**Zoogeography Assignment 4 Due Mon, Feb 24th**

Weir, J. T., Haddrath, O., Robertson, H. A., Colbourne, R. M., and A. J. Baker (2016). Explosive ice age diversification of kiwi. *PNAS* 113:38 E5580-E5587.

**Instructions:**

* Use your **own words** and provide complete but **concise** answers to the following questions.
* Cite literature appropriately if referenced.
* Typed answers should not exceed 2 pages (e.g. the front and back of this page).
* Hard copy to be handed in by 11:00am in lecture on Monday Feb 24th.

1) According to the paper, explain the reasons that make New Zealand an ideal place to study the potential effect of glaciation on speciation? [0.5 + 0.5]

2) What does the term “cryptic species” mean in the context of Kiwis? How many Kiwi lineages should there be, based on the results of this paper? [1.0 + 0.5]

3) One of the authors’ predictions about the effect of glaciation on diversification is that extant lineages should exhibit population declines during glacial cycles. What reasoning underlies this prediction? And, what did they find for Kiwi lineages? [1.0 + 0.5]

4) Would you expect that glaciation could promote similar “burst diversification” in bird lineages that, unlike Kiwis, are able to fly? Why or why not? [1.0]

5) What would be the different consequences of glaciation at high and low elevations in high and low latitudes for: [0.5 x 4]

1) vegetation coverage

 2) geographic range shifts of animals

 3) opportunity for speciation (on a scale from very high to very low)

 4) overall extinction rates (on a scale from very high to very low)

Fill in the box below with changes you would predict to see in 1) through 4) for these different kinds of regions (use point form and short phrases)

|  |  |  |
| --- | --- | --- |
|  | High Elevations | Low Elevations |
| High Latitudes |  |  |
| Low Latitudes |  |  |