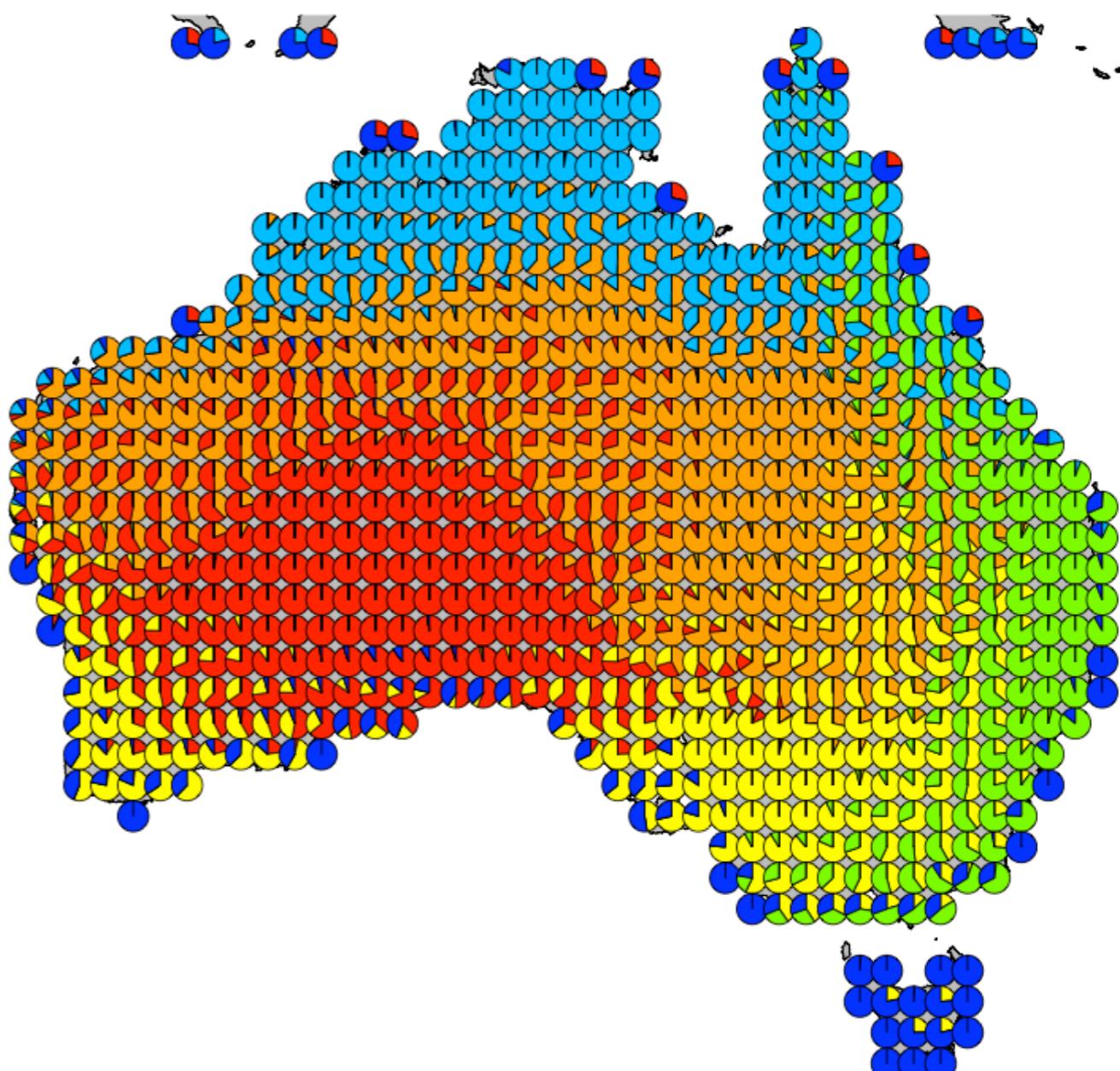
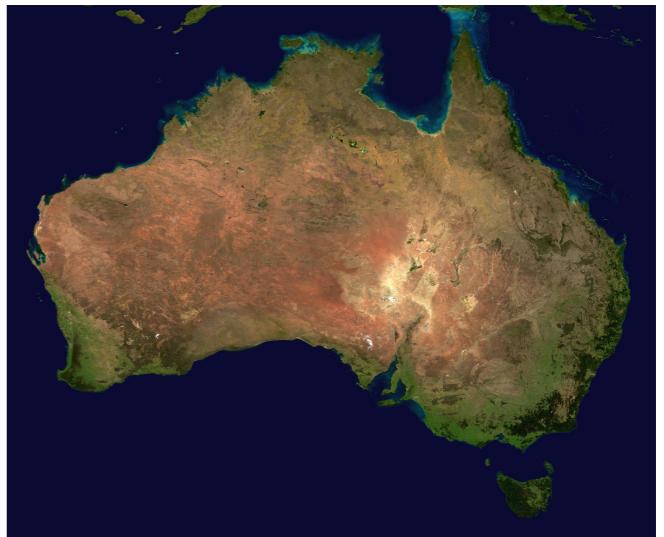
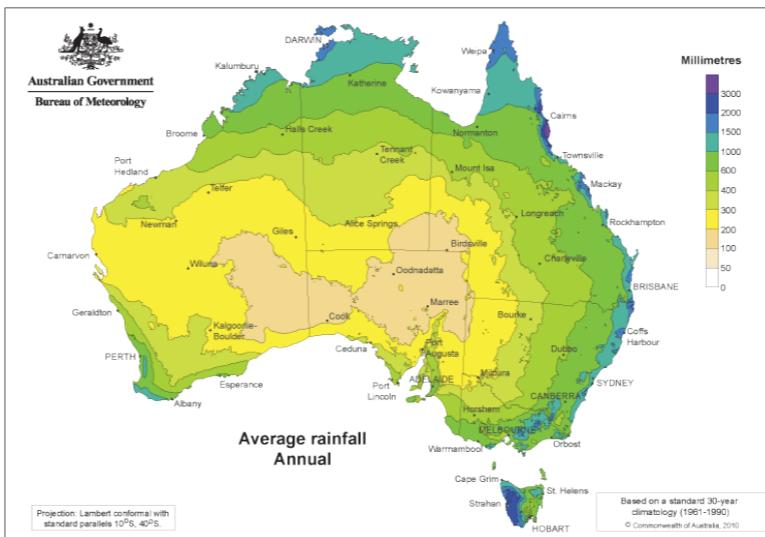
## Köppen climate type

