

# Simulation of Terrestrial Biomes and Ecoregions with SWAT

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# World Wildlife Fund (WWF)

## Terrestrial Biomes

WWF has defined, described, and mapped 14 “terrestrial biomes” worldwide

- From sea level to the highest mountain ranges
- From the most humid to the driest lands on earth
- They “follow complex patterns determined by climate, geology and the evolutionary history of the planet.”

# WWF Terrestrial Biomes

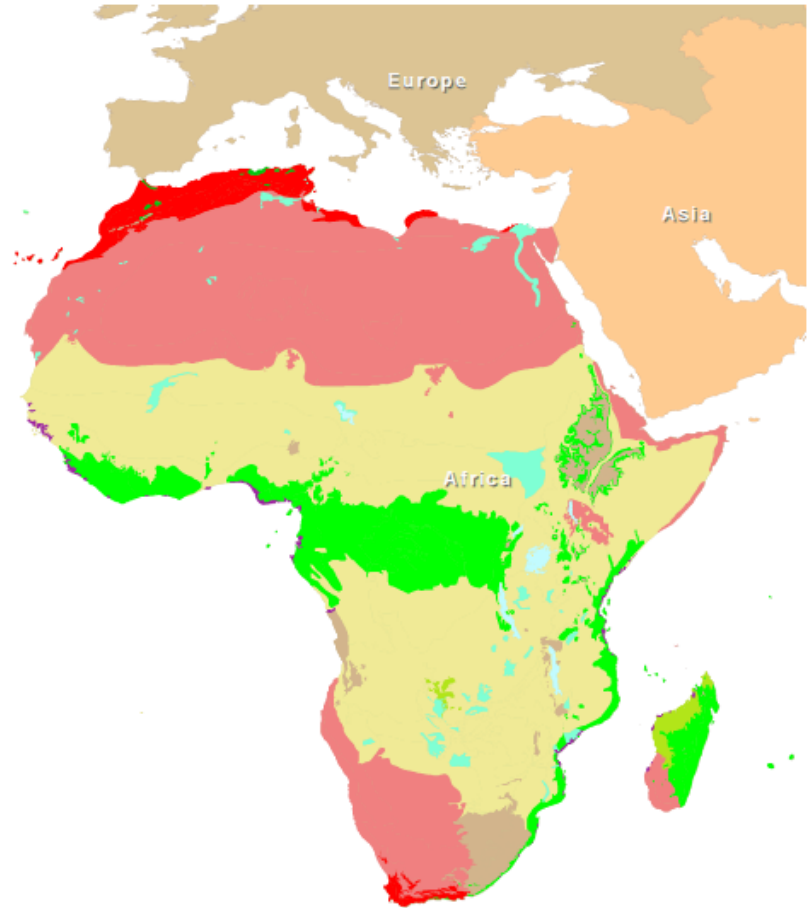
- Tropical and subtropical grasslands, savannas and shrublands
- Temperate grasslands, savannas and shrublands
- Flooded grasslands and savannas
- Montane grasslands and shrublands
- Tundra
- Mediterranean forests, woodlands and scrubs
- Mangroves

# WWF Terrestrial Biomes












- Deserts and xeric shrublands
- Tropical and subtropical moist broadleaf forests
- Tropical and subtropical dry broadleaf forests
- Tropical and subtropical coniferous forests
- Temperate broadleaf and mixed forests
- Temperate coniferous forests
- Boreal forests / taiga



