

Changes in the manuscript have improved the revised manuscript. Reviewer 2 indicates that the manuscript is now acceptable. However, Reviewer 1 and I strongly disagree. The manuscript still requires major changes. It was very disappointing to find that many of the problems that remain were noted in the original comments by the editor and reviewers. Some of these were not adequately addressed in your responses. It is very important that you understand all suggestions made and address them completely. You do not have to agree with them, but you have to have a complete and specific response either showing exactly how you complied or why you disagree. When authors provide incomplete responses, much more work is required of the editor and reviewer because they need to return to issues that they previously identified. Reviewer 1 has been extremely generous in providing detailed appropriate suggestions in an attached pdf. Your rebuttal must include a response to each of these suggestions.

Major gaps in the response to previous suggestions from the editor. Editor's comments in italics. Author's response in red. Editor's new comments in regular font. I will include these comments as a pdf in case the italics and red font do not show in the regular response.

1) *It is critical that you have a native English speaker carefully read the entire manuscript to correct the errors.* You failed to include this comment in your rebuttal and provided no indication that a native English speaker had checked the manuscript. There remain too many errors in spelling and grammar for me to correct. Since all authors must agree to the submission of the manuscript to PeerJ, it is disappointing to note that even the English speaking author agreed to submit a manuscript with so many mistakes.

2) *Knowledge gap and study objectives. The Introduction indicates that previous research on this species has not integrated spatial and temporal variation and that the goals of the present research include addressing this gap. It is important to explain what is meant by integration of spatial and temporal patterns, examples of where this has been successfully achieved by previous studies and how the present study will specifically address this. The unresolved questions mentioned on L97-98 have not been explained. My reading of the manuscript finds data on diel and seasonal activity but no information on spatial patterns except Fig. 2, which is not discussed, and changes in altitude which are not related specifically to location. Is it possible to include habitat type (e.g. open grasslands, forest, bamboo, alpine meadow) and human disturbance as variables?*

**Answer:** Here we added the elevation and vegetation in Figure 1, and spatial analysis.

This answer did not mention a response the request to introduce integration of spatial and temporal patterns, explain the unresolved questions, how you addressed spatial analysis or whether you could include habitat type and disturbance as variables.

3) *Statistical analyses. The reviewers are more expert than I in this research area and provide good introductions to more appropriate statistical analyses. It is notable that the majority of conclusions are not statistically supported and that confidence intervals are not shown for most of the data. Even for temporal patterns, the analyses do not take into account important variation. For example, the diel pattern does not consider seasonal changes in the time of sunrise and sunset.*

**Answer: Temporal analysis-** We used Capture Rate (CR) to estimate annual activity pattern of golden takins (Li et al., 2010; Blake et al., 2014). All independent detections for golden takins were summed for each month, and multiplied by 100, and divided by the total number of effective camera-days for each month,  $CR = \text{No. of independent detections} * 100 / \text{No. of effective camera-days}$ .

All photos taken by the cameras recorded date and time, and we estimated daily activity patterns for four periods: dawn (06:00-08:00), dusk (16:00-18:00), the day (08:00-16:00) and night (18:00-06:00). We used a Daily Activity Index (DAI%) of 2-h durations to examine the daily activity patterns:  $DAI \% = \text{No. of independent detections with a duration} / \text{Total no. independent detections}$  (Zhang, Bao, Wang, Fang, & Ye, 2012; Liu et al., 2013).

This answer did not address the request to provide statistical support including confidence intervals or to consider seasonal changes in the time of sunrise and sunset.

4) *When introducing the measures of activity (CR, DAI on L142-153) and summarizing the data analysis, it is important to state how you aggregated the data. For example, when calculating spring activity between 12:00 and 14:00, did you divide all independent captures from all locations and years during this season by the number of all independent captures from all locations and years in this season? Many alternative ways of grouping the data are possible. For example you could have calculated this measure separately for each location and each day and then averaged them or you could have grouped data by year or location before calculating the measure. This would have an important effect on the variability of your measures and hence influence the statistics. It is important to have a measure of the variability of the data and a logical decision about grouping the data before estimating variability.*

**Answer:** Detail please see quesiton 2. And we have increased Talbe 1 to detaile introduction.

This answer did not address the need to explain how you aggregated the data.

5) *Capture rate is an indirect measure of activity, not a direct measure. In what ways may actual activity patterns differ from the patterns of capture rate? For example, is it possible that for certain types of activity (predator avoidance? human avoidance?*

*mating?) animals are active but do not pass the locations of cameras at water holes or paths?*

Answer: We chose “Capture Rate” as measure of activity based on: 1) annual activity patterns of our results reveal that there was good accordance with the known activity patterns of species. 2) capture rate consider the relations of No. of independent photographs and No. of Effective camera days. 3) this method was also widely accepted in published paper.

Our results only consider the moving behavior of golden takins. The suggestion put forward by the reviewers is the focus of our next work. Now we have investigated clearly the distribution of golden takins, next we will focus the infrared cameras on the water holes, mating area to study other activities. Especially our results found the golden takins have been frequently reported to forage and damage local agricultural crops (e.g., wheat, lettuce) in low-elevation areas, we will investigate which crops the golden takins most like to eat, and guide local residents to change their crops.