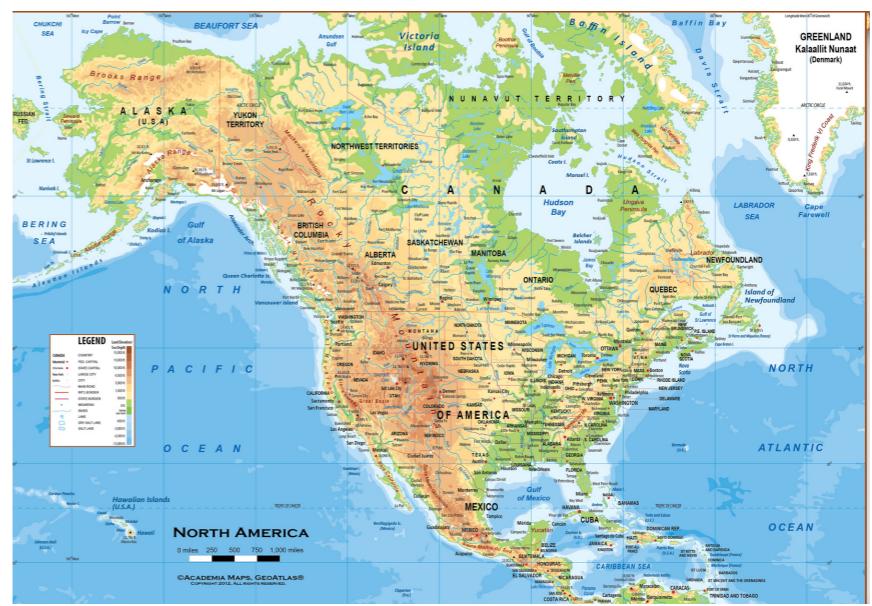
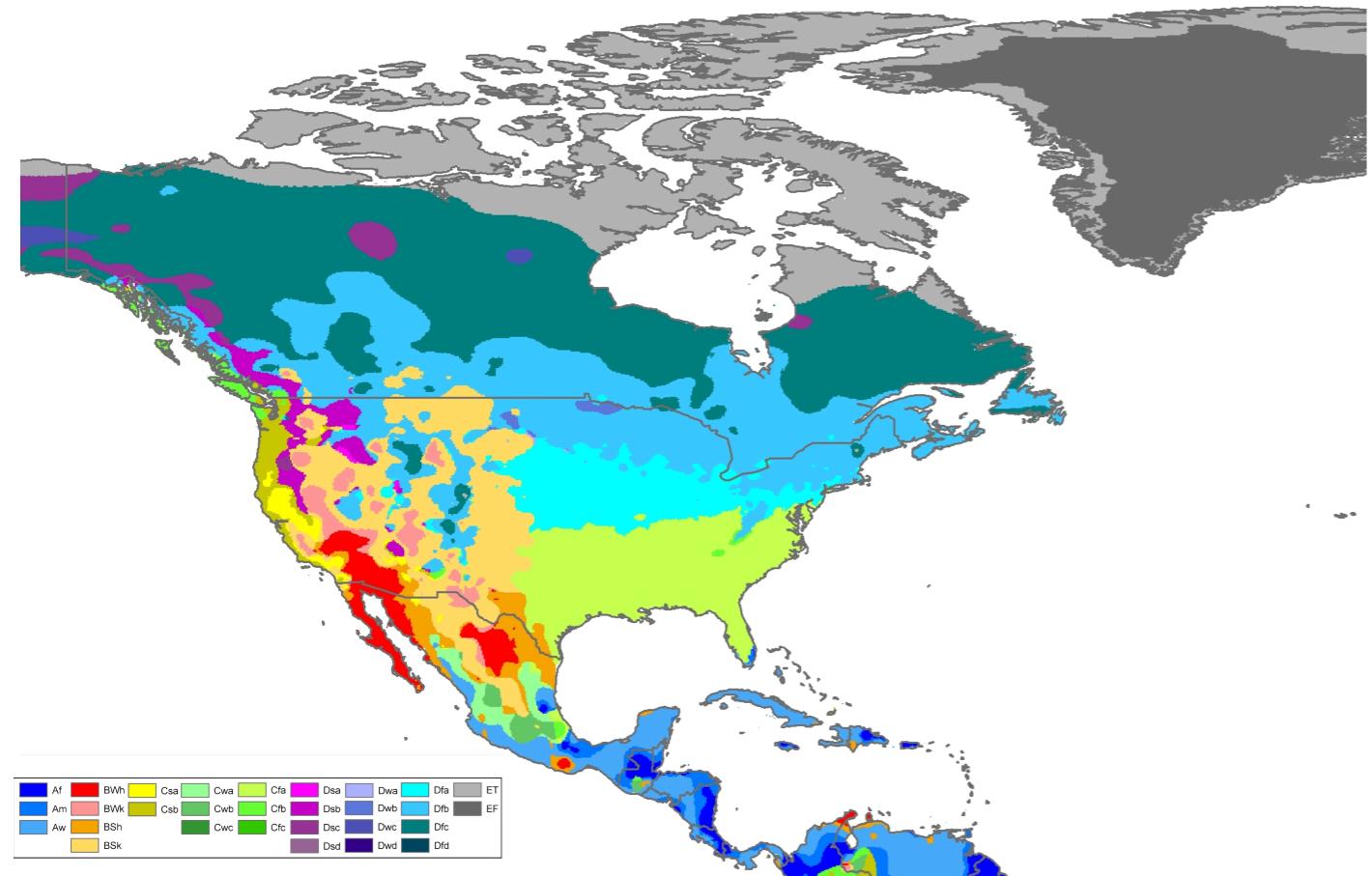
ET (Tundra)	Cwa (Humid subtropical)
Dfc (Subarctic)	Csb (Warm-summer mediterranean)
Cfc (Subpolar oceanic)	Csa (Hot-summer mediterranean)
Cfb (Oceanic)	BSk (Cold semi-arid)
Cfa (Humid subtropical)	BSh (Hot semi-arid)

BWk (Cold desert)
BWh (Hot desert)
Aw (Savanna)
Am (Monsoon)
Af (Rainforest)

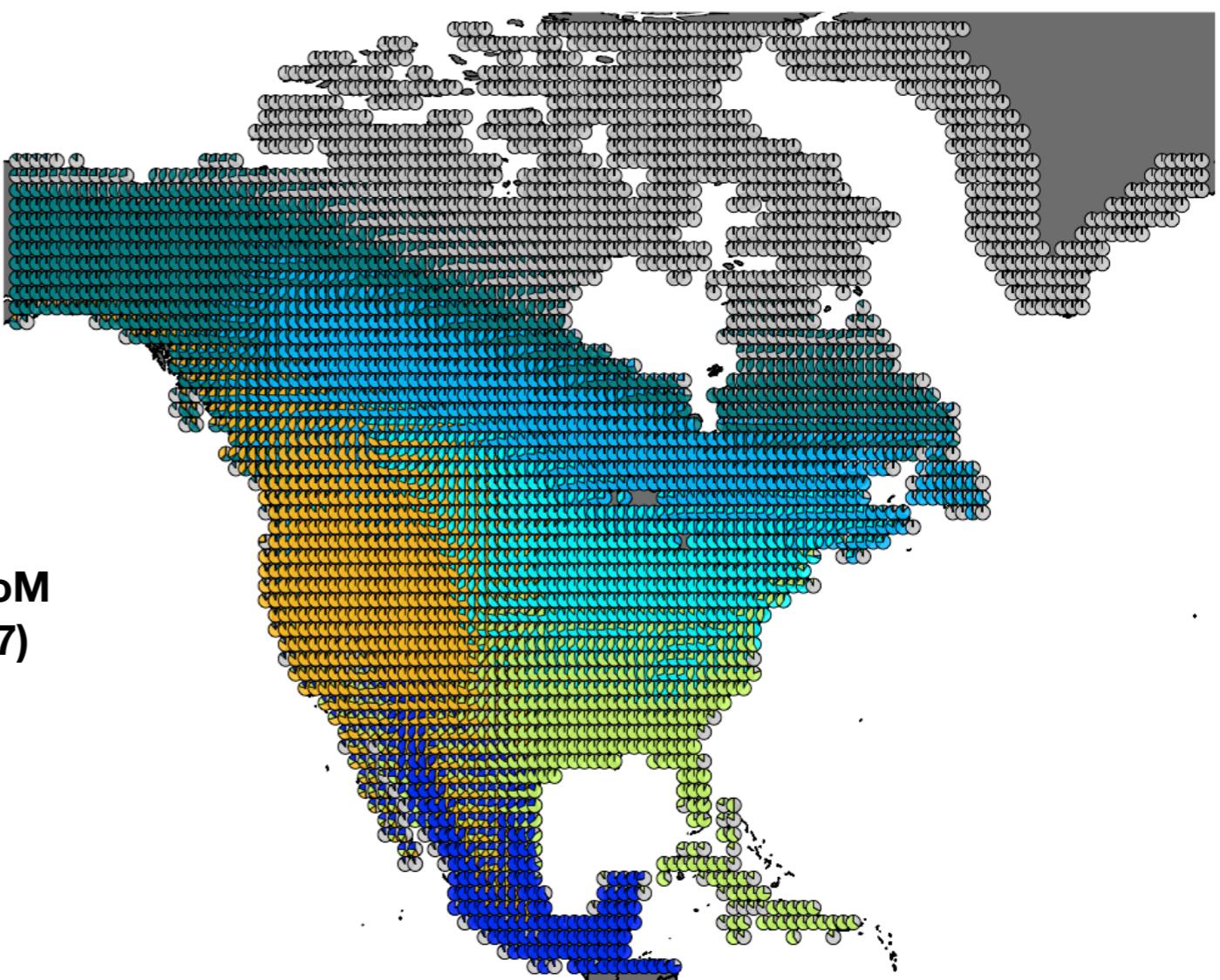
\*Isotherm used to separate temperate (C) and continental (D) climates is -3°  
Data source: Climate types calculated from data from WorldClim.org

