

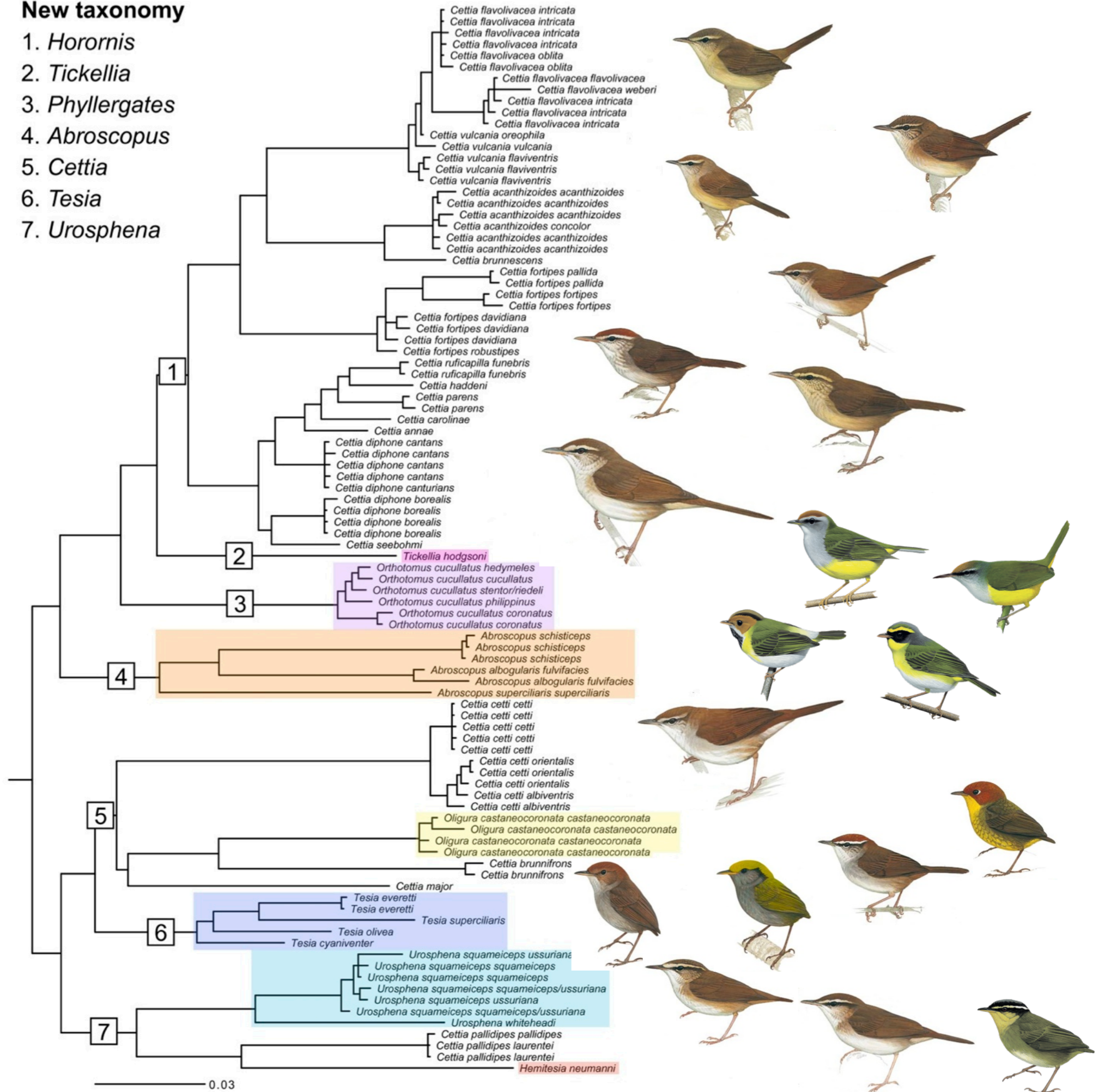
Cettiidae

Non-monophyletic genera

Complex morphological evolution

New taxonomy

1. *Horornis*
2. *Tickellia*
3. *Phyllergates*
4. *Abroscopus*
5. *Cettia*
6. *Tesia*
7. *Urosphena*



Alström et al. 2011. *BMC Evolutionary Biology* 11: 352.

Paintings: Brian Small. From Kennerley & Pearson. 2010. *Reed and bush warblers*. London: Christopher Helm

Unexpected relationships and complex morphological evolution in the family Cettiidae

We used mitochondrial and nuclear DNA to infer the relationships of all except one of the species in the family Cettiidae. The molecular phylogeny is strongly inconsistent with the traditional, morphology-based classification. The remarkably high degree of non-monophyly in the genus *Cettia* is likely to be one of the most extraordinary examples of misconceived relationships in an avian genus. The phylogeny suggests instances of parallel evolution, as well as highly unequal rates of morphological divergence in different lineages. A revised classification is proposed.

The family Cettiidae contains the large genus *Cettia* (bush warblers) and several smaller genera. All species occur in Asia, except one that is restricted to east Africa; the westernmost Asian species also extends to Europe and north Africa.

We used mitochondrial and nuclear DNA to infer the relationships of all except one of the species in this family, using both traditional phylogenetic methods as well as a recently developed Bayesian species tree method (*BEAST).

The molecular phylogeny is strongly inconsistent with the traditional, morphology-based classification. In particular, the genus *Cettia* is highly non-monophyletic, as it is scattered across the entire family tree.

The complex morphological evolution apparently misled earlier taxonomists. These results underscore the well-known but still often neglected problem of basing classifications on overall morphological similarity. Based on the molecular data, a revised taxonomy is proposed.

For some species, deep intraspecific divergences are revealed, and one or two species and one subspecies are inferred to be non-monophyletic (differences between methods). Further taxonomic work is required for the *Cettia diphone* complex, *Cettia flavolivacea–vulcania* complex, *Cettia cetti* and *Cettia fortipes*.

Although the traditional and species tree methods inferred much the same tree in the present study, the assumption by species tree methods that all species are monophyletic is a limitation in these methods, as some currently recognized species might have more complex histories.

Alström, P., Höhna, S., Gelang, M., Ericson, P.G.P & Olsson, U. 2011. Non-monophyly and intricate morphological evolution within the avian family Cettiidae revealed by multilocus analysis of a taxonomically densely sampled dataset. *BMC Evolutionary Biology* 11: 352.