

ZZ/ZW Sex determining system in the gecko *Oedura monilis*

Marquette University, Biology Department, Milwaukee, Wisconsin
Precious Conteh

Introduction

	XX/XY System	ZZ/ZW System
Female	XX	ZW
Male	XY	ZZ

FIG. 1: Visualization of XX/XY system and ZZ/ZW system.

Implications

- Understanding evolutionary transitions and sex chromosomes in reptiles
- The origin of sex chromosomes theory

Background

- There are many sex determination systems
- Vertebrates can switch between systems throughout their evolutionary history
- Geckos have a lot of transitions, but we don't know their sex determining systems

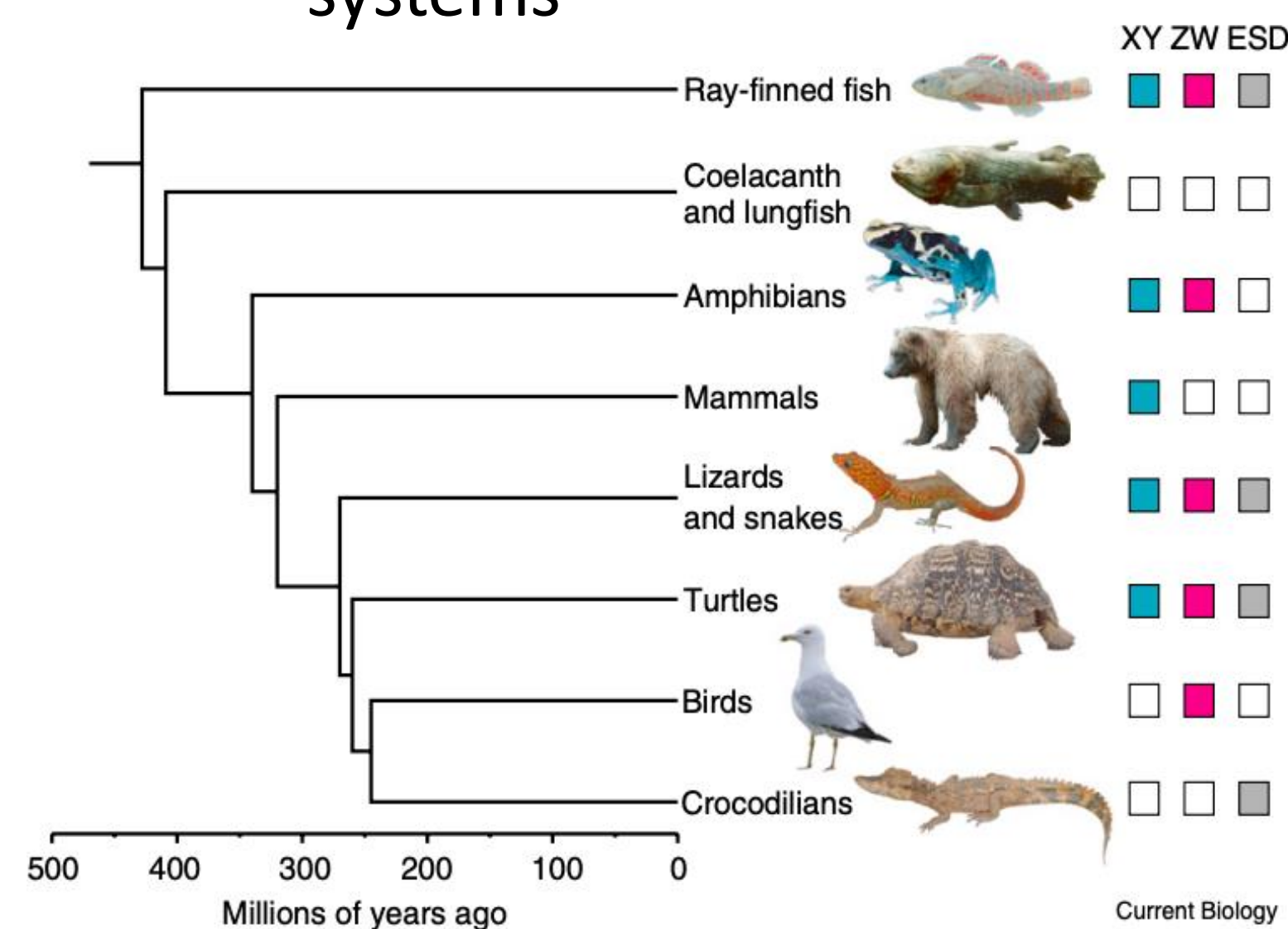


FIG. 2: An evolutionary tree depicting the relationship between different vertebrate groups and their sex-determining systems (Gamble & Rovatsos)

