

Mapping Nomads: Charting Environmental Change in Inner Mongolia (1930–2010)

Stephanie Sun, Class of 2018

The Japanese invasion of Manchuria began in 1931 and lasted until the end of World War II. As the Japanese expanded their reach into Northern China, they sought to lay claim over both land and the practices that governed its use, and effectively assert their territorial and administrative claim over the region. Thus, Japanese researchers began studying the migration routes and animal grazing practices of different nomadic communities in Eastern Inner Mongolia, in a region known as Hulunbuir, along the Russian-Mongolian border. This data was compiled as a series of maps, tables, and descriptions in *Research on Rangelands and Grazing Practices in North Khinggan Province* (興安北省に於ける牧野並びに放牧慣行調査報告), published in 1939. Eleven of the maps included in this document depict yearly migration of the Bordered White Banner, and the Plain Blue Banner and are the primary focus of this research.

So far, little research has been conducted on the migration and grazing patterns of nomadic groups in Eastern Inner Mongolia, and geographic and environmental data from the regions is also limited. This project sought to compile a more comprehensive digital data set that is open-source and readily available for download from ArcOnline for further analysis. The first part of this research included digitizing and georeferencing the original migration maps from *Research on Rangelands and Grazing Practices in North Khinggan Province* (興安北省に於ける牧野並びに放牧慣行調査報告), and assigning time attributes to the data so that the movements of twelve companies (under two banners) could be played in a time animation. The second part of this research was comprised of identifying areas in the Hulunbuir region that were subject to high grazing pressures by cattle, horse, sheep, and goats that were kept by each nomadic community, and thus try and determine areas in the region where we may expect to see greater land degradation, low biomass, and higher rates of desertification.

Through this research we found similarities in migration patterns between nomadic groups, as well as creating a platform on which we could view nomadizing patterns and seasonal pastures holistically. By aggregating herd data and assigning it a spatial reference, we were also able to identify herd counts in each pasture, and determine which areas had high grazing pressures, measured in livestock units per square meter.

Despite having collected and aggregated this data and made it available on a web platform, it is still difficult to determine the long term environmental effects of grazing pressures and migration, as current available data on land degradation and environmental conditions in Eastern Inner Mongolia is limited. Thus, continuation of this research will require further data collection and exploration.

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