The state of Washington is an unusual area for the study of soil development because it is subject to a wide diversity of climatic conditions. In a considerable area west of the Cascade mountains, a mild temperature and relatively heavy rainfall is prevalent; while east of the Cascades a more arid condition prevails generally with more severe temperatures. The kind and density of native cover is equally variable. The same is true for rock materials.

Dense forests consisting chiefly of Douglas fir (Pseudotsuga taxifolia) are the usual land cover in western Washington. Western hemlock (Tsuga heterophylla), Western red cedar (Thuja plicata), and Sitka spruce (Picea sitchensis) are other common species. Certain specimens of Douglas fir reach large proportions, and the climate may be said to be exceptionally favorable for tree development, particularly in the Olympic Peninsula, lying to the westward from Seattle. Yet, in the midst of these forests, two prairie areas have developed. The characteristics of these prairie soils are the subject of this report.

Climate of the Olympic Peninsula

The rainfall on the Pacific side of the Olympic Peninsula commonly reaches the annual total of 120 inches, and in 1922 nearly 151. inches was received. The lowest recorded rainfall is 77.8 inches annually. The distribution of rainfall at weather stations on or near these prairies is as follows:

<table>
<thead>
<tr>
<th>Location</th>
<th>Jan</th>
<th>Feb</th>
<th>Mar</th>
<th>Apr</th>
<th>May</th>
<th>June</th>
<th>July</th>
<th>Aug</th>
<th>Sept</th>
<th>Oct</th>
<th>Nov</th>
<th>Dec</th>
<th>Ann</th>
</tr>
</thead>
<tbody>
<tr>
<td>Forks</td>
<td>19.49</td>
<td>13.49</td>
<td>14.76</td>
<td>8.37</td>
<td>4.95</td>
<td>3.86</td>
<td>1.27</td>
<td>1.95</td>
<td>5.28</td>
<td>12.34</td>
<td>18.45</td>
<td>18.13</td>
<td>122.31</td>
</tr>
<tr>
<td>Neah</td>
<td>16.58</td>
<td>12.68</td>
<td>11.38</td>
<td>7.81</td>
<td>5.53</td>
<td>5.01</td>
<td>2.01</td>
<td>2.26</td>
<td>5.20</td>
<td>9.55</td>
<td>15.21</td>
<td>16.80</td>
<td>111.02</td>
</tr>
</tbody>
</table>

The mean annual temperature at Forks averages 49.1°F to 2.0°F. The elevation at Forks is 375 feet above sea level.

Cloudy, foggy weather is common for this area during most of the year.

Topography and Native Cover of the Prairies

Both areas are well drained, gently undulating, till plain topography and are undoubtedly of glacial origin. Granite and quartzite boulders are encountered, but the drift material is mainly fine textured and friable. It is easy to penetrate to considerable depth with the soil auger.

The native cover on both prairies is almost solely the bracken fern (Pteridium aquilinum pubescens). The plants attain considerable size, extending to heights of over six feet and covering the ground with such a dense stand that it is difficult to penetrate it. Late in the autumn, these ferns fall over and cover the ground with a mulch nearly two feet thick.

The Soil Profiles

Quite similar soil profiles developed on the two areas. There is a dark brown to black surface soil 16-20 inches in depth, which is markedly granular and strongly bound together by the fibrous roots of ferns. In the lower portion many blackened rootstalks of bracken fern are found. The layer is readily permeable to water, but abruptly the black coloring disappears and a straw yellow color appears, which is present to more than six feet in depth without appreciable change. There is no obvious granulation in this material.