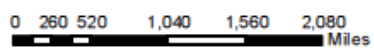
# Terrestrial Biomes of Africa



## Legend

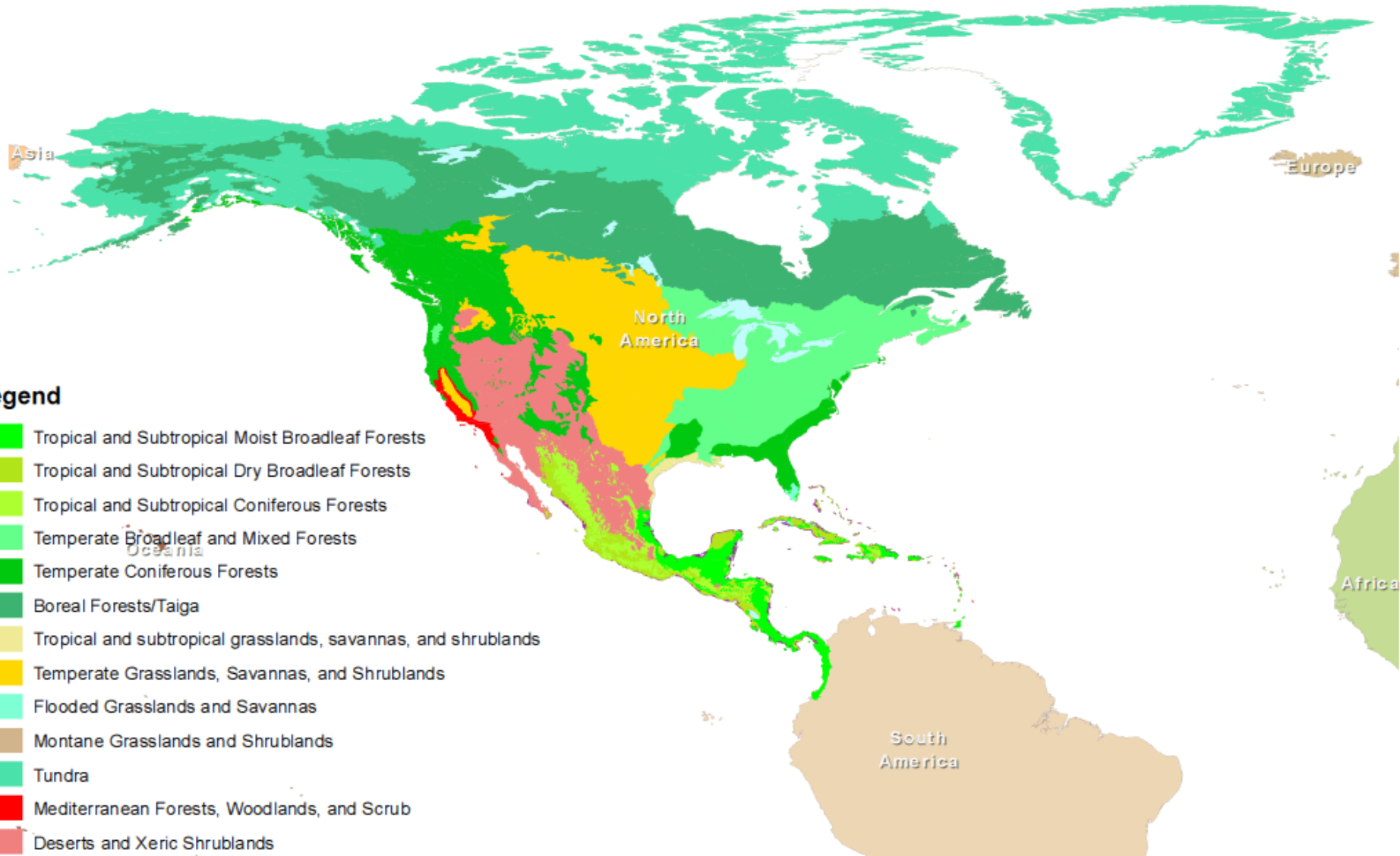
-  Tropical and Subtropical Moist Broadleaf Forests
-  Tropical and Subtropical Dry Broadleaf Forests
-  Temperate Broadleaf and Mixed Forests
-  Temperate Coniferous Forests
-  Tropical and subtropical grasslands, savannas, and shrublands
-  Flooded Grasslands and Savannas
-  Montane Grasslands and Shrublands
-  Mediterranean Forests, Woodlands, and Scrub
-  Deserts and Xeric Shrublands
-  Mangroves
-  Lakes

