Estimation about *Cervus Nippon*'s use frequency in Takaragaike-Park by sensor camera data

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The objective of this research is to estimate usage frequency by *Cervus Nippon* in Takaragaike-park in northern part of Kyoto city because a number of them and vegetation damages is increasing.

Nowadays, *Cervus Nippon* also causes a heavy ecosystem damage in Japan, and their habitats spread out. According to Kyoto prefecture's planning, *Cervus Nippon*'s habitats already have extend to Tango-island, and they caused agricultural and human-beings habitat damages.

Hamazaki et al. (2007) says "Monitoring a density of special animals is necessary for general management.", and they stated that continuous monitoring after setting counterplan is important.

18 cameras constructed in the research area are monitoring *Cervus Nippon*, but the data that this research uses is not calculated and analyzed from 2017 till today.

This research uses calculation data and Random Encounter Model to estimate the number of *Cervus Nippon* in the research area, and IDW (Inverse Distance Weighted) method by QGIS (Quantum GIS) to make heat maps.

As a results, the estimated number is 39.64 – 678.72 deers per km^2 under the condition that their moving velocity, and the number is quite high compared to previous research, but this results are excessive from the actual number and this is not accurate.

In addition, monthly results indicated seasonal movement and *Cervus Nippon* may use this park as breeding ground in June.

Moreover, their estimated number in forest area tends to decrease in a night. This result can prove Tujino et al. (2015)'s statement which says *Cervus Nippon* may move to eastern area in the park.

There is a possibility that there are some habitats in western and eastern area through heat maps which shows the intensity of them at the same time.

Based on the above, active use by *Cervus Nippon* was observed at Takaragaike Park, and seasonal movement and diurnal behavior were confirmed. Therefore, it is necessary to carry out population adjustment to reduce the absolute number of sika deer entering and leaving the park.