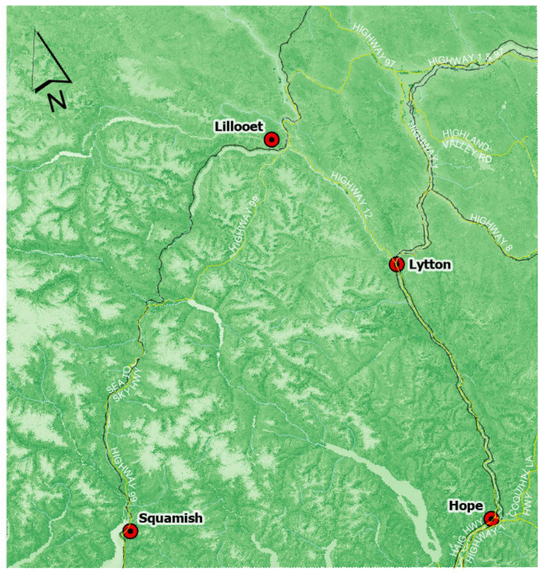
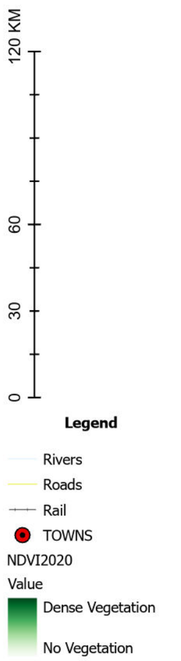
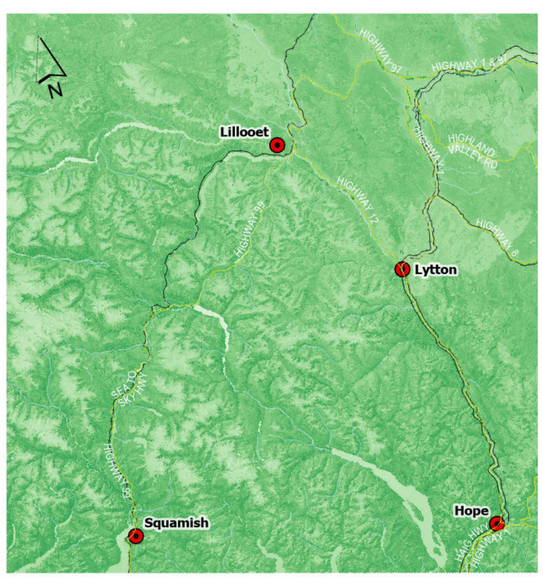
Normalized Difference Vegetation Index (NDVI)

