a) Create a DateLife b) Search DateLife's chronogram datahase search query b1) We searched processed taxon names across 253 a1) We assembled a list of species chronograms in DateLife's database v0.6.2. names This is the list of 6 hird snecies. h2) The search resulted in 9 source chronograms from 6 independent, published studies: Pheucticus tihialis Rhodothraupis celaeno • Emberiza citrinella Emberiza leucocenhalos Emberiza elegans Paleogene Neogene 17 Platyspiza crassirostris chronogram 2 a2) We processed species names with TNRS and standardized Paleogene I Neogene II to the OpenTree Taxonomy Hedges et al. 2015 (OTT v3.3draft1): Pheucticus tihialis Paleogene Neogene Rhodothraupis celaeno 5 23 2,60 Paleogene | Neogene | 1 • Emberiza citrinella Emberiza leucocephalos ·Schoeniclus eleaans · Platyspiza crassirostris Embariza citrinalia Paleogene Neogene In this small real example, one species name (shown in bold) is a synonym in the OpenTree standardized Taxonomy.

c) Summarize DateLife's search results c1) We extracted a tree topology from OpenTree's synthetic phylogeny v13.4. OpenTree topology c2) We congruified source Emberiza leucocephalos chronogram nodes to nodes of the OpenTree Emberiza citrinella topology (Table 1). Schoeniclus elegans c3) We summarized n1 Pheucticus tibialis congruified ages per node (Table 2) Rhodothraupis celaeno Platvspiza crassirostris c4) We used median summary ages of congruent nodes to date the chosen tree topology with Median summary chronogram BLADI. Emberiza leucocephalos Taxon pair node ages from source chronograms Barker et al. 2013 Barker et al. 2015 - chronogram 1 Barker et al. 2015 - chronogram 2 Emberiza citrinella Burns et al. 2014 Hedges et al. 2015 - chronogram 1 Hedges et al. 2015 - chronogram 2 Hooper et al. 2017 Jetz et al. 2012 - chronogram 1 Schoeniclus elegans Jetz et al. 2012 - chronogram 2 Median of node ages / Used as calibration Pheucticus tibialis * Not used Rhodothraupis celaeno Platyspiza crassirostris

2.6 0

Neogene

Paleogene