

Geographic soil study of boulder county area in colorado essay example

[Literature](#), [Russian Literature](#)



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Geographic Soil Study of Boulder County Area in Colorado

The area of interest for the study of this case is the Boulder County Area in the state of Colorado. It is located on the north-central part of Colorado. It is approximately 241, 920 acres of land which lies on the eastern part of the Boulder County (Moreland & Moreland, 2008). This part of the survey consists of rolling plains as well as valleys, and the larger section of the acreage is an irrigated cropland. Boulder County is numbered as second in dairy operations in the state of Colorado. On the other hand, the western part of the boulder area is largely populated with industrial development and urbanization. The western area is made up of foothills and mountains (Moreland & Moreland, 2008).

The Boulder County area under study which is in the north-central part of Colorado State is located along the eastern border of the state's Front Range. The eastern area of Boulder County is within Piedmont town consisting of the Great Plains physiographic region and the western section constitutes Rocky Mountains which lie within the Front Range. The area under study covers a range of 4,900 feet along the eastern region, to around 8,200 feet in the western section (Moreland & Moreland, 2008). The county has three major towns in the area namely: Broomfield, Longmont and Boulder.

Geology of the area

The area's physiographic features are well pronounced by the wall-like mountain front which forms a boundary between the Piedmont area and the Front Range. There are foothills along the western regions of Piedmont town which are characterized of a series faulted and folded sedimentary strata which eventually form hogback ridges. There are foothills also found at the basement of the mountain which compost mainly of coarse alluvial deposits. They lie on erosion surfaces that form a boundary with the streams that occupy the flat-floored valleys below them. According to the history of geological formations in the area, the region consists of Precambrian igneous and metamorphic rocks; sedimentary rocks of Mesozoic and Paleozoic age; a few bodies of igneous rocks of the tertiary age; and some surface deposits of the quaternary age (Moreland & Moreland, 2008).

The Pierre shale, the Laramie Formation and the Fox Hills Sandstone are the predominant sedimentary formations in the area. In the relatively narrow

foothills, these formations are seen to appear like hogback ridges. In addition, the quaternary deposits are found to consist of alluvium, eolian silt, slope-wash colluvium and sand. There are several processes that occurred and led to the formation of these layers of soil deposits. This took time during several geomorphic cycles that included erosion and deposition by wind, deposition of alluvium, downward stream cutting and soil development (Moreland & Moreland, 2008).

Climate

The Boulder County is said to have mainly two types of climates based on location. In the western part, there is a mountain climate as well as high plains while the eastern regions have continental climate. There are big variations in temperature in the county from one region to another.

Generally, the high plains have a higher recorded temperature annually than the mountainous region of area of interest. It is reported that the temperature increases from east to west which is the same case with precipitation. It is also reported that the precipitation ranges from 18 to 24 inches annually and that it rises with elevation (Moreland & Moreland, 2008).

It is documented that periods of droughts are also experienced in this region from time to time. This is more pronounced in the eastern part of the county. They are observed to occur mainly in the winter and fall seasons of the year. On the other hand, summer months bring with it thunderstorm activities which are observed to originate from the mountains (Moreland & Moreland, 2008).

Soil Name

Acre coverage area

Percentage composition in the county

Soil characteristics

Nunn clay loam, 1 to 3 percent slopes

It is well drained

Has moderate permeability of 0.6 to 2.0 in/hr

Has low runoff

Supports a wide variety of crops and plants due to its fertility

Soil found in terraces

Fern Cliff-Allens Park-Rock outcrop complex which has 15 to 60 percent slopes

Found on the mountain slopes and well drained

Holds low water capacity of 5.7 inches

Has a slow permeability of 0.6 to 2.0 in/hr

Has medium runoff

Soil found in mountain slopes

Nederland very cobbly sandy loam, 1 to 12 percent slopes

Has moderate permeability of 0.6 to 2.0 in/hr

Has low runoff

Supports a wide variety of crops and plants due to its fertility

Soil found in Old, high alluvial fans, terraces

(Moreland & Moreland, 2008 pp. 18, 38, 57).

Soil series/phase similarities

The three soil series have a common characteristic of a well drainage and having a moderate permeability. This indicates that the three soil phases are composed of almost the same size of particles. The chemical composition is what is different making them to be located at different sites in the region. They also have slow water runoffs (Moreland & Moreland, 2008).

Soil series/phase differences

The main difference is the chemical compositions that each soil phase has. Ascalon soils are composed of mixed loamy alluvium with a combination of eolian deposits. Calcium carbonate is also found in it with a percentage of 10 which makes it possible to support vegetation such as prairie big bluestem, sandreed, etc. The Fern Cliff-Allens Park-Rock outcrop complex is composed of only mixed loamy alluvium making suitable to support native vegetation such as ponderosa pine and Rocky Mountain Douglas-fir. Whereas, Nederland very cobbly sandy loam is composed of only Cobbly loamy alluvium and lacks calcium carbonate. It supports native vegetation such as switchgrass, blue grama, little bluestem and similar ones (Moreland & Moreland, 2008 pp. 18, 38, 57).

Soil formation factors and processes

The main factor that determines the soil type is the parent material. It is the parent material that breaks up and forms layers that constitute the soil series/phase. However, soil series/phase distribution in Boulder County is dependent on other factors such as erosion, climate change, animal and

human activities and chemical reactions and decompositions (Moreland & Moreland, 2008).

Conclusion

In essence, the Boulder county area in Colorado is composed of varied climatic, geological and physiographical factors. These variations also result into different soil series/phases in the region that supports a variety of crops and plants. The land has also been utilized by people in industrialization and urban construction and habitation. The area covers 241, 920 acres of land only but there are several different soil series/phases that can be found within its territory as well as different weather conditions from one place to another.

References

Moreland, D., C. & Moreland, R., E. (2008) Soil Survey of Boulder County Area, Colorado. New York, NY: Cengage Learning.