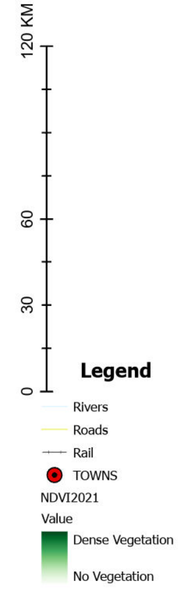
NDVI 2020





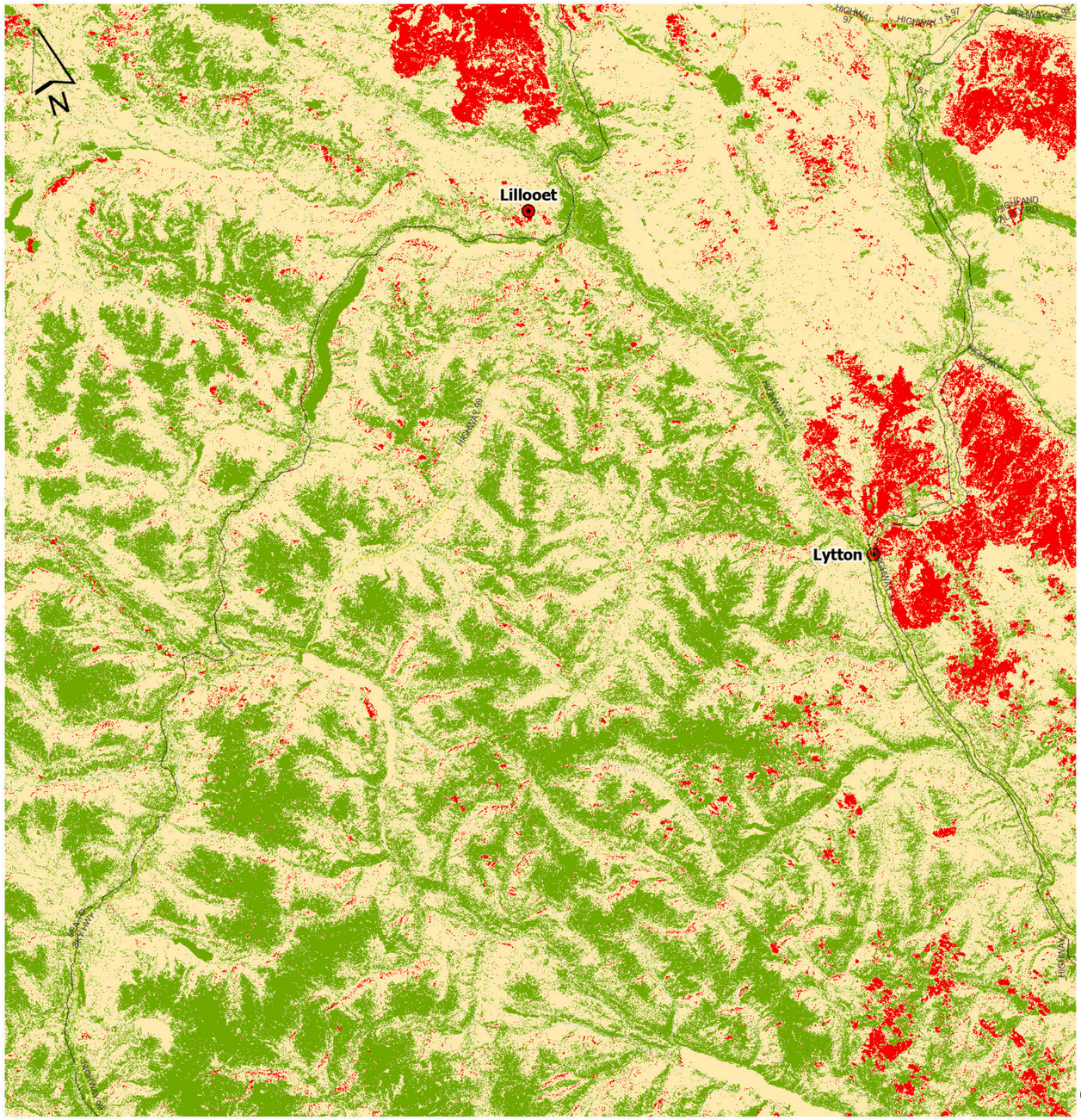
NDVI 2021





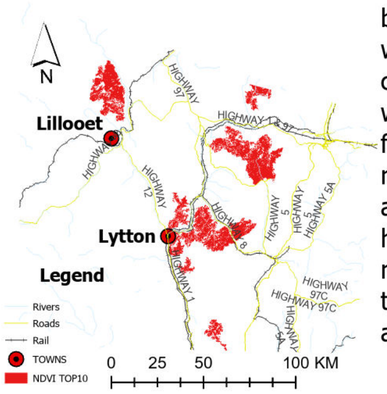
The above two Images are of NDVI in 2020 and 2021. In both images we can see that there is Dense Vegetation in south western part in the mountainous area but the one clear difference here is in the north eastern part where there are significant patches of white shaded areas indicating a significant loss of vegetation. In here although there is good amount reduction in the NDVI values in these areas but they are still in positive areas indicating it is picking some vegetation in those areas which might be of regrown grass or similar features.

CHANGE IN NDVI



The Adjacent map indicates Change in NDVI created using the Calculate raster tool by subtracting NDVI 2020 from NDVI 2021. by this process we could see which areas have changed a lot in NDVI and which remained relatively the same in our area. As we can in see in the map for most of the infrastructure and features like rivers and lakes the NDVI has remained the same but the most changes are seen in the Red patches in the map in north eastern part of the map predominantly to the east of Highway12. This reassures our findings from Composite and Infrared Images.

10 LARGEST AREAS WITH SIGNIFICANT CHANGE IN NDVI



As we can see in the adjacent map of 10 biggest areas with significant change in NDVI we can see as found earlier the maximum effect as been east to highway 12 and mostly near the towns of Lillooet and Lytton.

RESULTS AND ANALYSIS

The NDVI analysis of the 10 largest areas with significant NDVI change further highlights the extensive loss of vegetation in the areas most affected by the fire. This corresponds to the regions where the fire was most intense, as identified in previous studies and satellite observations.

Conclusion:

The NDVI change detection analysis provides clear evidence of the significant impact of the 2021 forest fire on vegetation cover in the study area. The areas showing the most considerable reduction in NDVI correspond with the fire's most intense regions, indicating widespread vegetation loss. However, some areas still show positive NDVI values, suggesting partial regrowth or the presence of resilient vegetation types. This analysis underscores the utility of NDVI in monitoring vegetation health and the impacts of natural disasters like forest fires.

WGS 1984 UTM Zone 10N
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