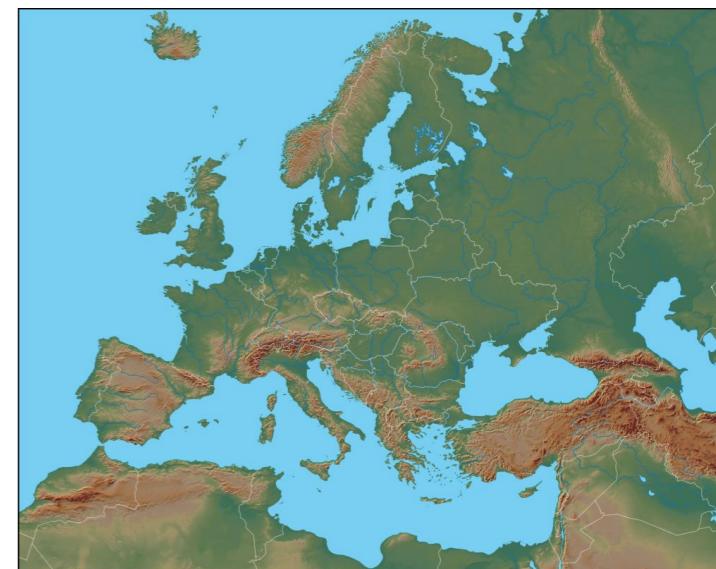
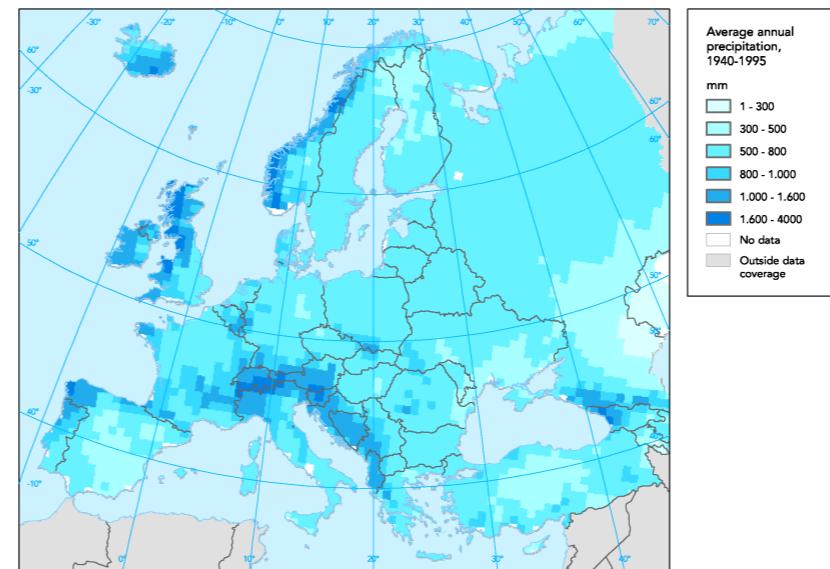
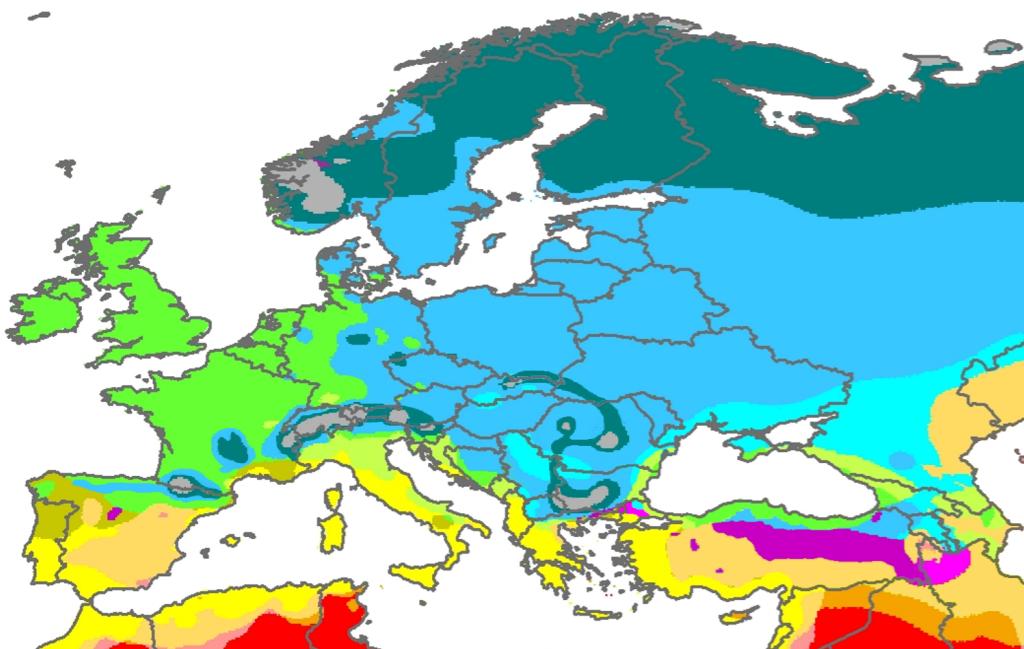
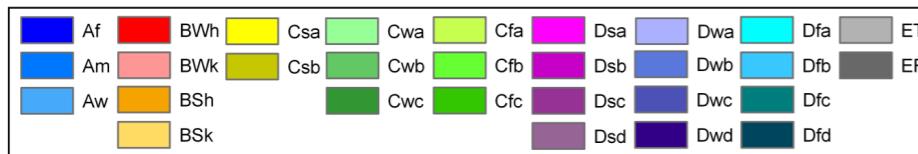
Binomial GoM  
model (K=6)