Antarctica



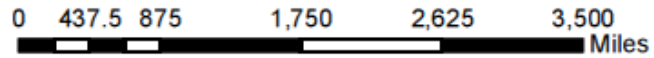


# Terrestrial Biomes of North America



## Legend

- Tropical and Subtropical Moist Broadleaf Forests
- Tropical and Subtropical Dry Broadleaf Forests
- Tropical and Subtropical Coniferous Forests
- Temperate Broadleaf and Mixed Forests
- Temperate Coniferous Forests
- Boreal Forests/Taiga
- Tropical and subtropical grasslands, savannas, and shrublands
- Temperate Grasslands, Savannas, and Shrublands
- Flooded Grasslands and Savannas
- Montane Grasslands and Shrublands
- Tundra
- Mediterranean Forests, Woodlands, and Scrub
- Deserts and Xeric Shrublands
- Mangroves
- Lakes
- Rock and Ice

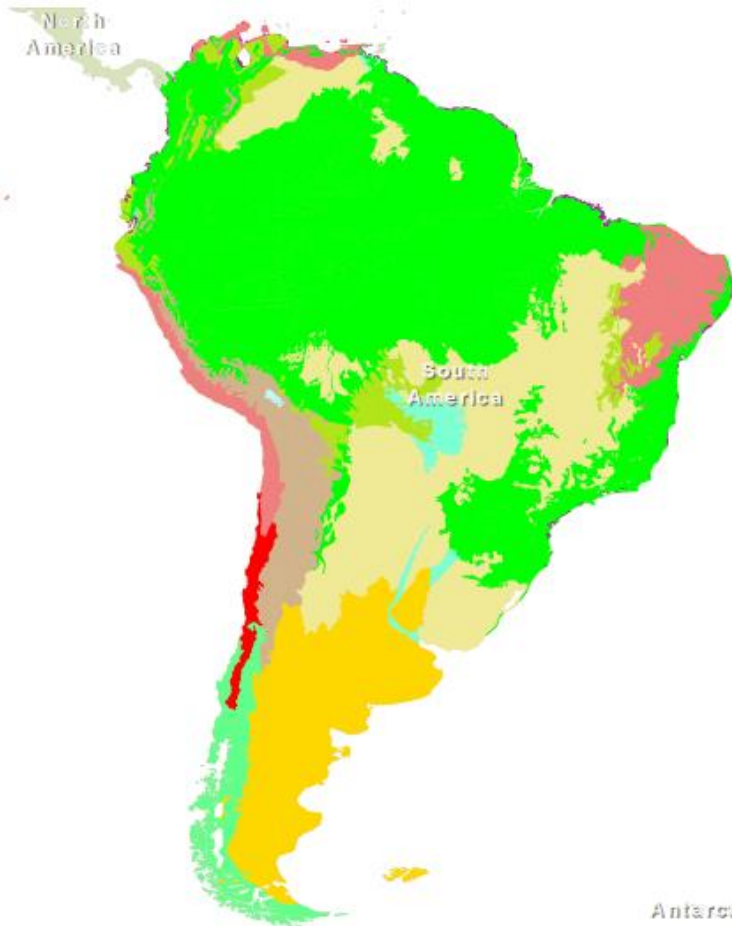


# Terrestrial Ecoregions Of the World (TEOWs)

- WWF has defined, described, and mapped 867 distinct TEOWs
- TEOWs are “relatively large units of land or water, each containing a distinct assemblage of natural communities sharing a large majority of species, dynamics, and environmental conditions.”
- TEOWs “represent the original distribution of distinct assemblages of species and communities” throughout the world.