Methods/Results

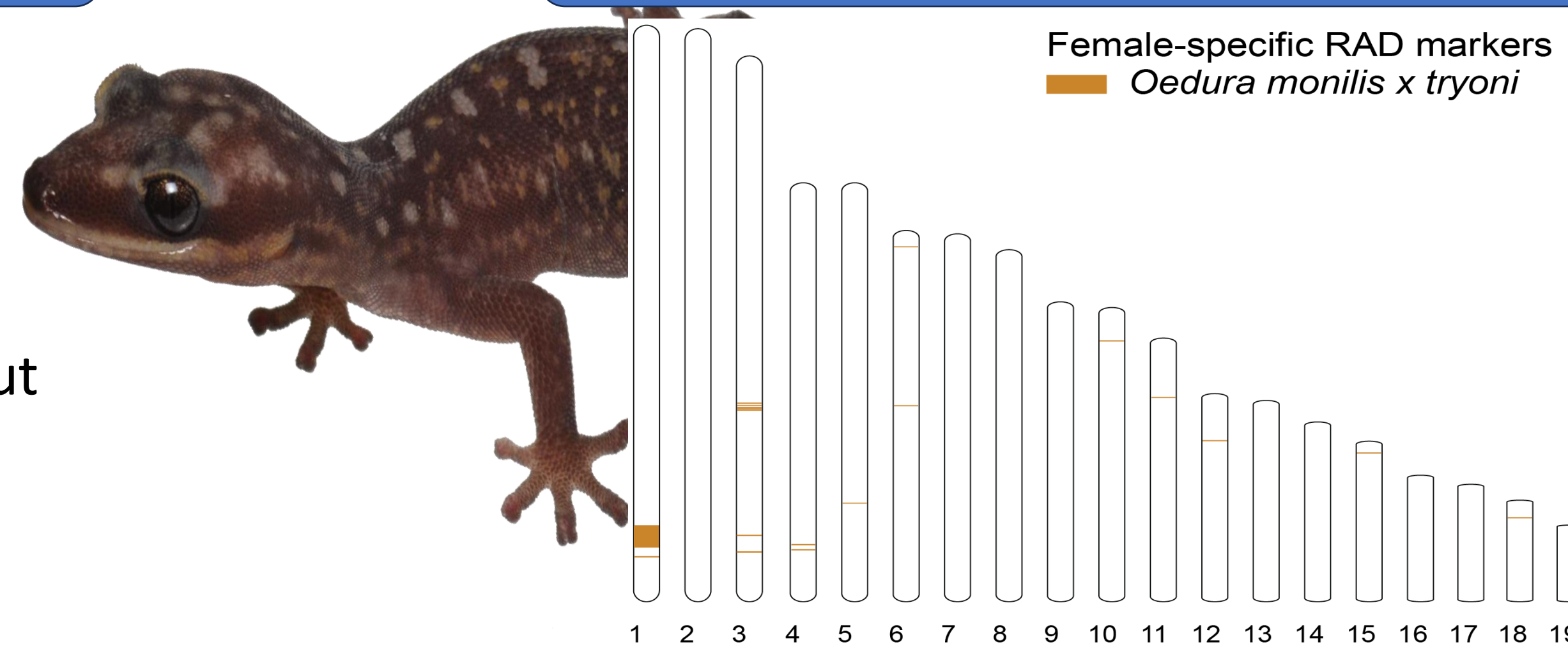


FIG. 3: *Oedura monilis* female-specific markers mapped to *Correlophus ciliatus* chromosomes

- We wanted to find sex-specific markers for each sex
 - 23 male-specific tags
 - 92 female-specific tags
 - 166,575 in total
- Compared markers to a reference genome
- Female-specific markers were found in one area

