

Review of Ramey et al 2004b

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In this review I will focus on the questions provided by the USFWS and add additional thoughts when needed.

Question 1 – I am not an expert in morphometric analysis so I will not make any comments related to that analysis. Concerning the genetic analysis, the methods used are current and appropriate. The authors suggest that mtDNA variation should be greater between subspecies than within. I think this definition is scientifically defensible; however, I do not think mtDNA should be the only measure of subspecies. Morphological, ecological or behavioral data that reflect adaptive differences should also be considered.

Question 2 – Based on the morphological and mtDNA data presented, I see evidence for synonymizing the 3 subspecies. However, I do not know if there are any ecological or behavioral differences in these putative subspecies. The Ramey et al 2004a report states that no ecological or behavioral differences have been reported in the literature. I would like to know if the subspecies have been studied enough to assess ecology and behavior.

Question 3 – The MDIV data suggest recent connectivity, but this may not represent current connectivity. Also MDIV estimate of gene flow require a number of assumptions that may not be met in this dataset. Nuclear DNA data are needed to determine if these are a single connected population.

Question 4 – There are no alternative interpretations that I would like to add.

Question 5 – The additional data that I would like to see is a review of the ecological and behavior research that has been done on these species and an assessment of potential adaptive differences. However, the morphometric studies suggest that adaptive divergence has been minimal. An evaluation of gene flow using nuclear DNA (microsatellites for example) would be very helpful to address question 3 and to evaluate the level of discreteness.

Question 6 – My conclusions have not changed.