Reviewer Report

Title: Genomic evidence of neo-sex chromosomes in the Eastern Yellow Robin

Version: Original Submission   Date: 7/29/2019

Reviewer name: Jason Sardell

Reviewer Comments to Author:

The current version of the manuscript by Gan et al. is substantially improved over the previous version. The context of their study is better developed, and they make a strong case in the abstract and introduction for the value of an EYR reference genome. They also provide clear and convincing evidence for a neo-sex chromosome in this species. Notably, scaffolds that map to chr1A in the Zebra Finch reference genome, which is not known to be sex-linked in any other species of bird, are sex-linked in EYR. The methods that they apply to demonstrate this surprising and noteworthy finding are appropriate and consistent with those employed by many other recent papers investigating similar systems. I recommend that their manuscript be accepted for publication in GigaScience and look forward to their future work with this interesting system.
Sincerely,
Jason M. Sardell
Minor corrections:
Line 264 - "A" should be lowercase
Line 326 - Fix "…to decrease…"
Line 327 - More appropriate citations would be Charlesworth & Charlesworth 2000 Phil Trans Roy Soc B and Charlesworth 1994 Genet Res. Also, note that reduced purifying selection due to the reduced effective population sizes of the W/Y chromosomes is only one of the reasons why we expect accumulation of deleterious mutations, along with Mueller's ratchet and hitchhiking (see Bachtrog 2006 Current Opinion in Genetics & Development).
Line 345 - Remove comma (or insert comma between "approaches" and "followed" in previous line)
Line 357 - Fix to "neoZ-1A differences"
Figure 2A - This figure is not currently cited in the manuscript

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