Conclusion

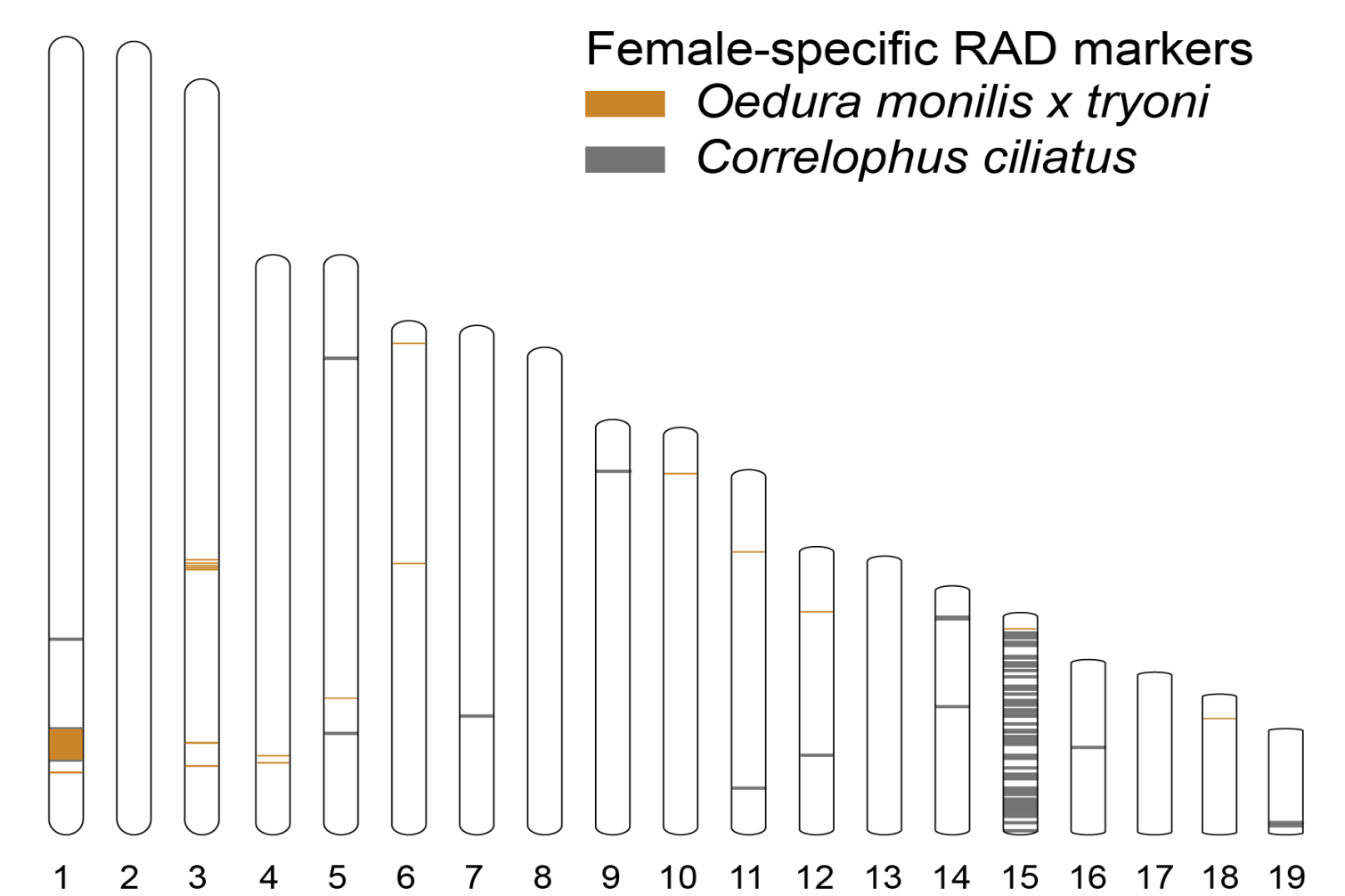


FIG. 3: *Oedura monilis* female-specific markers mapped to *Correlophus ciliatus* chromosomes with *Correlophus* markers

- There is a ZZ/ZW sex system in *Oedura monilis* geckos
- There has been a transition in chromosomes because *Oedura monilis* show a different ZW system than *Correlophus ciliatus*
- Might support the hypothesis that all chromosomes can become sex chromosomes

References

Gamble, T., & Zarkower, D. (2012). Sex determination. *Current Biology*, 22(8). <https://doi.org/10.1016/j.cub.2012.02.054>

Kratochvíl, L., Gamble, T., & Rovatsos, M. (2021). Sex chromosome evolution among amniotes: Is the origin of sex chromosomes non-random? *Philosophical Transactions of the Royal Society B: Biological Sciences*, 376(1833), 20200108. <https://doi.org/10.1098/rstb.2020.0108>

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