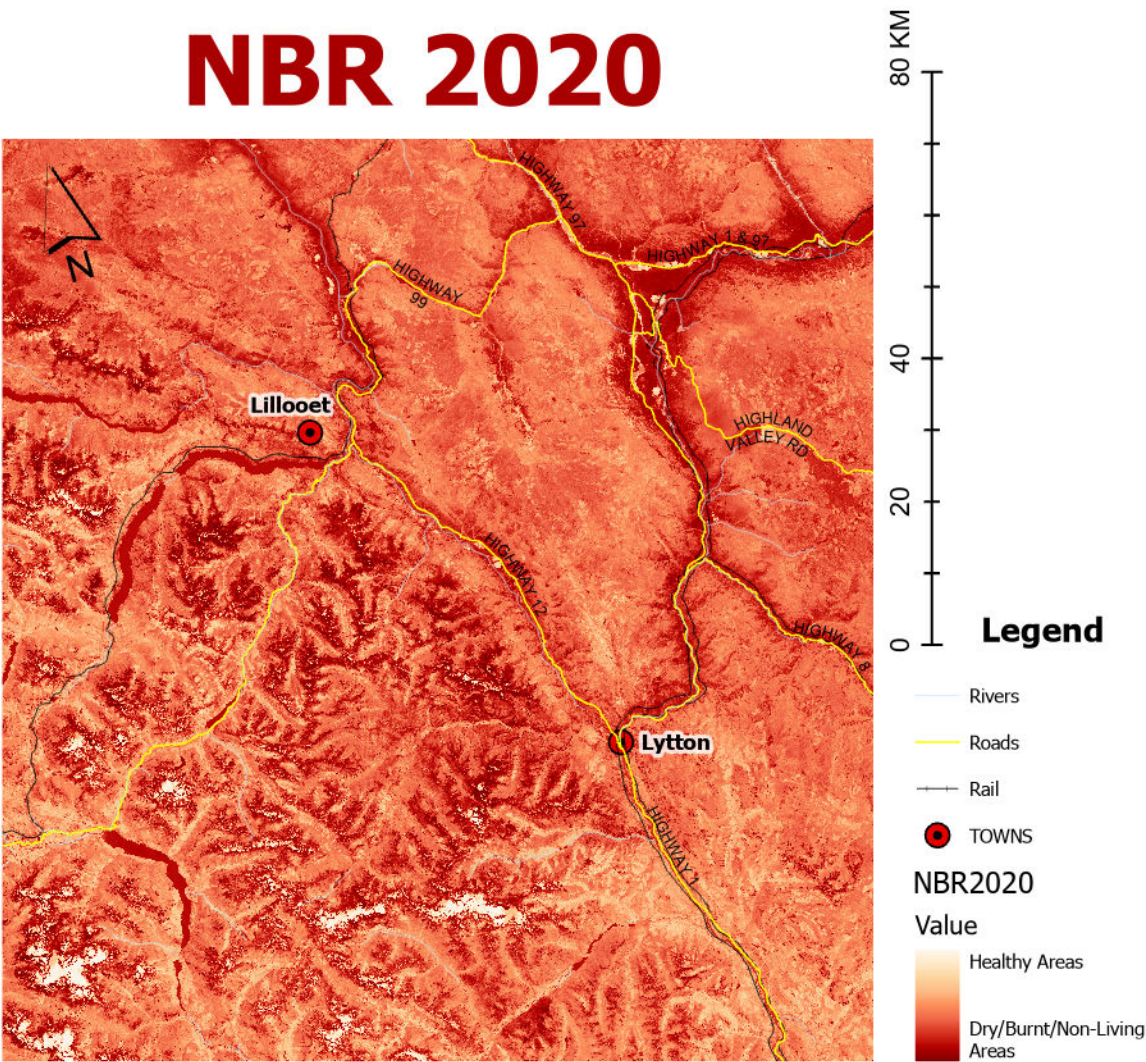
