

Button grass is generally referred to as growing on more or less plain-like tracts of land, but it is not entirely restricted to such areas. It is also found on hill slopes of all degrees of steepness and on tops of hills and mountain rising to heights of at least 4,000 feet.

It is evident therefore that altitude and also drainage as regulated by amount of slope and local conditions, have no apparent effect or control on the development of button grass areas. The large development of button grass on low-lying and marshy tracts of land appears to suggest a relationship with such badly drained areas, but the above will prove the fallacy of this view.

The button grass is always found growing on a peat or peaty soil which appears to be a product of older growths of it, and to have been built up by it. Below the peaty soil, there is almost always found a substratum of angular pieces of reef quartz or extremely siliceous rocks such as quartzite, quartzitic conglomerates, quartz schists etc.,. On areas occupied by the above rocks the substratum is composed of pieces weathered from the underlying rocks. On areas in which the bedrock is granite, the pieces of quartz are derived from the quartz contained in, and quartz veins.

In the plain-like tracts the substratum usually consists of water worn pebbles of quartz and the siliceous rock types referred to above. The underlying strata in these tracts consist of alternating layers of gravels, clays, sands etc., of fluviatile or fluvio-glacial origin and in some cases old peat beds are present indicating former button-grass covered land surfaces. Button grass also grows on deposits (moraines &c.) of true glacial origin.

It would appear from the above that the most important factor in the distribution of button grass is a geological one, and that the main factor is the presence of siliceous rocks. The control through this factor is effected by the formation of an extremely poor soil (if it can be called such) and a substratum of grits of gravels of siliceous rock types. There are probably a number of minor controlling factors such as climate, drainage etc., but these do not compare in importance with the geological one.

In localities where the bedrocks contain other types as well as the siliceous ones there is of course the probability of the soil being of better quality.

In some areas observed by the writer after the button grass has been burnt repeatedly, and more or less killed, and some of the peaty matter in the soil also destroyed, the resulting soil is a light, friable one. It seems to be composed of very fine particles of the quartz and siliceous rock-types which have become part of the peaty soil built up by the button grass.

In the utilisation of button grass areas there will be many factors which would have to be considered such as drainage, destruction of the button-grass and perhaps of the peaty matter in the soil, addition of lime etc., which need not be referred to here.

I would recommend that the most important factor in testing out button-grass areas for their possible utilisation, should be the selection of areas in which

it can be expected (as a result of inspection and tests) that the resulting soil will be of the better quality. As indicated above these areas will probably occur where argillaceous and other rock types than siliceous ones, or other favourable geological conditions exist.

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NOTES OF BUTTON GRASS AREAS.

Buttongrass flourishes in places of heavy rainfall, fairly evenly distributed throughout the seasons.

Abundant moisture is necessary to its growth but it is not a product of swamps.

The peaty soil, formed largely from its decay, is capable of retaining moisture. The roots are capable only of penetrating loosely compacted sub-soil of a sandy or gravelly nature. The loose siliceous (quartz sand and gravel) soils as a rule rest upon almost impermeable argillaceous rocks such as slate, tuff, and schists, but also on quartz schists and the like.

Buttongrass and its like associates find sustenance upon soils of such poorness and under conditions so rigorous that few forms of other plant life could survive. I have found it growing at sea-level and at an elevation of 3,800 feet. It is apparently unaffected by either frost or snow and in the highlands lies under cover of snow during winter.

Apparently buttongrass cannot hold ground with higher forms of plant life because it is never found on soils rich enough to sustain the high plants. It is seldom found as an undergrowth. I think its preference for quartz sub-soil is more mechanical than chemical.

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