Premium Vineyard locations

Overview

To find the best location to establish a vineyard is both an art and a science. A premium location needs to have the adequate physical characteristics to produce the desired type and quality of wine. **Physical characteristics** include the *elevation of the terrain*, *slope* and the *slope's orientation*.

Climate is one of the most significant factors in determining the grape's quality. Warm weather allows for grapes to ripen fully and achieve a good balance between sugar and acidity. Cooler weathers on the contrary force grapes to ripe earlier producing higher levels of acidity. It can be said then that weather dictates most of the taste of the grapes.

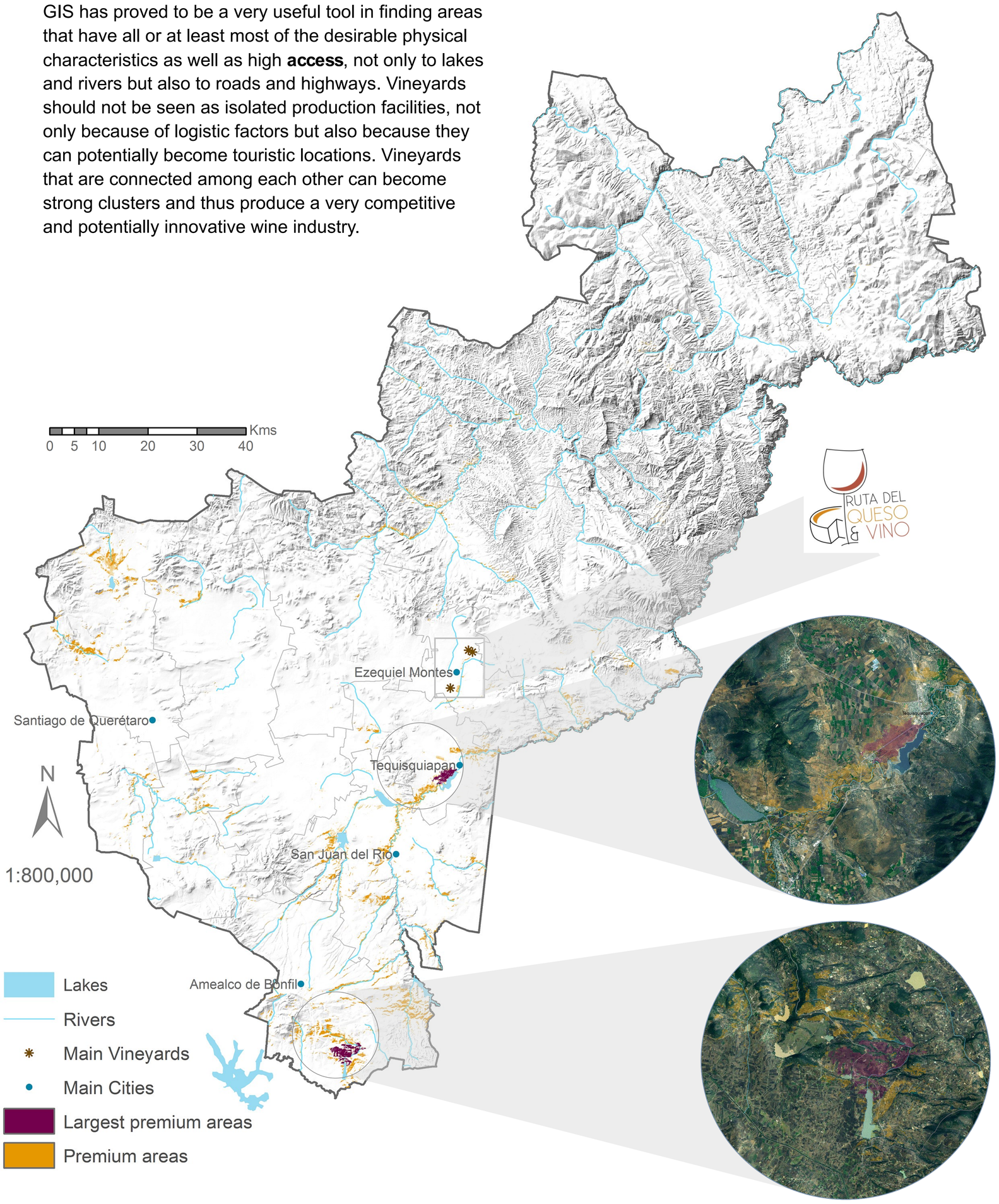
The presence of large *bodies of waters* and *rivers* also play a very relevant role, not only because water is vital for the growing of the grape vines but because they affect climate in a positive way.