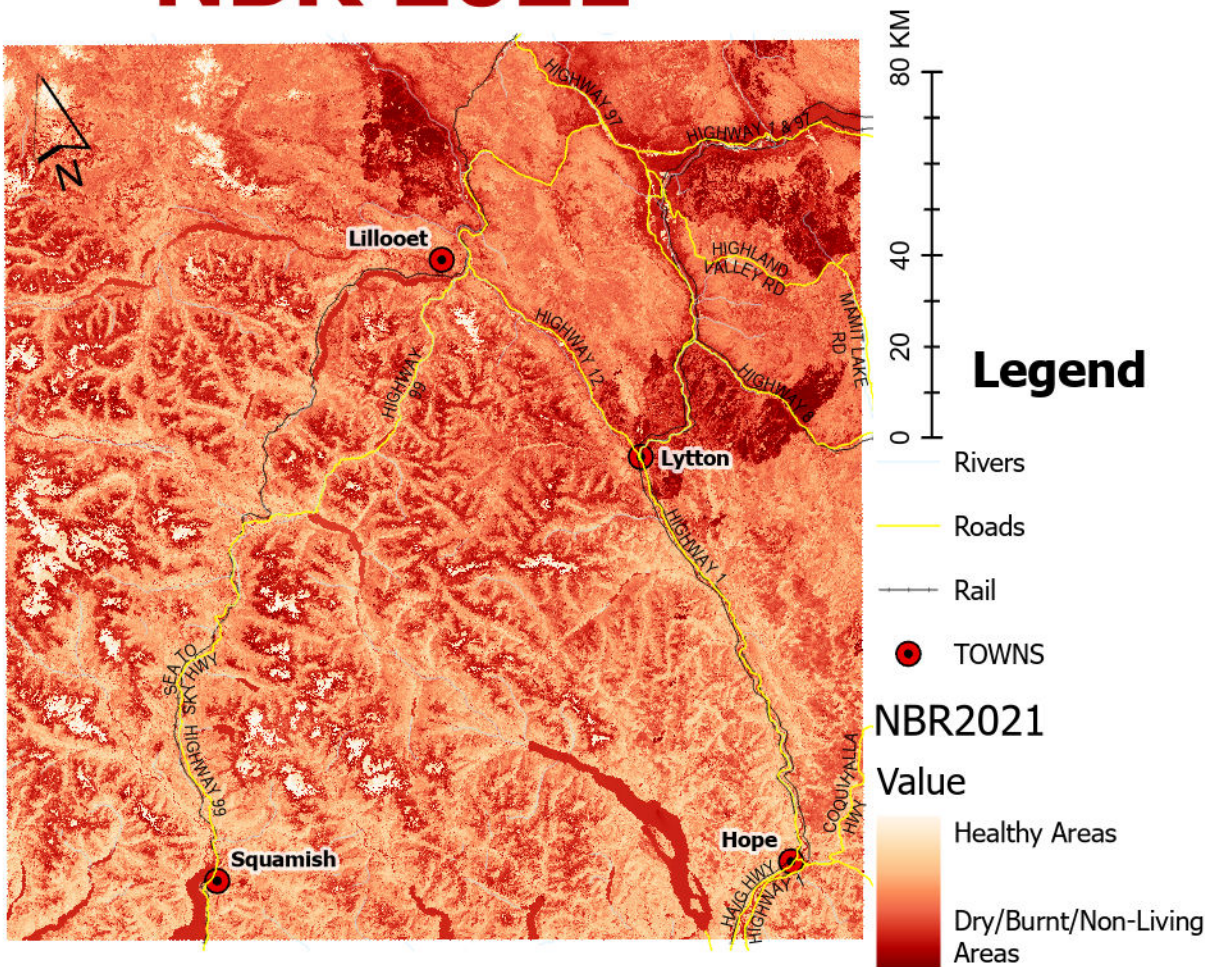


