

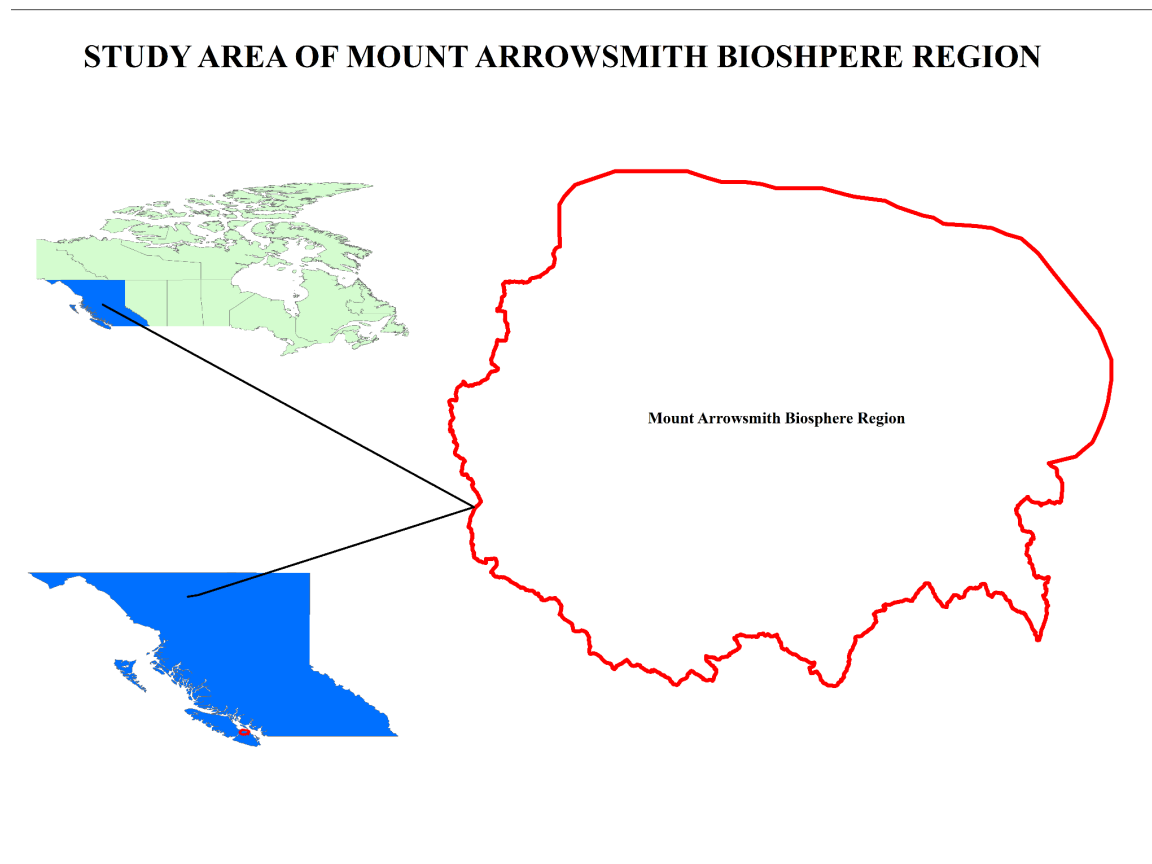
# **Analysis of change in Agricultural production analysis in Mount Arrowsmith Biosphere Reserve, Canada.**

## **Introduction**

Agricultural production varies year to year based on climate - California is in year five of a major drought. Taking landsat scenes for the exact location from three consecutive years taken on as close to the same day of the year as possible, which is 2001, 2007, and 2021. Run a classification to find agricultural regions, then extract those regions to a new raster and run an NDVI analysis and LULC analysis to get the changes that occurred.