GIS has proved to be a very useful tool in finding areas that have all or at least most of the desirable physical characteristics as well as high **access**, not only to lakes and rivers but also to roads and highways. Vineyards should not be seen as isolated production facilities, not only because of logistic factors but also because they can potentially become touristic locations. Vineyards that are connected among each other can become strong clusters and thus produce a very competitive and potentially innovative wine industry.

Methodology

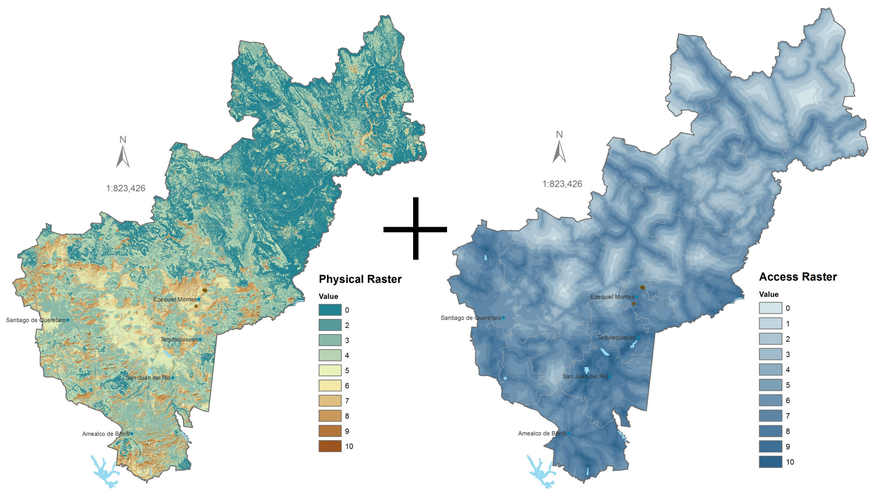
To determine the premium locations of vineyards for the State of Queretaro in Mexico accordingly to physical characteristics four main factors were examined: slope orientation (aspect), slope, elevation and land use. Aspect and slope were derived from the elevation raster. All datasets were converted to raster and reclassified into numerical ranges (1-5) giving the higher values to S and SE orientation and 10-15% slope. Elevation and land use were reclassified giving binary values, 0 and 1, elevations higher than 1,000 meters receive a 1 value, same applied for land available for agriculture. A physical characteristic raster was finally produced using the raster calculator.

To create the access raster three factors were examined: lakes, rivers and roads. All datasets were converted to raster using Euclidian distance and reclassified. The higher value (5) was given to the closest distances.



Queretaro, MEXICO

Finally both rasters (physical characteristics + access) were combined in order to locate the premium areas. All factors received the same weight for this analysis. Region Group tool was used to group vineyards that were adjacent in order to have suitable sized areas.



Results and conclusions

The analysis showed that the State of Queretaro has *26,330 acres* for premium vineyard locations. However vineyards that have the potential to be clustered are more valuable to further develop a wine industry, this is why two detailed satellite views are presented of the two largest premium areas totaling *2,807 acres.*

The most revealing part of this analysis was to see that the most important vineyards in the State of Queretaro, which form what it is known as "The Wine Route" are not located in any of the identified premium areas. One of the main reasons is that the slope of the terrain in that particular area is far from ideal and that it is not very close to water sources.

References

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Projection: North American Datum 1983 UTM Zone 14N

Data: INEGI (Mexican Statistic Institute)

Photography by Anna Valeria