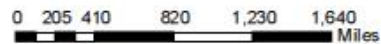


# Terrestrial Biomes of S. America

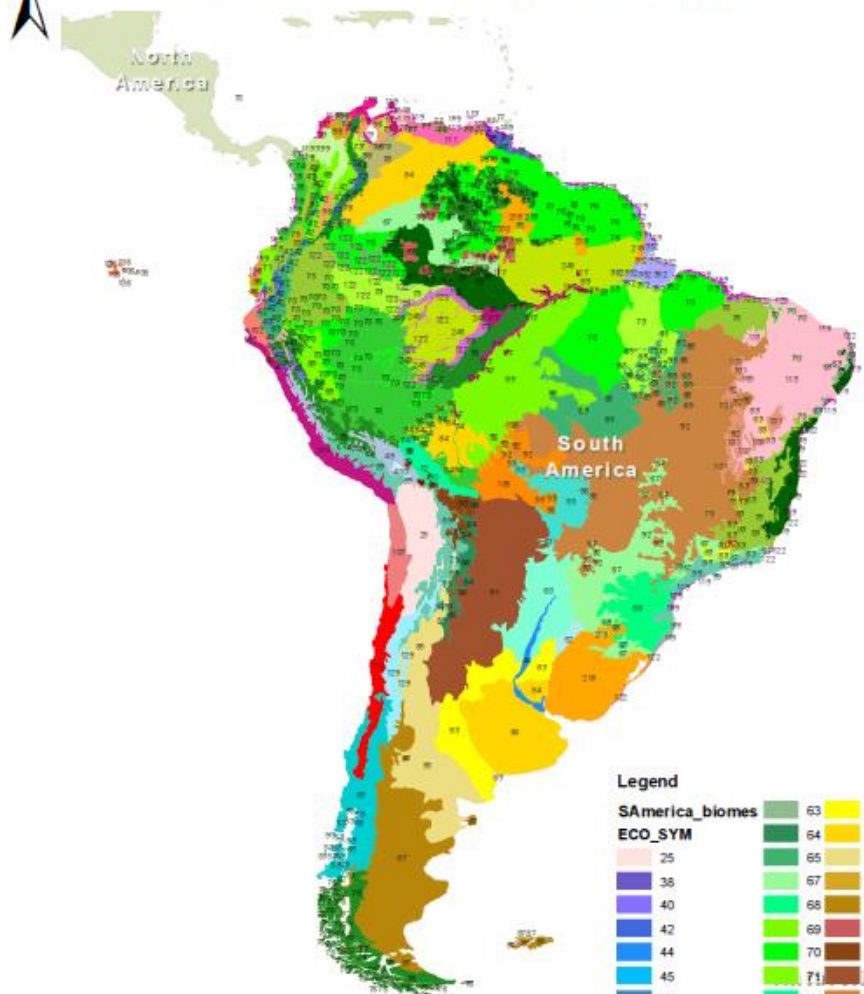


### Legend

- Tropical and Subtropical Moist Broadleaf Forests
- Tropical and Subtropical Dry Broadleaf Forests
- Temperate Broadleaf and Mixed Forests
- Tropical and subtropical grasslands, savannas, and shrublands
- Temperate Grasslands, Savannas, and Shrublands
- Flooded Grasslands and Savannas
- Montane Grasslands and Shrublands
- Mediterranean Forests, Woodlands, and Scrub
- Deserts and Xeric Shrublands
- Mangroves
- Lakes
- Rock and Ice

