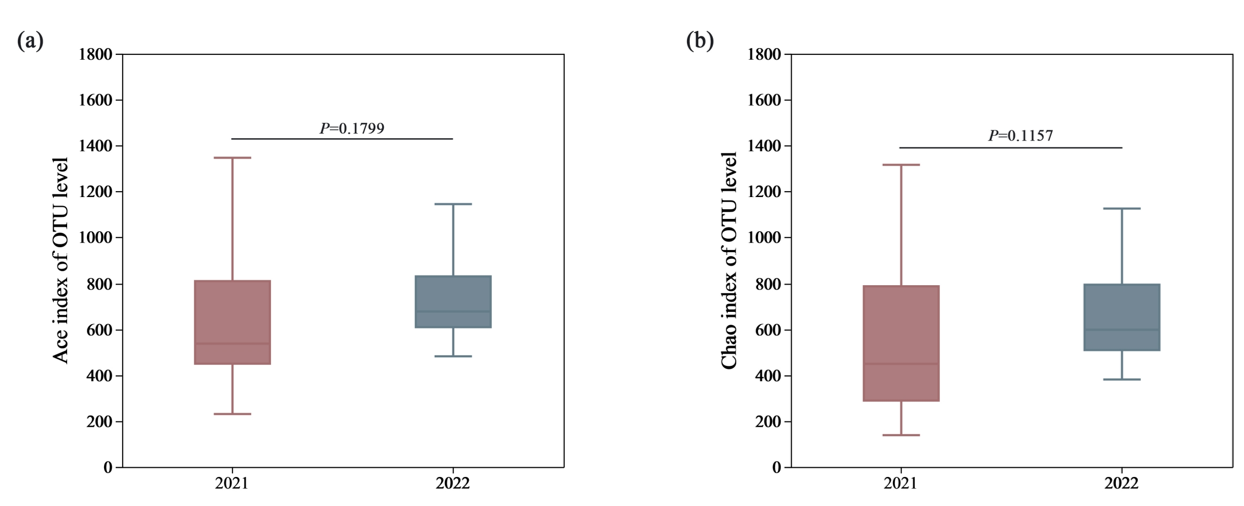
Supplementary Material

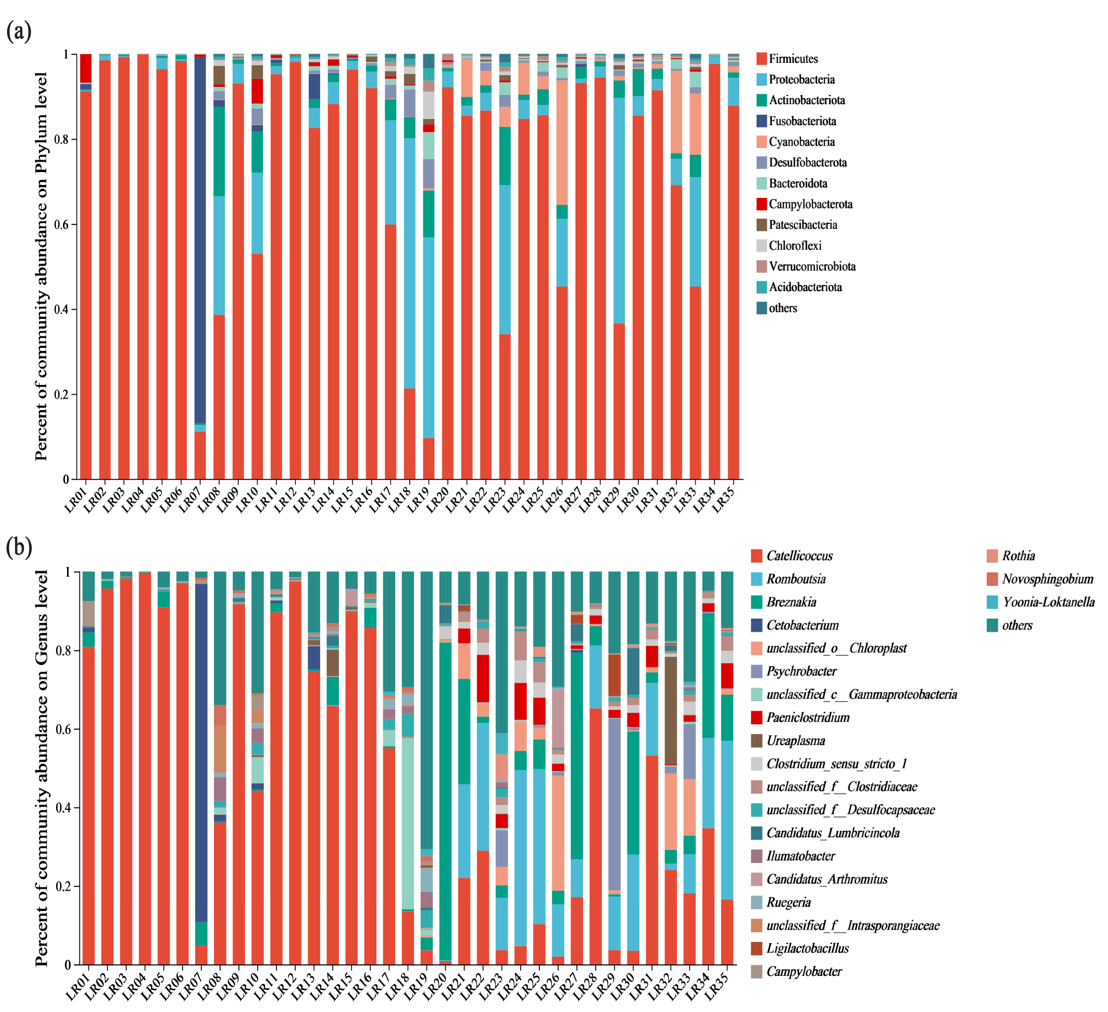
## Supplementary Figures

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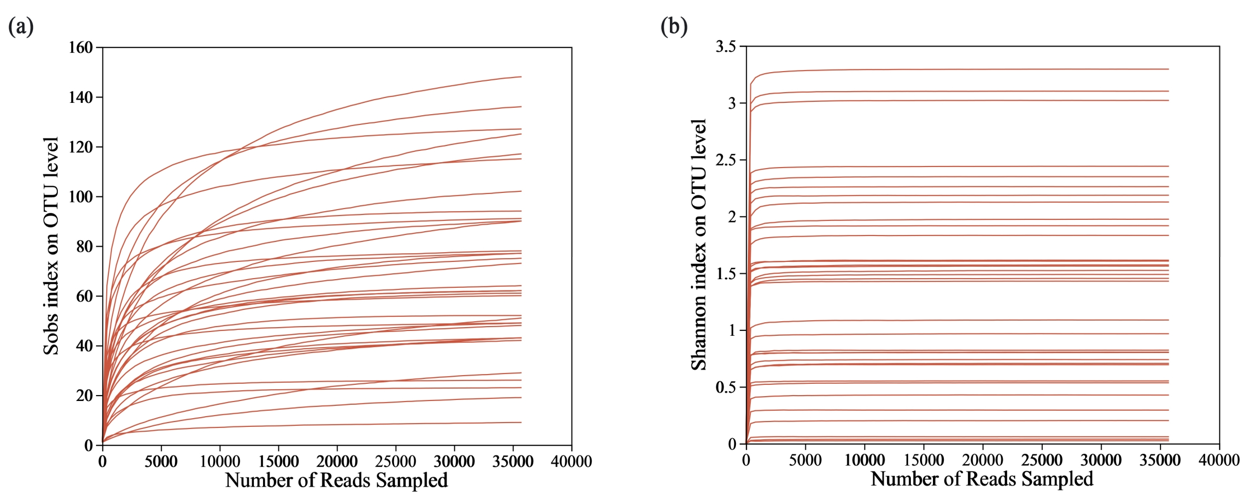
## Supplementary Figure 1. Rarefaction analysis of bacterial communities in gut of overwintering relict gulls based on Sobs index (a) and Shannon index (b)



**Supplementary Figure 2.** The alpha diversity index of fecal microbial composition including Ace index (a) and Chao index (b)



**Supplementary Figure 3.** Microbial composition of all fecal samples at the phylum (A), and genus(B) levels.

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**Supplementary Figure4.** Rarefaction analysis of diet composition by high-throughput sequencing technology based on sobs index (a) and Shannon index (b)