Golden takins have only few natural enemies, our study systematically surveyed from April 2014 to October 2017, but only one photograph of leopard in study area.

Your manuscript is a study of activity patterns. This question requested that you consider how capture rate by cameras might not provide a completely accurate measure of activity pattern. Your answer did not address this. Although camera traps have been used to study activity patterns in other studies, it is important for you and readers to understand potential biases in this measure in your study.

*6) Why do the Results on L180ff combine different seasons without considering the differences in daylight period? Would it be helpful to use light shading to indicate mean sunrise and sunset times for each of these seasons? Is it meaningful to provide an average for the whole year despite the day length changes?*

Answer: We just based on the time of photographs, not on the shading. It is difficult to judge shading happen in night, dawn or dusk.

You did not explain why it was valid to combine different seasons without considering the difference in the daylight period. You misunderstood the comment about shading. I was suggesting that the graph of activity pattern could use shading (light gray areas) to indicate dawn and dusk as in many publications on activity periods.

*7) On L182 the text refers to ‘a few takin’ without explaining how it was determined that the data represent a few individuals rather than a low level of activity in the population as a whole.*

Answer: The individuals in populations or just only individual. Golden takins sometimes got together and sometimes separated, we have no idea to judge population or individual.

This answer says that you could not separate individuals. I understand that, which is why I questioned your statement about a few takin. Since you don't know how many takin were active during that period, the statement 'a few takin' is not supported by your data. You continued to use similar, unjustified terms in the revised manuscript (L183).

8) *The only support for the cycle of migration is a chi square that apparently shows differences by month. Since chi square is normally used for categorical data, I don't see how it was used to test for differences in altitude which is a continuous variable. Furthermore, there is no statistical support for the stated months of maximal and minimal altitude (i.e. whether they differ from adjacent months). No statistics support the stated differences between altitude during the day and night. Also, this analysis does not take into account seasonal differences in sunrise and sunset.*

Answer: Here we have deleted the Chi-square statistic, and used Kruskal-Wallis to test difference in monthly elevation. We calculated the monthly average elevation ranges of camera trapping detected locations of species to describe the seasonal migration changes. The result of seasonal migration described (Figure 3):

Although you changed the analysis, you still did not provide statistical support for differences between different months or respond to the comment about differences between day and night. It might be useful to consult with a statistician regarding all your statistical analyses.

9) *Because the goals refer to diel and seasonal activity patterns, the Introduction should carefully define these terms and explain their importance, including insights from important studies of these topics.*

Answer: In introduction part, we add the sentence to focus activity patterns: Activity patterns are fundamentals aspects of animal behavior and important in determining the distribution of individuals in space and time, and an increasing number of researches are using camera traps to survey activity patterns of animals (Gerber et al., 2012; Ikeda et al., 2015; Xue et al., 2015; Bu et al., 2016; Frey et al., 2017; Blake and Loiselle, 2018; Bohm and Hofer, 2018).

Your answer does not provide a true definition daily and seasonal activity patterns. It states their importance but does not explain why. It provides references but not what insights they provided. I am not asking for a much longer Introduction, but one that provides insights into the biological importance of these patterns.

10) The Introduction should provide a short but to-the-point background on what is known of takin biology and behavior that is relevant to the present study. I imagine that diet, breeding season, social organization, habitat and mortality threats could be relevant for a reader of this article. More detailed information about what is already known and

what is not known should be provided to establish the knowledge gap addressed by this study. Lines 91-93 list previously studied topics but do not mention their findings.

**Answer: we added the paragraph in discussion part to introduce the implications of our findings, and the difference with previously studies.**

The paragraph you added summarizes the topics addressed by previous literature but not what was found. The reader should have a concise summary of the findings of previous studies that are relevant to the findings of this study.

#### 11) *Other suggestions*

**Answer: we have modified the suggestions clearly new revised version.**

My comments included more than two pages of specific comments. You need to respond individually to each of these comments. These were not merely small issues of grammar or spelling but important suggestions to clarify the manuscript. Skipping these was particularly disappointing because some of the problems previously identified in the revised manuscript.

Additional Editor comments:

L44. Inappropriate to use a book review to support a major generalization.

L50. Use U.S. or British spelling conventions consistently throughout the manuscript. You can do this using spell check with the appropriate language choice.

L90. Seasonal and annual activity patterns have not been defined. I think that for many readers these terms would mean the same thing.

L108. I don't think that 'weeds' is a proper botanical term. What do you mean?

L173. What is the evidence for two migrations per year?

L196-203. This paragraph is about the originality of your approach rather than about what you found. The need for your approach belongs in the Introduction.

L268-272. The present Conclusions section is too vague and general. Please check the Instructions to Authors for PeerJ. Conclusions is a section in which you indicate unresolved questions, gaps and future directions.

References: check all references carefully. They are quite accurate compared to some other manuscripts that I have seen but there are cases of capital letters missing from where they belong (book titles) and present where they don't belong (article titles), missing italics from species names and spelling errors (L403).

Table 1. Heading is incomplete (missing units for capture rate) and incorrect style (we summarized). Descriptive data should use SD not SE. Is the sample size for elevation the same as number of independent photographs?

Fig. 3. Explain error bars in caption. Inserted key is not needed.

Fig. 4. Define DAI in caption.

Fig. 5. Provide units for CR.