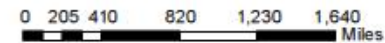


# Terrestrial Ecoregions of S. America



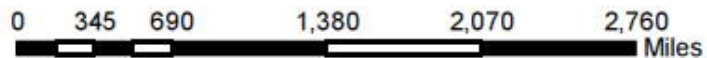
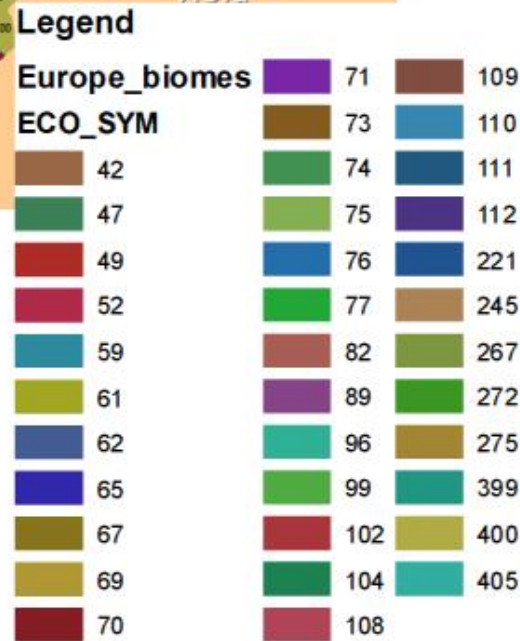
### Legend

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| <b>ECO_SYM</b>         | <span style="color: #4CAF50;">■</span> 64 | <span style="color: #FFEB3B;">■</span> 84  | <span style="color: #F44336;">■</span> 110 |
|                        | <span style="color: #4CAF50;">■</span> 65 | <span style="color: #FFEB3B;">■</span> 85  | <span style="color: #F06292;">■</span> 111 |
|                        | <span style="color: #4CAF50;">■</span> 67 | <span style="color: #FFEB3B;">■</span> 86  | <span style="color: #F06292;">■</span> 112 |
|                        | <span style="color: #4CAF50;">■</span> 68 | <span style="color: #FFEB3B;">■</span> 87  | <span style="color: #F06292;">■</span> 113 |
|                        | <span style="color: #4CAF50;">■</span> 69 | <span style="color: #FFEB3B;">■</span> 89  | <span style="color: #F06292;">■</span> 117 |
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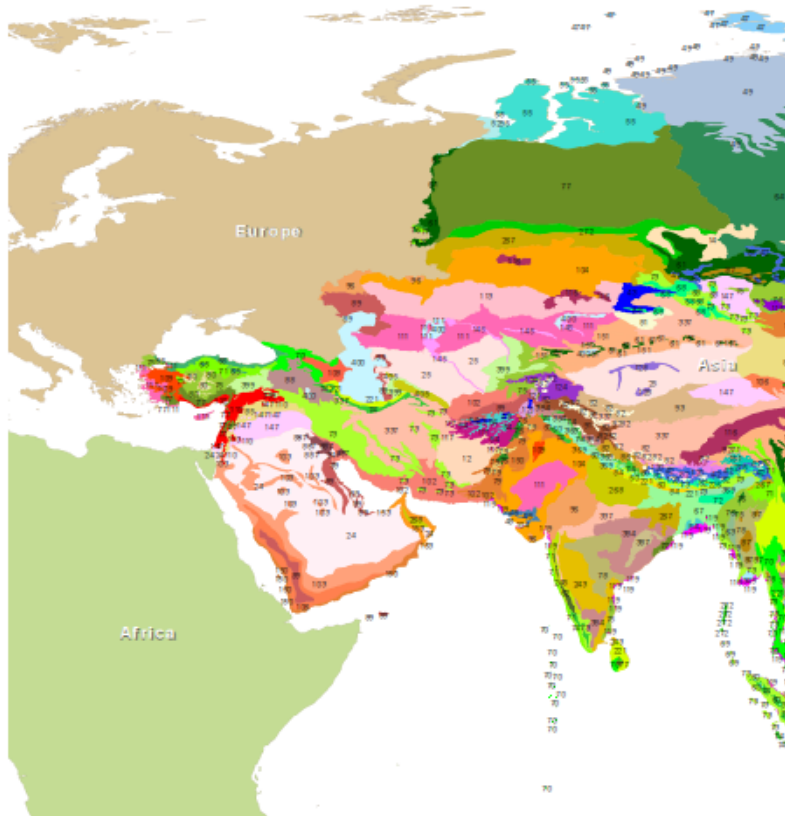




# Terrestrial Ecoregions of Europe



# Terrestrial Ecoregions of West Asia



**Legend**

Asia_biomes	ECO_SYM
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634	640</