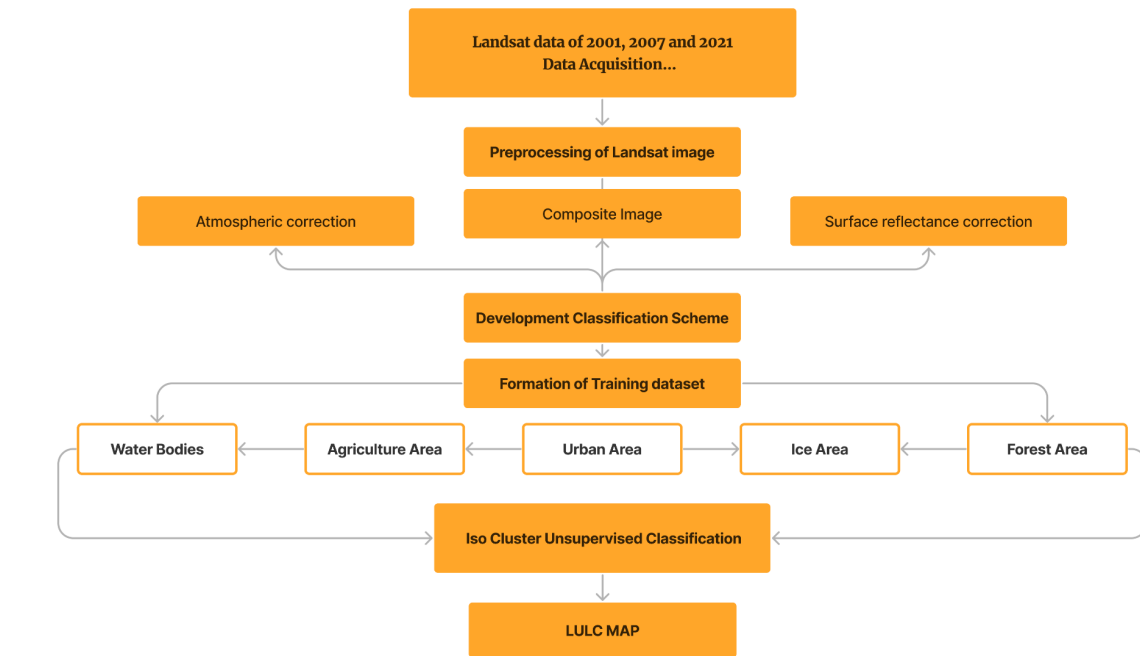
I determine differences in LULC in the agricultural regions between the three different years - as either some metric you generate or by highlighting areas of significant increase or decrease in vegetation. The results of this analysis will be used to inform conservation strategies for the protection of these species and to better understand the impacts of human activities on the natural environment.