# Normalized Burn Ratio(NBR)

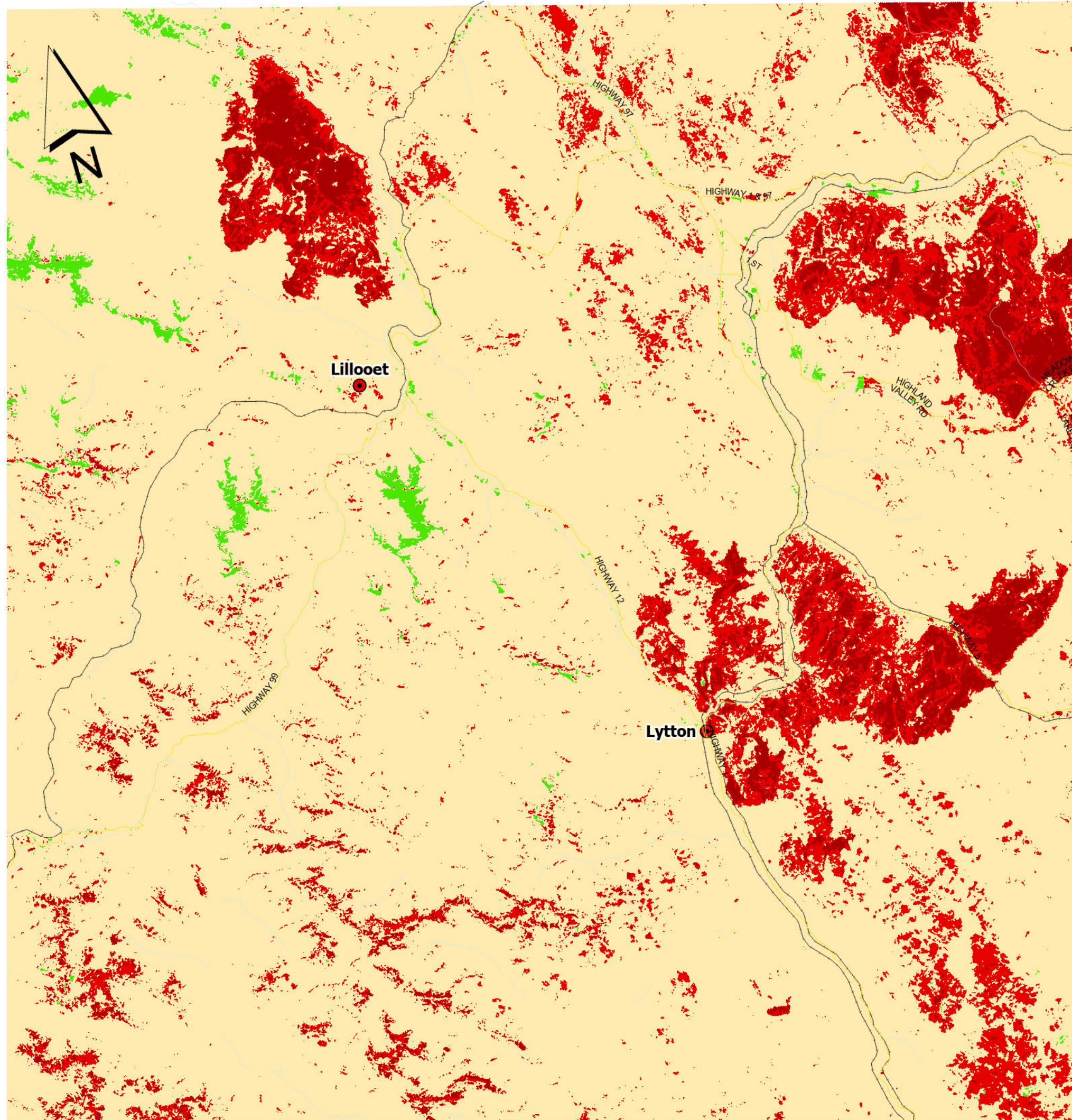
## NBR 2020



## NBR 2021

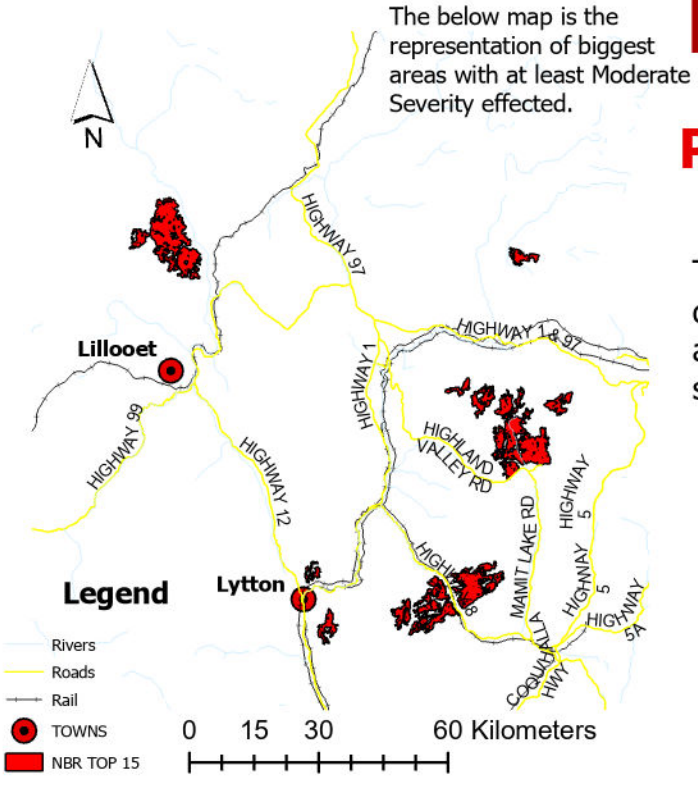


## CHANGE IN NBR



The Change in NBR (Normalized Burn Ratio) map illustrates the extent of the forest fire's impact in the study area between 2020 and 2021. The map highlights areas of high burn severity in red, moderate severity in orange, and low severity in yellow. Unburned regions are marked in green, indicating little to no change in vegetation health. The most significant burn scars are observed in the northeastern parts of the map, correlating with the regions that experienced the most intense fires.

The above two images are of NBR in 2020 and 2021. In the above both NBR Maps we can see that the area is dominated by healthy vegetation areas with pretty dense concentration but the main difference in these maps we can see visually is in the northeastern corner of the map to the east of highway 12 near the Lillooet and Lytton towns. there are several patches of shaded dark brown regions in roughly same areas as in NDVI Maps. These maps seem to be little accurate than NDVI as these give us the values in negative values where there is burnt areas where has NDVI though it identifies but it doesn't give us outright negative values to clearly identify.



## RESULTS AND ANALYSIS

### Population and Dwellings Analysis

The following table shows the no. of people and dwellings in these 15 big areas that could have been adversely affected by the Wildfire ravaged in the summer of 2021

Population	Dwellings
239	115

The above statistics are calculated through Apportion Polygon tool using the DA data.

The NBR analysis reveals extensive areas of high burn severity, particularly in the northeastern region around Lillooet and Lytton, British Columbia. These areas show a stark contrast between the pre-fire and post-fire conditions, with a significant loss of vegetation. Compared to the NDVI, the NBR provides a more detailed and accurate depiction of the fire's impact, as it better captures the burn severity across different regions.

The analysis also includes a population and dwellings assessment, which shows that 239 dwellings were within the affected area, with 115 of them being in regions of moderate to high burn severity. This data is crucial for understanding the socio-economic impact of the fire on the local population and guiding recovery and rehabilitation efforts.

**Conclusion:**  
The NBR has proven to be more efficient than NDVI in assessing forest fires through GIS due to its enhanced sensitivity to changes in vegetation structure and burn severity. The significant reduction in vegetation cover and the widespread burn scars highlighted in the NBR analysis underscore the devastating impact of the 2021 forest fire in the study area. This analysis not only provides critical insights into the extent of environmental damage but also helps in identifying priority areas for restoration and further monitoring.