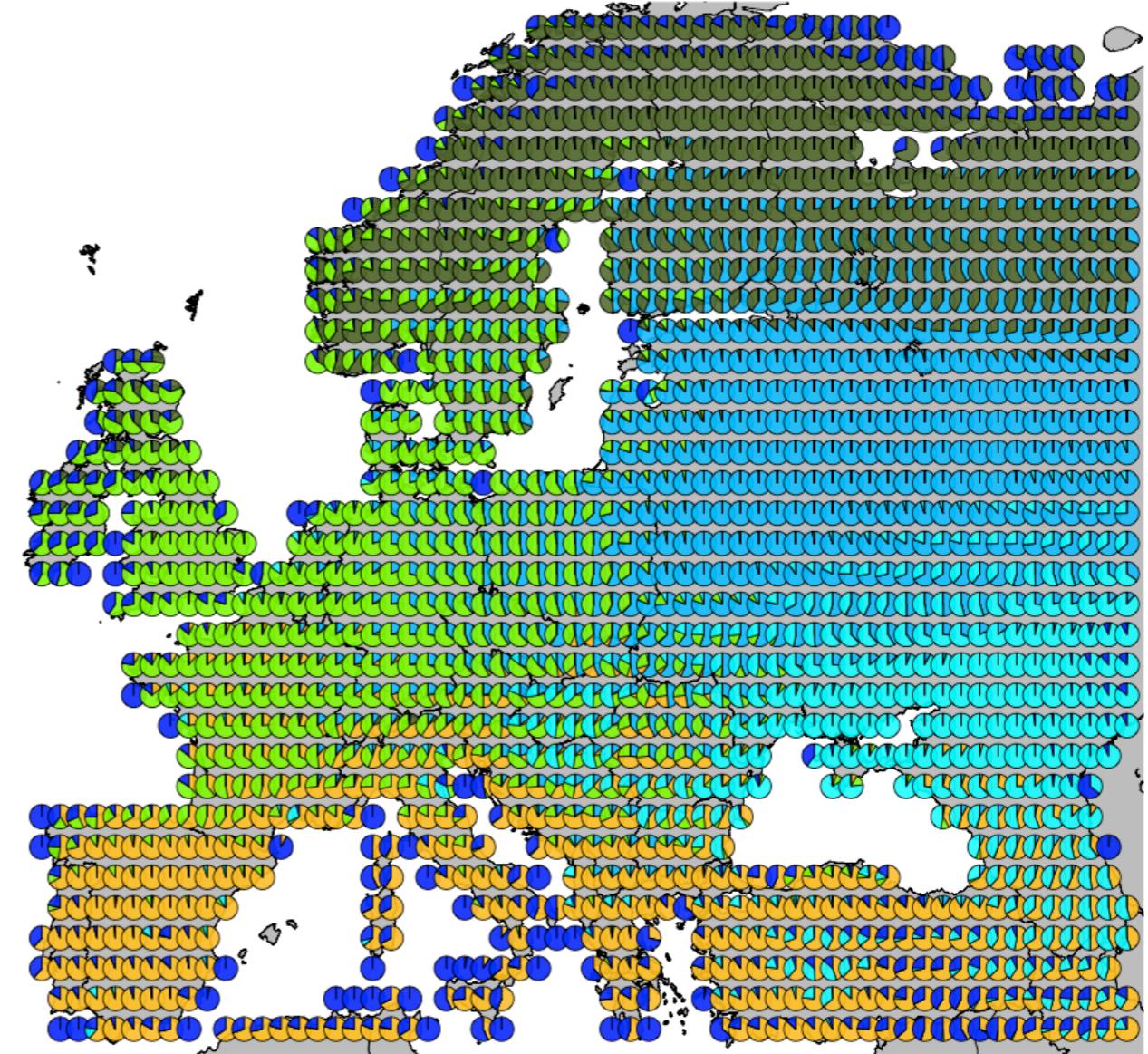


# Binomial GoM model (K=7)

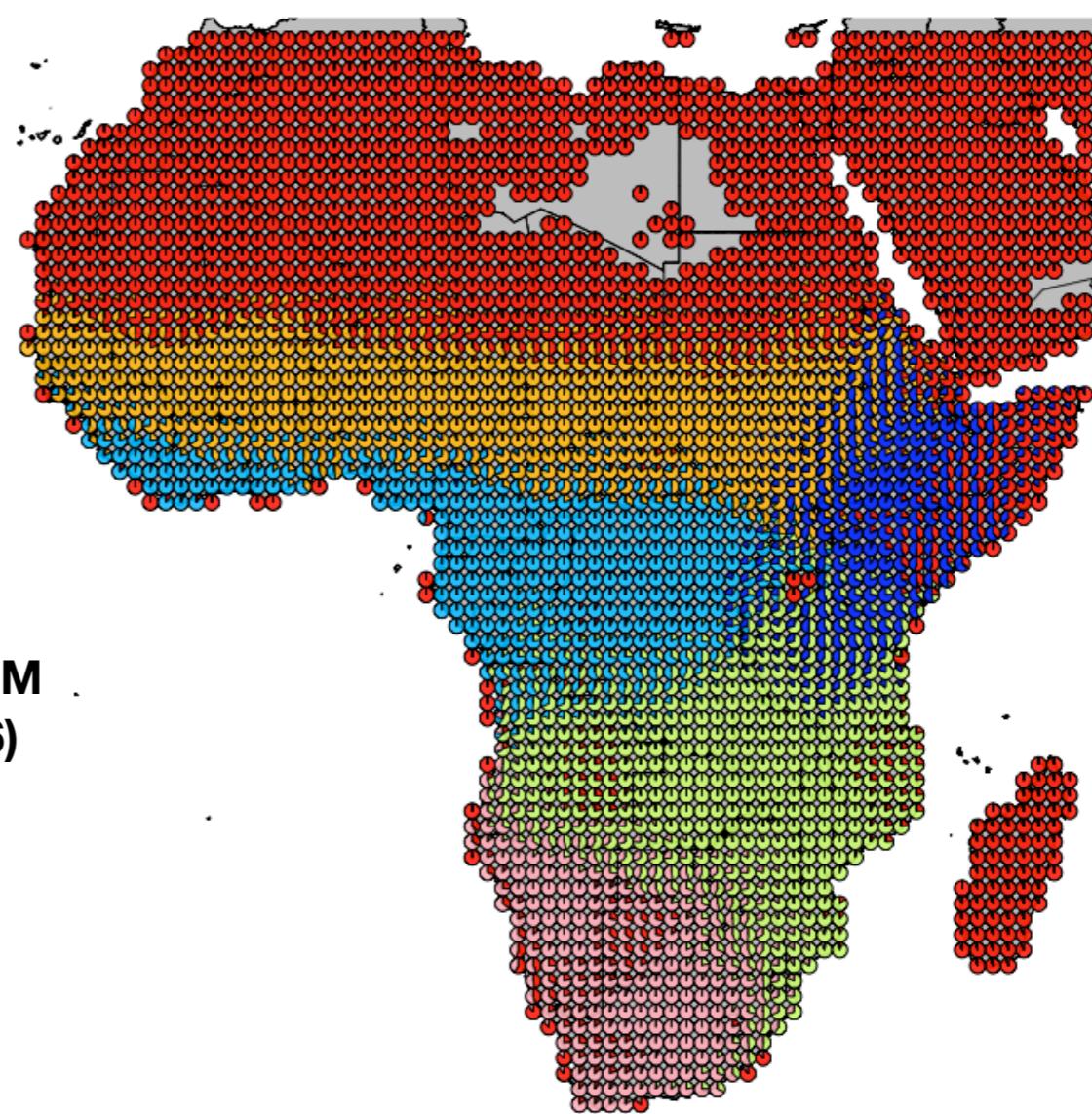