## **Study Area**



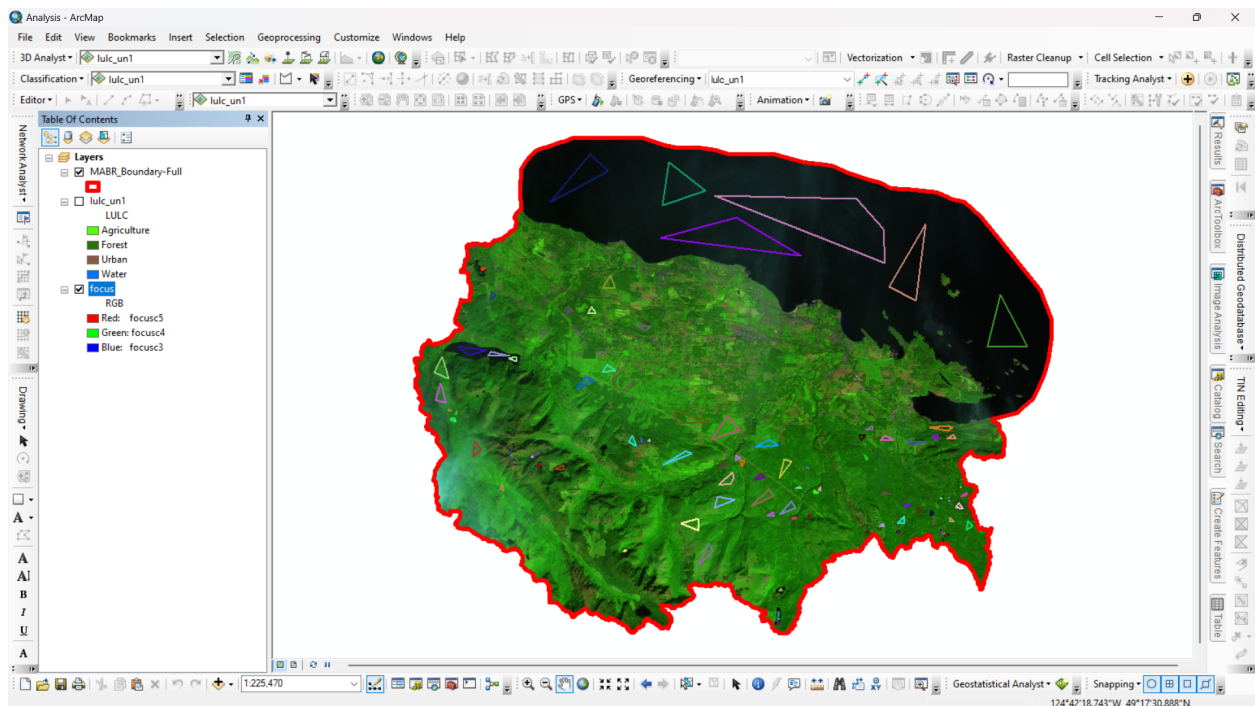
**The Study area**

## **Methodology**

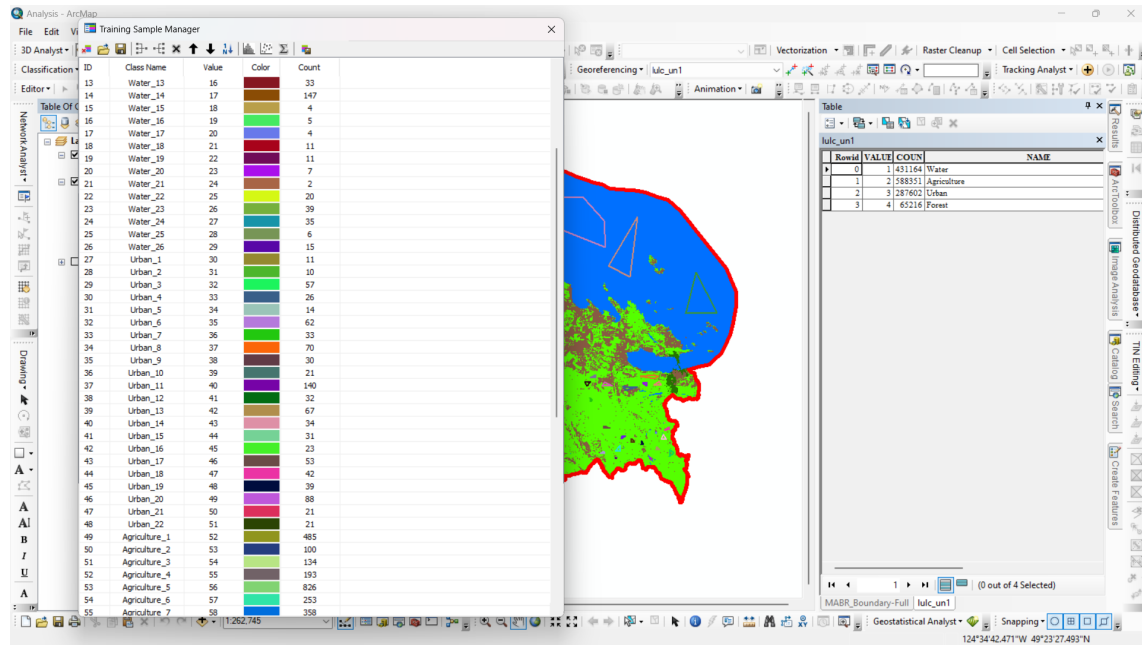


## Analysis Process

which uses supervised classification to train the Landsat data that was analyzed for NDVI. Picking the sample feature seen on the NDVI to see the changes that have happened over the years

