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Study of Changes in the Ulan Buh Desert under the Dual Impacts of Natural and Anthropogenic

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The Ulan Buh Desert, as one of China's eight significant deserts, is situated in the country's northwestern region and encompasses a diverse array of landscapes, including various desert types, vegetation, water bodies, and other landforms. This diversity is crucial for the ecological integrity and safety of the Yellow River Basin. The desert is notably constrained by water availability, and there has been a notable expansion in the degree of human activities, particularly regarding agricultural development, in the area.

Over the past 32 years, studies tracking the temporal and spatial variations of the Normalized Difference Vegetation Index (NDVI) in the Ulan Buh Desert have revealed a consistent increase in vegetative cover. Through the analysis of drivers such as climate change and human activity, it has been determined that temperature exhibits a positive correlation with NDVI, a relationship that has strengthened progressively over the years. Conversely, precipitation's influence on NDVI has been relatively insignificant. On the human activity front, contributions to NDVI changes have grown considerably, with such activities accounting for nearly a 50% increase in the vegetative index, suggesting that human interventions are increasingly aligning with ecological rehabilitation and positive environmental outcomes.

By scrutinizing the ecological consequences of both natural processes and human endeavors on the Ulan Buh Desert, insights gleaned can offer actionable recommendations for ecological restoration efforts, ensuring the sustainable management and recovery of this vital region.