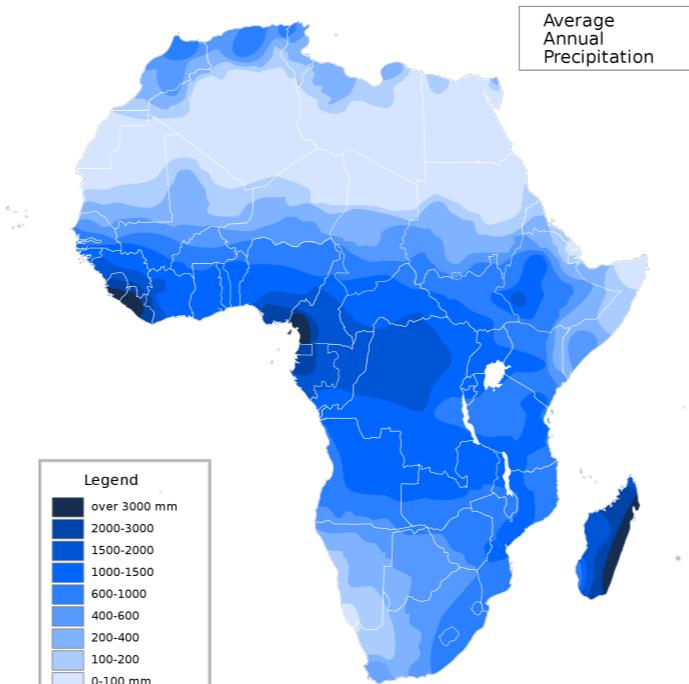
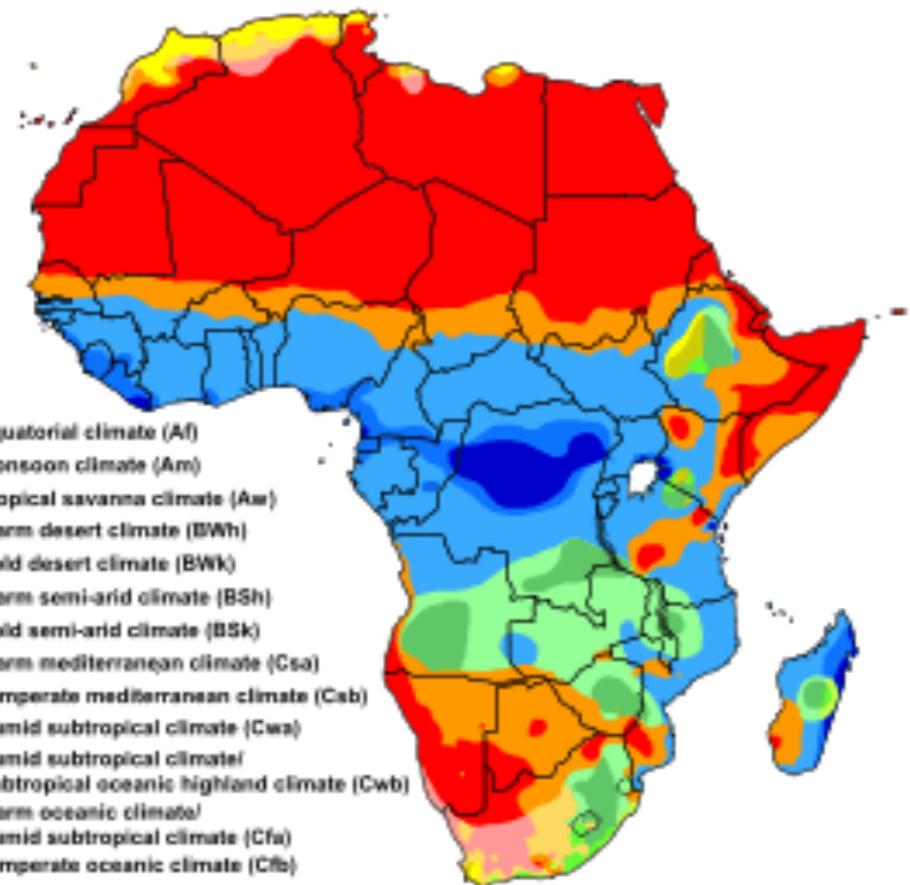




