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### **SDI Review Form 1.6**

Journal Name:	Asian Journal of Biology
Manuscript Number:	Ms_AJOB_32748
Title of the Manuscript:	Body Size Variation in Pterostichus montanus Motch. (Coleoptera, Carabidae) in Altitudinal Gradient
Type of the Article	Original Research Article

### **General guideline for Peer Review process:**

This journal's peer review policy states that **NO** manuscript should be rejected only on the basis of 'lack of Novelty', provided the manuscript is scientifically robust and technically sound.

To know the complete guideline for Peer Review process, reviewers are requested to visit this link:

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# **PART 1:** Review Comments

	I Booken and a comment	And be also a consequent of the second of th
	Reviewer's comment	Author's comment (if agreed with reviewer,
		correct the manuscript and highlight that part in
		the manuscript. It is mandatory that authors
		should write his/her feedback here)
Compulsory REVISION comments	The authors conducted morophometric analyses of	
	the ground beetles distributed near Baikal lake. The	
	sample size is 1200, and this value is tremendous.	
	Following with previous studies, this manuscript	
	focuses on the topic of correlation between the	
	beetle morphology and altitudinal gradient. Many	
	ecologists and evolutionary biologists have been	
	interested in this topic and tried to verify the	
	correlation, but few studies succeed in it. The	
	authors' data with large sample size are largely	
	valuable and thus I strongly recommend that this	
	manuscript is published in this journal, but their	
	analyses have some problems.	
	analyses have some problems.	
	Although a main authors' result is based on	
	principal component analyses, I cannot interpret	
	the authors' conclusions. Based on the loadings of	
	PCA, the authors' concluded that the same	
	environmental factor affects the morphology of	
	coastal and high mountain beetles. However, the	
	loading values in the factor 2 of A (elytra length), E	
	(head length), and F (distance between eyes) are	
	very different (fig 2 and 4). The authors' also said	
	that the same environmental factor affects the	
	morphology of low and middle mountain beetles,	
	but the loading of D (pronotum width) is also very	
	different (fig 3 and 4). I feel that these results are	
	insufficient for the authors conclusions.	
	I suggest that authors change the method of PCA. I	



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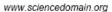
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wonder why authors conducted multiple PCA with each data of different populations. I strongly suggest that authors conduct a single PCA with the data including the all populations. This approach is much better to know a pattern of morphological variation among populations.

The authors also should not discuss the data based on PC loadings, but discuss based on the meaning of PC axes. The authors can interpret the meanings of PC1 and PC2 with the values of PC loadings. For example, PC1 would mean body size because the all PC1 loadings are negative or positive in general. Thus, the authors can discuss the differences of body size among populations by conducting the ANOVA of PC1 scores. PC2 generally implies a body shape. For example, in the coastal beetles (fig 2), PC2 loading of head length (E) is largely positive, while that of elytra length is largely negative. Thus I guess that coastal beetles have large variation in the head length and elytra length. There may be tendency that some coastal beetles have long head and short elytra whereas some beetles have short head and long elytra. Many readers would like to know what kind of variation are shown in the beetle populations. The discussion with meaning of PC1 and PC2 would attract readers' interests and be helpful to discuss a correlation between beetle morphology and altitudinal gradient.

The following literature would be helpful for revising manuscript:

Konuma, J., Nagata, N. and Sota, T. (2011) Factors determining the direction of ecological





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	specialization in snail-feeding carabid beetles. Evolution 65: 408-418.	
	This study's authors conduct a PCA with 1705 specimen of a carabid beetle species. They also used similar six morphological measurements and discuss correlations between beetle morphology and environments.	
Minor REVISION comments	The author should show the number of specimens in the different populations and the number of males and females.	
Optional/General comments		

# **Reviewer Details:**

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Department, University & Country	Faculty of Science, Toho University, Japan

Created by: EA Checked by: ME Approved by: CEO Version: 1.6 (07-06-2013)