# We propose to:

- Cooperate with international SWAT users to develop vegetation parameters for each of the 14 WWF terrestrial biomes.
- Explore the value of developing vegetation parameters for selected representatives of the 867 TEOWs.
- Improve SWAT simulation of “natural” vegetation worldwide

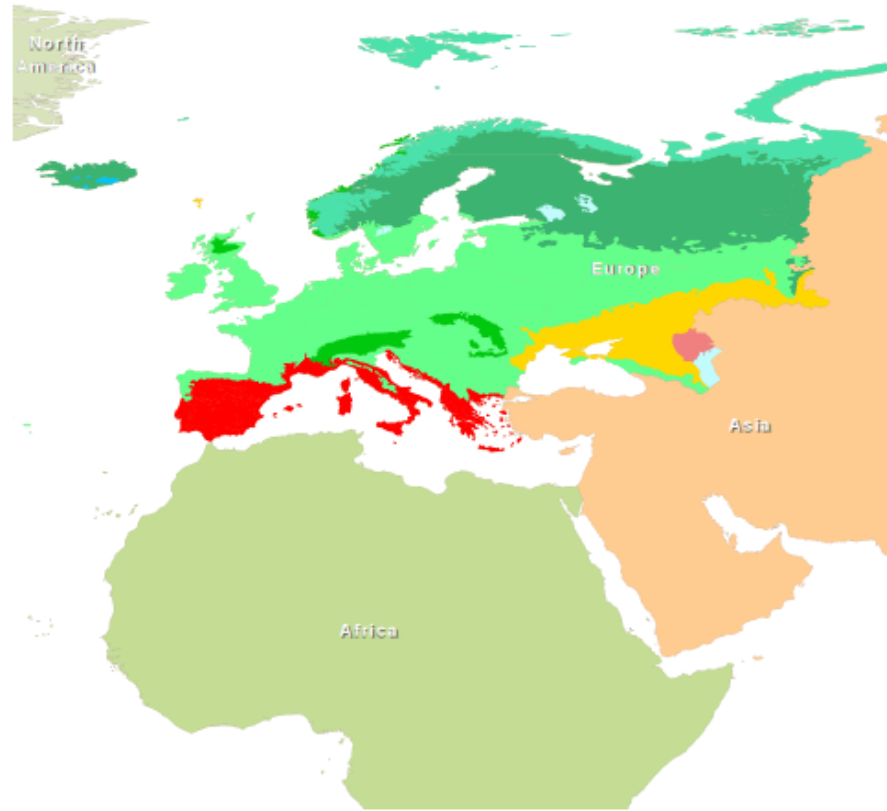
Are you interested?

[cajones@tamu.edu](mailto:cajones@tamu.edu)





# Terrestrial Biomes of Europe



## Legend

- |  |   |
|--|---|
|  Temperate Broadleaf and Mixed Forests          |  Mediterranean Forests, Woodlands, and Scrub |
|  Temperate Coniferous Forests                   |  Deserts and Xeric Shrublands                |
|  Boreal Forests/Taiga                           |  Lakes                                       |
|  Temperate Grasslands, Savannas, and Shrublands |  Rock and Ice                                |
|  Tundra   |   |