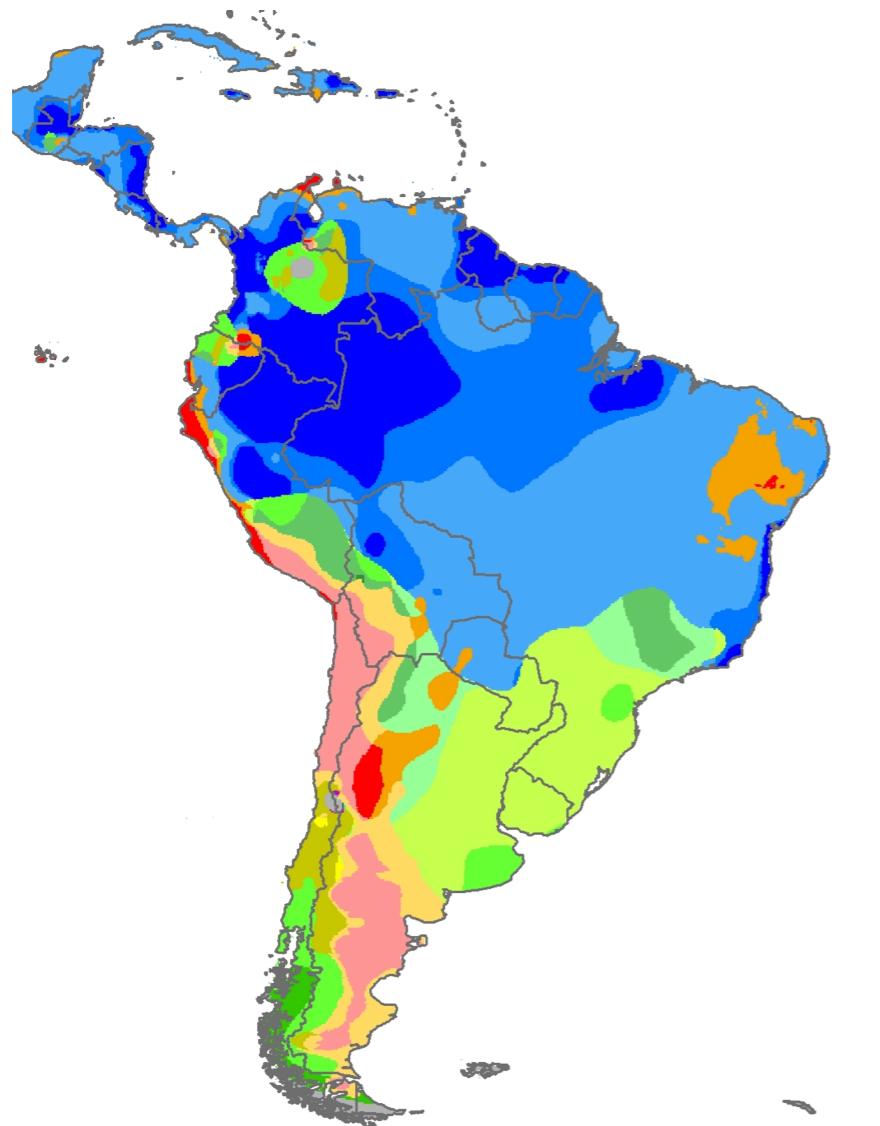
**Binomial GoM  
model (K=6)**



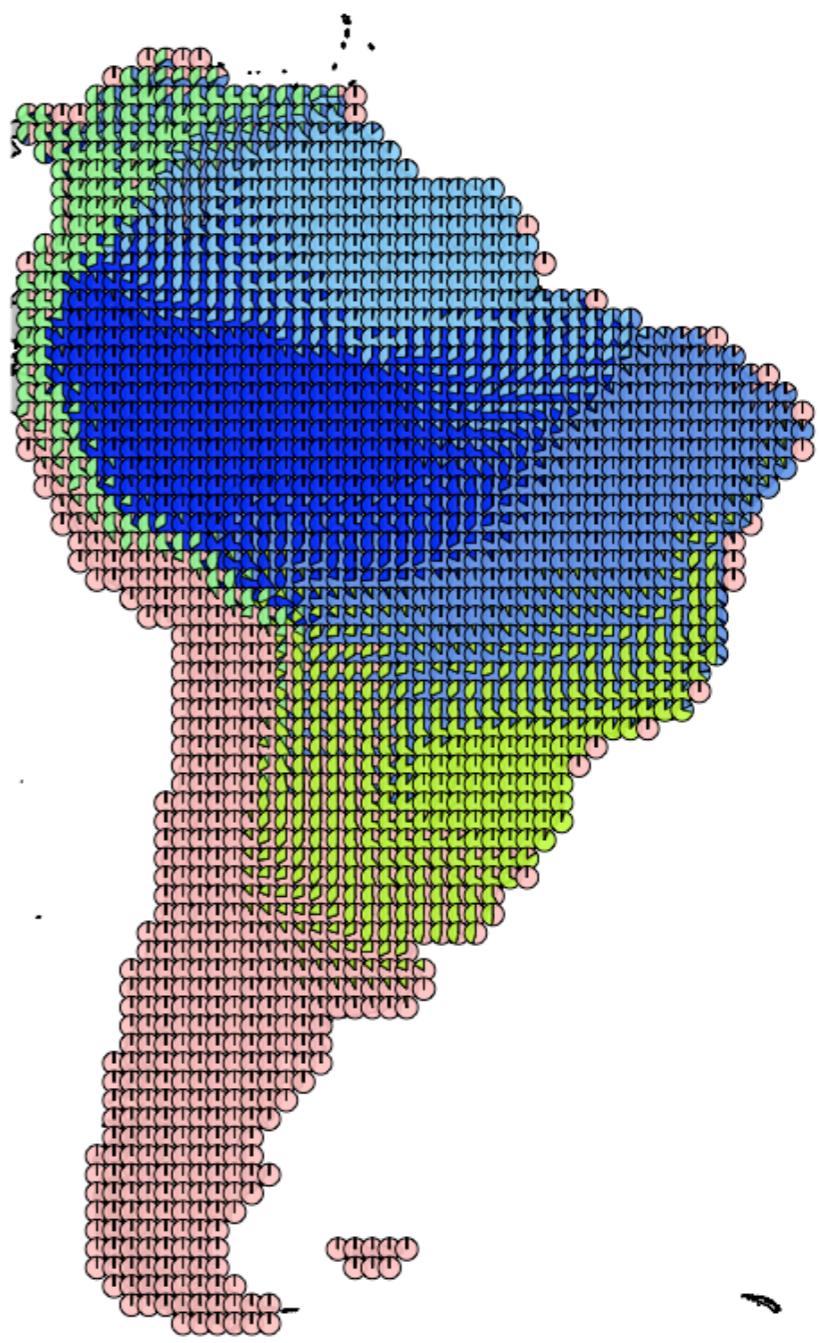
Africa map of Köppen climate classification



**Binomial GoM  
model (K=6)**



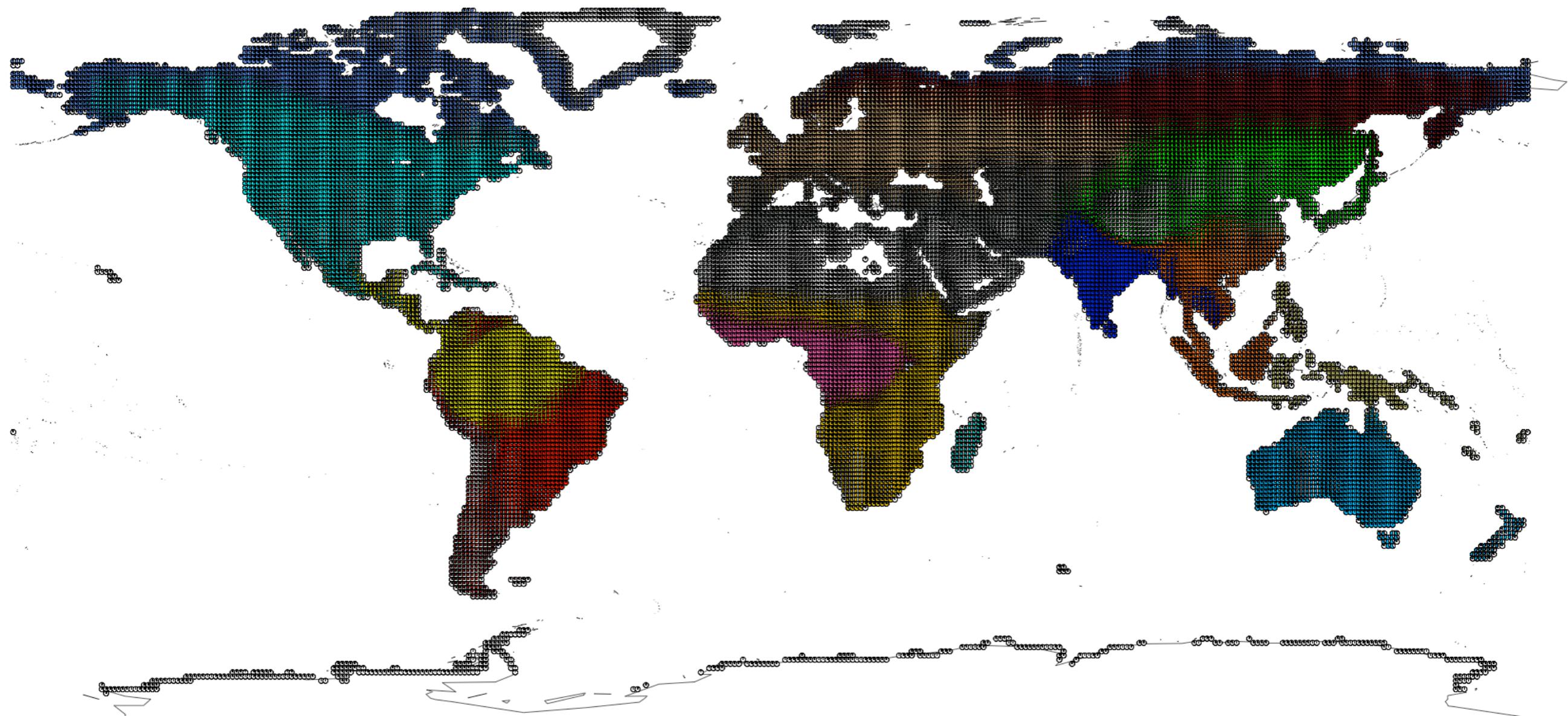
Af	BWh	Csa	Cwa	Cfa	Dsa	Dwa	Dfa	ET
Am	BWk	Csb	Cwb	Cfb	Dsb	Dwb	Dfb	EF
Aw	BSh	Cwc	Cfc	Cfc	Dsc	Dwc	Dfc	
BSk					Dsd	Dwd	Dfd	