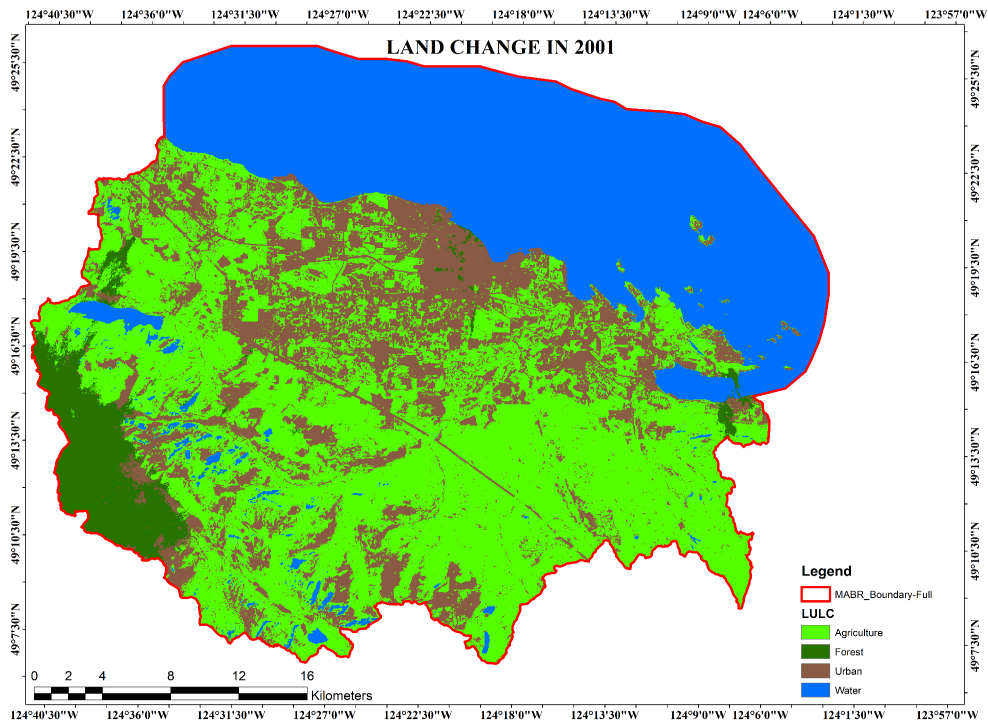


## Training Sample of the Landsat data

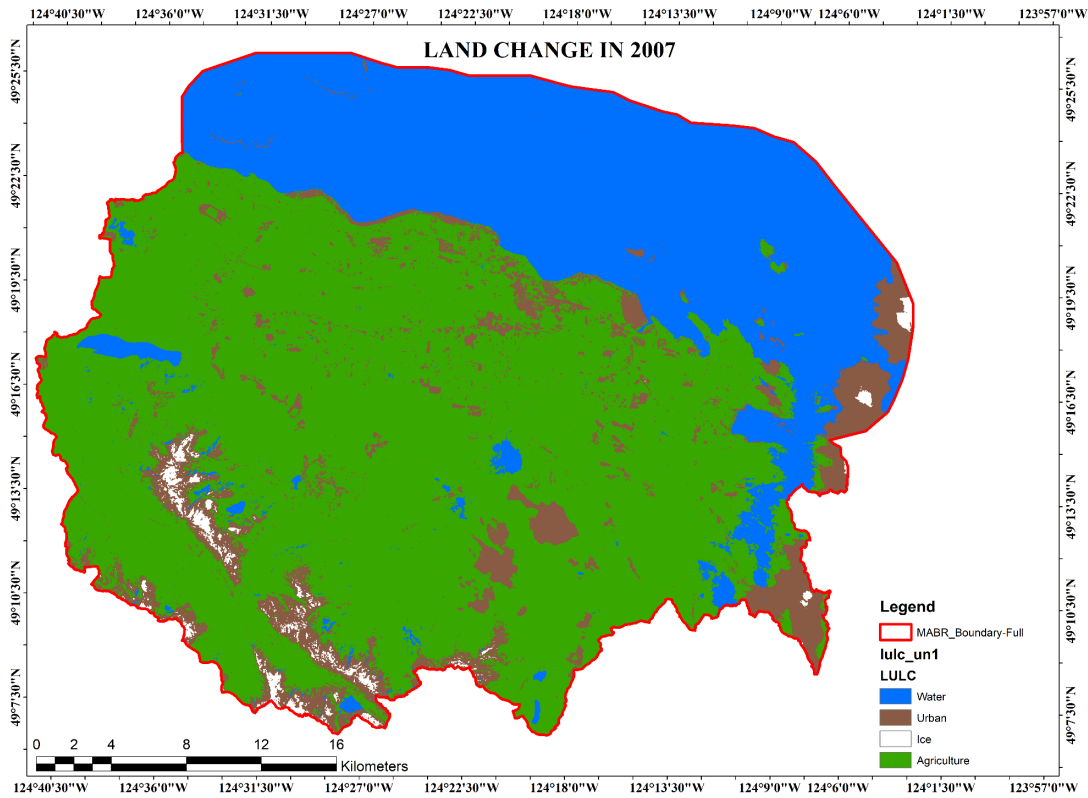


## Result

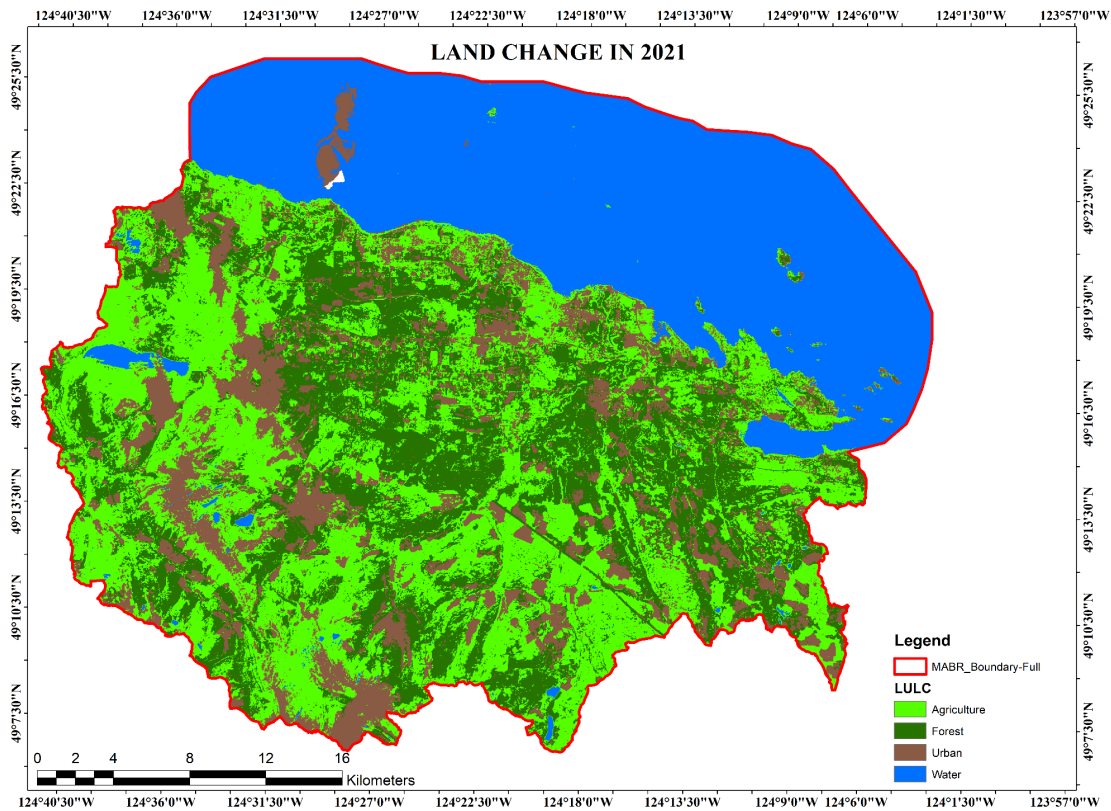
2001



2007



2021



## **Conclusion**

The analysis of changes in agricultural production in Mount Arrowsmith Biosphere Reserve using Land Use and Land Cover (LULC) from 2001 to 2021 has provided valuable insights into the trends and patterns of agricultural activities in the region over the last two decades. The study revealed that there has been a significant increase in the area of land under agriculture in the region, particularly in the form of hay and forage crops. This increase in agricultural production has occurred at the expense of natural vegetation, with forest cover declining significantly over the same period.

The analysis also showed a shift towards more intensive agricultural practices, including the increased use of fertilizers and pesticides, which have had significant environmental impacts, such as soil degradation and water pollution. The use of GIS technology and LULC data has enabled a comprehensive analysis of these changes and provided a valuable tool for monitoring and managing the impacts of agriculture in the region.

The study highlights the importance of sustainable land use practices and the need for effective policy interventions to address the environmental impacts of agricultural activities. The findings of this study can be used to guide decision-making processes aimed at promoting sustainable agricultural practices and protecting the unique ecosystems of the region. Overall, this analysis provides important information for policymakers, farmers, and other stakeholders involved in agricultural development and environmental management in the Mount Arrowsmith Biosphere Reserve.