With global warming progressing, it is critical from the perspectives of biodiversity conservation and wild animal management to clarify how changes in temperature affect the feeding efficiency and ~~foraging~~gulping behavior of wild animals.

In this study, we focused on large Japanese field mice (Apodemus speciosus) that are distributed widely in Japanese forests ~~and~~. Our study revealed that their capability to detoxify tannin (**), ~~an anti-herbivore defensive substance (*)~~ a plant defense chemical (*) contained in plants, improves at low temperature.

Various chemical compounds, including tannin, are primarily detoxified in liver after being ~~absorbed~~ ingested into the body. It is ~~commonly~~ known that the liver's ability to detoxify alcohol decreases at higher temperatures~~; nevertheless~~. Nevertheless, it has been unclear how temperature is correlated with the detoxification process of tannin, one of the most common toxins present in nature.

To address this question, we fed oak acorns containing high concentrations of tannin to large Japanese field mice raised at either 10 or 20 degrees ~~and~~Celsius. Then we compared the levels of detoxification in the liver, intake amount, and digestion~~.~~ rate. Consequently, we discovered that the mice kept at 10 degrees detoxified tannin faster and thus ate larger amounts of acorns. Moreover, they digested proteins contained in acorns more efficiently.

These results indicate that large Japanese field mice are able to neutralize the toxicity of tannin more effectively and consume acorns more efficiently at lower temperatures. Japanese field mice survive the cold winter by eating acorns stored during the autumn; therefore, this trait must be advantageous for their overwintering. These findings provide crucial information in ~~observing~~predicting changes in habitats and populations of wild animals amid global warming.

Comment [Checker1]: Level 2 [Technical Word Choice] [SME] Accurate technical word choice used as per source and literature

Comment [Checker2]: Level 2 [Word and Phrase Choice] [LAN] More appropriate word choice used as per the context

Comment [Checker3]: Level 2 [Omission] Omission issue rectified

Comment [Checker4]: Level 2 [Clarity and Readability] [LAN] Additional terms were added for better clarity

Comment [Checker5]: Level 2 [Mistranslation] Intended meaning of source was accurately conveyed