
Contents

General: the treatment of the ecozones and global overviews of selected characteristics

1	Distribution	7
2	Climate	11
2.1	Solar radiation	11
2.2	The growing season and conditions for plant growth.....	14
3	Relief and drainage	17
3.1	Geomorphological processes	17
3.2	Drainage and water balance	17
4	Soils	21
4.1	Soil fertility	21
4.2	Soil water budget.....	23
4.3	Soil units and soil zones	26
5	Vegetation and animals	35
5.1	Structural characteristics of the vegetation	35
5.2	Ecosystem model of ecozone	38
5.3	Available supply of organic matter in the ecosystem	40
5.4	Primary production.....	40
5.4.1	Photosynthesis and respiration.....	40
5.4.2	Primary production from plant stands.....	42
5.4.3	Production capacity of the world's plant cover	43
5.5	Consumption by animals and secondary production	48
5.6	Waste and decomposition.....	49
5.7	Turnover of minerals	51
6	Land use	55

Regional section: The individual ecozones

7	Polar subpolar zone	63
7.1	Distribution	63
7.2	Climate	64
7.2.1	Temperature, length of day, precipitation	64
7.2.2	Annual temperature changes in the soil and air layer next to the soil	65
7.2.3	Summer solar radiation and heat budget.....	67
7.3	Relief and drainage in periglacial areas.....	68
7.4	Soils	72
7.5	Vegetation and fauna in the tundra and polar deserts	73
7.5.1	Distribution of vegetation	74
7.5.2	Biomass and primary production.....	75
7.5.3	Animals and animal feed	76
7.5.4	Decomposition and turnover of minerals	77
7.5.5	Model of a tundra ecosystem	78
7.6	Land use	80
	Synoptic diagram for the tundra	81
8	Boreal zone	83
8.1	Distribution	83
8.2	Climate	84
8.3	Relief and drainage.....	87
8.4	Soils	89
8.5	Vegetation and animals	91
8.5.1	Boreal coniferous forest.....	91
8.5.2	Peat bogs.....	92
8.5.3	Forest tundra, polar and forest tree lines	93
8.5.4	Biomass and primary production.....	94
8.5.5	Decomposition, organic soil matter and mineral reserves	94
8.5.6	Boreal coniferous forest ecosystems.....	98
8.6	Land use	98
	Synoptic diagram for the Boreal zone	100
9	Temperate midlatitudes	103
9.1	Distribution	103
9.2	Climate	103
9.3	Relief and drainage.....	105
9.4	Soils	107
9.5	Vegetation and animals	108
9.5.1	Seasonality in deciduous forests	109
9.5.2	Water budget in forests.....	111
9.5.3	Biomass and primary production, growth and litter production.....	112

9.5.4	Mineral budget in midlatitude deciduous broadleaf and boreal coniferous forests.....	113
9.5.5	Model of an ecosystem of a deciduous forest.....	118
9.6	Land use	118
	Synoptic diagram for the Temperate midlatitudes	121
10	Dry midlatitudes	123
10.1	Distribution	123
10.2	Climate.....	124
10.3	Relief and drainage.....	125
10.4	Soils in the steppes	125
10.4.1	Types of soil in the zone	125
10.4.2	Halomorphic soils	128
10.5	Vegetation and animals in the steppes	128
10.5.1	Types of steppes	129
10.5.2	Life-form and adaptation to winter cold and summer drought.....	130
10.5.3	Animals	130
10.5.4	Biomass, primary production and decomposition	131
10.5.5	Available supply and turnover of minerals.....	134
10.6	Land use	134
10.6.1	Large scale grain cultivation.....	134
10.6.2	Extensive pasture economy	136
	Synoptic diagram for steppes	138
11	Subtropics with winter rain	141
11.1	Distribution	141
11.2	Climate.....	142
11.3	Relief and drainage.....	143
11.4	Soils	143
11.5	Vegetation and animals	144
11.5.1	Sclerophyllous vegetation	144
11.5.2	Adaptation to summer drought	146
11.5.3	Animals	148
11.5.4	Fire	148
11.5.5	Biomass and primary production.....	150
11.6	Land Use.....	152
	Synoptic diagram for the Subtropics with winter rain	154
12	Subtropics with year-round rain	157
12.1	Distribution	157
12.2	Climate.....	158
12.3	Relief and drainage.....	159
12.4	Soils	160
12.5	Vegetation	161
12.5.1	Structural characteristics.....	161

12.5.2 Available supply and turnover in a semi-evergreen oak forest in the southeastern United States	162
12.6 Land use	165
Synoptic diagram for the Subtropics with year-round rain.....	165
13 Dry tropics and subtropics	169
13.1 Distribution	169
13.2 Climate	170
13.3 Relief and drainage.....	172
13.3.1 Weathering processes and crusts.....	172
13.3.2 Aeolian processes	172
13.3.3 Stream erosion and wash denudation	173
13.4 Soils	174
13.5 Vegetation and animals	175
13.5.1 Vegetation and soil water budget.....	176
13.5.2 Adaptation to drought and stress	180
13.5.3 Animals in the desert	183
13.5.4 Biomass and primary production.....	184
13.6 Land use	185
13.6.1 Pastoral nomadism	185
13.6.2 Oasis agriculture	187
Synoptic diagram for tropical thorn savannas and subtropical thorn... steppes in the semi-arid Dry tropics and subtropics.....	189
14 Tropics with summer rain	193
14.1 Distribution	193
14.2 Climate	194
14.3 Relief and drainage.....	195
14.4 Soils	198
14.4.1 General characteristics of soils in the subtropics and tropics with summer and year-round rain	198
14.4.2 Soil types	200
14.5 Vegetation and animals	202
14.5.1 Structural characteristics of savanna vegetation	202
14.5.2 Animals	203
14.5.3 Savanna fires.....	204
14.5.4 Biomass and primary production.....	204
14.5.5 Zoomass and animal feed	206
14.5.6 Decomposition of litter.....	208
14.5.7 Mineral supplies and turnovers	209
14.6 Land use	210
Synoptic diagram for the Tropics with summer rain	213
15 Tropics with year-round rain	215
15.1 Distribution	215
15.2 Climate	216

15.3	Relief and drainage.....	217
15.4	Soils	218
15.5	Vegetation and animals	221
15.5.1	Structure of the tropical rainforest	221
15.5.2	Dynamics of the vegetation	224
15.5.3	Animals	224
15.5.4	Biomass and primary production.....	225
15.5.5	Animal feed	226
15.5.6	Litter, the litter layer, decomposition and humus	226
15.5.7	Mineral supplies and turnovers	227
15.5.8	Rainforest ecosystem	229
15.6	Land use	230
	Synoptic diagram for the Tropics with year-round rain	235

References**237**

<http://www.springer.com/978-3-540-20014-7>

The Ecozones of the World

The Ecological Divisions of the Geosphere

Schultz, J.

2005, XII, 252 p. 288 illus., 144 illus. in color.,

Hardcover

ISBN: 978-3-540-20014-7