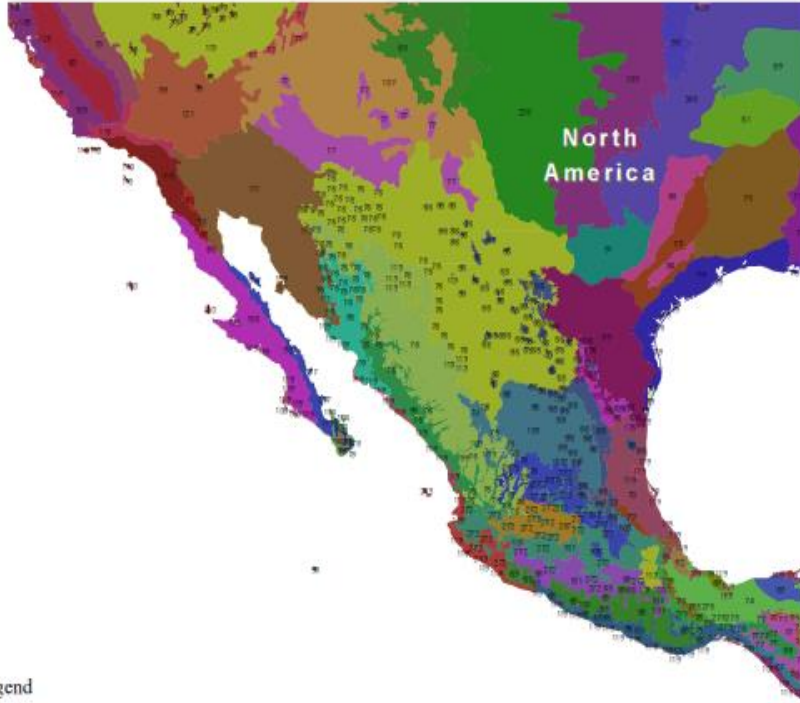




# Terrestrial Ecoregions of Southern N. America

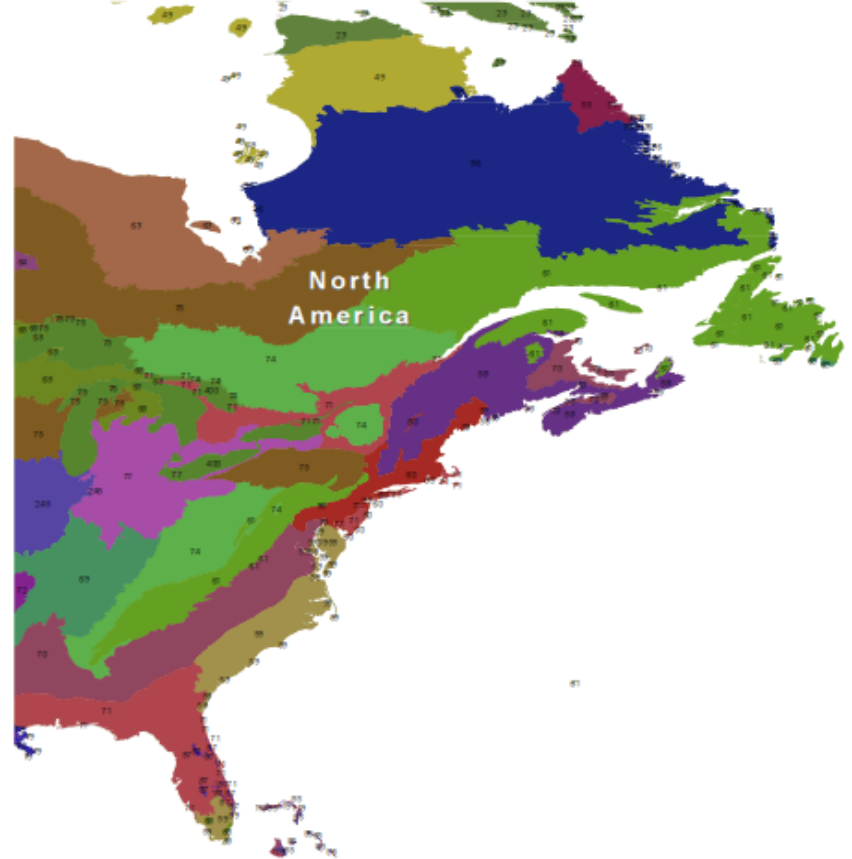


# Terrestrial Ecoregions of Eastern N. America



### Legend

NAmerica_biomes	
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53	76
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	272
	275
	337
	405



### Legend

NAmerica_biomes	
23	61
36	63
49	64
55	68
58	69
59	70
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	87
	119
	245
	400





# Terrestrial Biomes of Asia