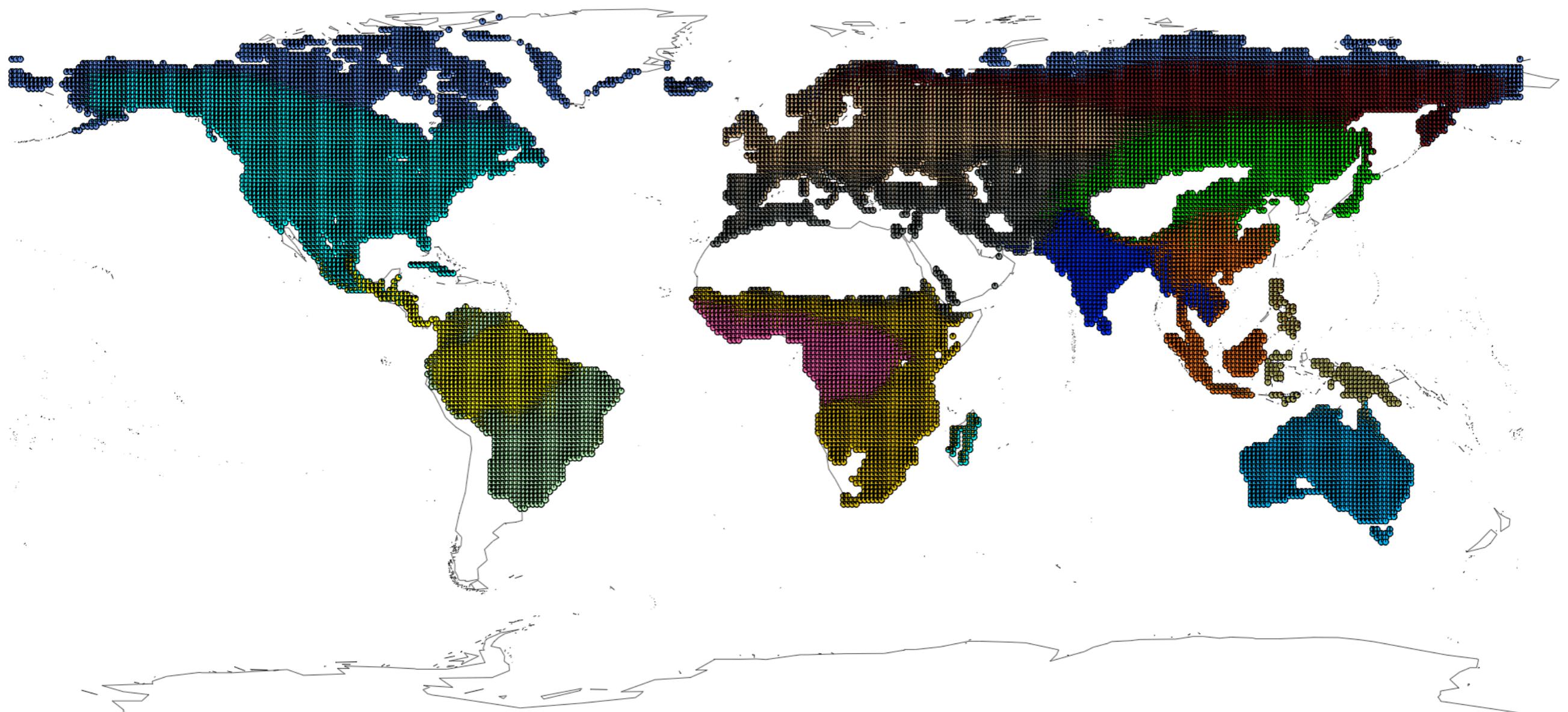
**Binomial GoM  
model (K=6)**

# **Global Analysis of Birds presence absence using Binomial GoM models**

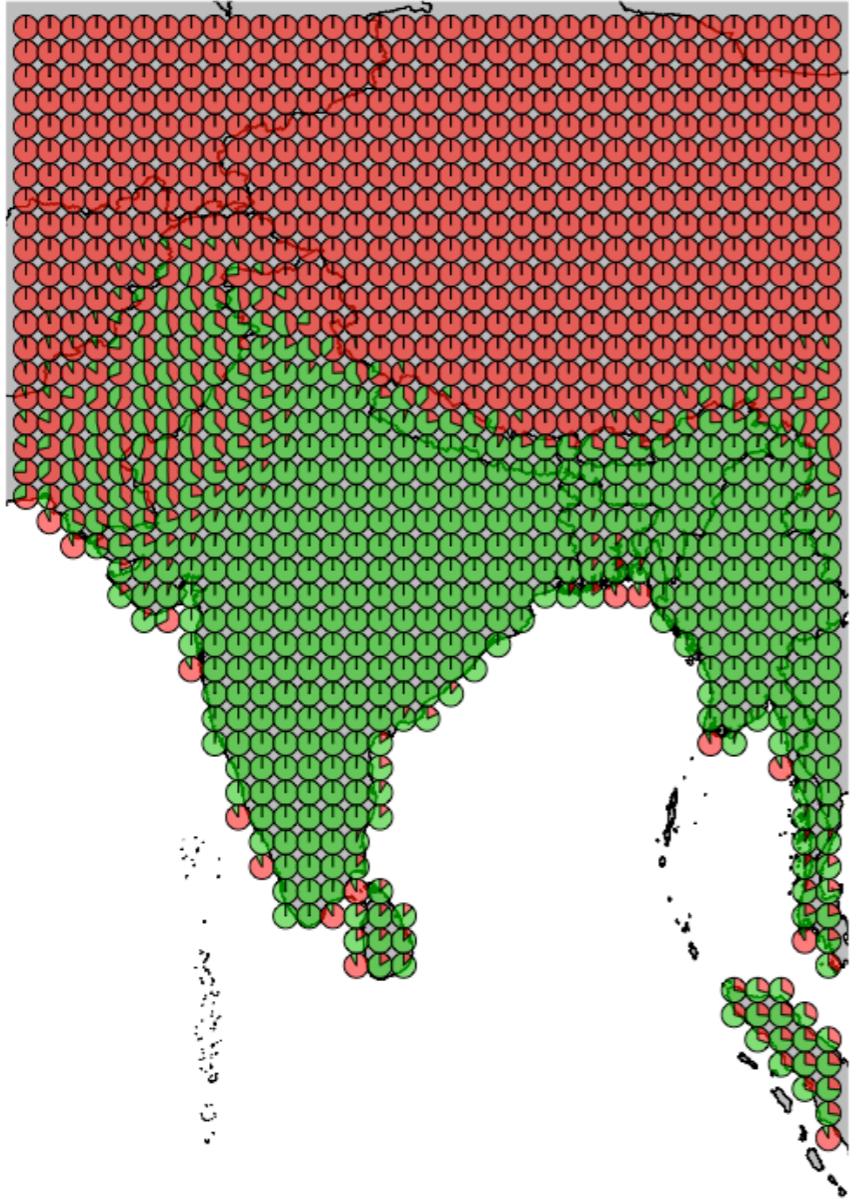
## Binomial GoM model k= 15



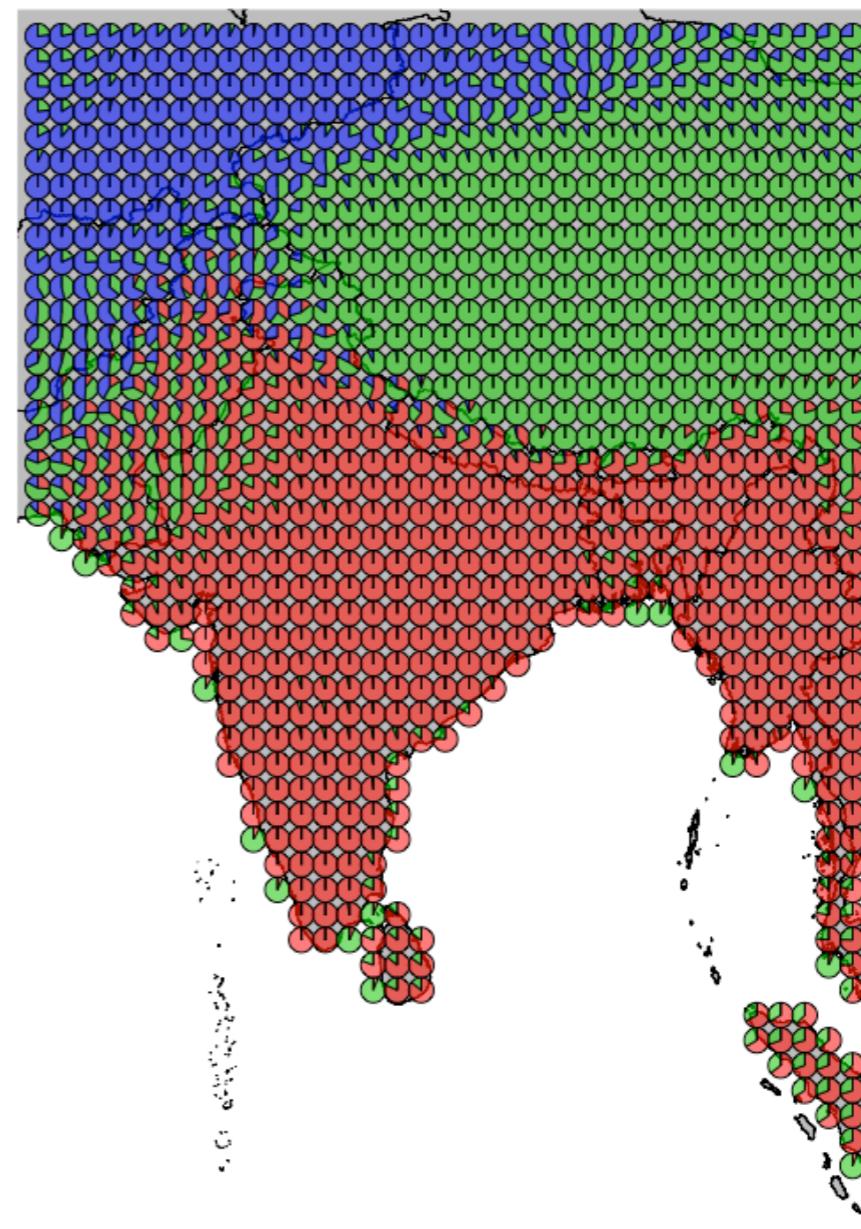
**Binomial GoM model k= 15**  
*(removing pies with high grades in the cluster  
for desert and snow birds)*



**k=2**

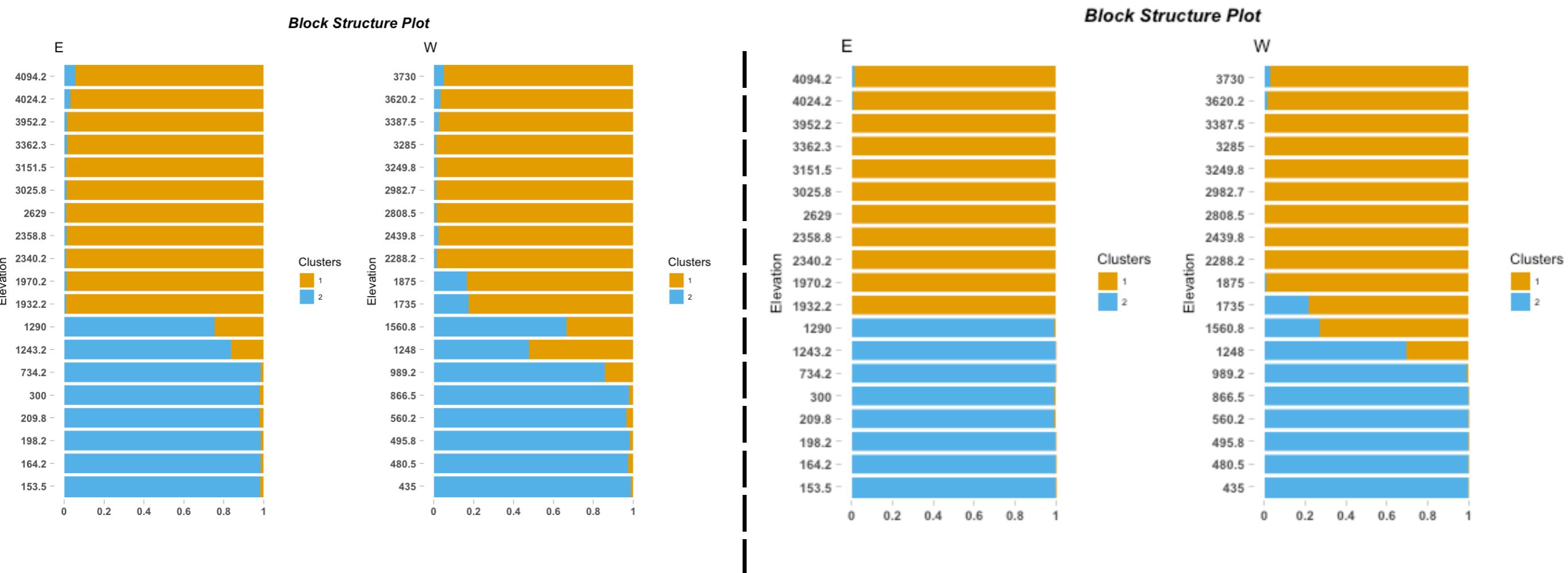


**k=3**



**Both at the global scale analysis and the sub-analysis looking at the regional presence absence patterns of the Indian species, we find that the Himalayan bird communities are a mix of two types - one from North of Himalayas and other from Southern and SE Asia.**

# Local Bird Abundance Distributional Patterns in the Himalayas



**Presence Absence Data  
(Binomial GoM model K=2)**

**Local Abundance Data  
(Multinomial GoM model K=2)**