Differential introgression between two berian Podarcis lizards

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Background Information

A narrow hybrid zone (HZ) is known between Podarcis bocagei (Pb) and P. carbonelli (Pc).

Previous studies in this HZ show low hybridization, limited introgression for nearby populations, evidence for a bimodal hybrid zone [1,2] and no intermediate morphology [1,3,4].

Few loci were used (<22).

Understand mechanisms promoting introgression.

Objectives

Are results similar to previous studies?
Is hybridization introgressive?
Similar introgression across genome?
Which is the direction of introgression?
Which kinds of selection are present?

Sampling and SNP data

Double digestion RAD library construction with 330 individuals.
Complete dataset with 6905 loci after demultiplexing and filtering.
“Diagnostic” dataset with 2300 loci with frequency >0.8 in one parental and <0.2 in other.

Structure of the contact zone

20 admixed individuals identified.

Most variability was found between the two species.

Intergression restricted to few loci.

Fig. 2. Principal Component Analysis of 6906 SNP variation in the 330 individuals calculated with ADEGENET[5] R package. Circles represent individuals from populations north of the contact zone, triangles correspond to the individuals from the contact zone, squares identify the individuals from populations south of the contact zone and stars represent the admixed individuals identified with BAPS[6]. Population acronym in as in Fig. 1.

Fig. 1. Species distribution in the study area and sampling location along the north-south transect with number of samples for each one.

Main Conclusions

Are results similar to previous studies?
Yes: Bimodal HZ; No: Structure detected in HZ.
Is hybridization introgressive? Yes.
Similar introgression across genome? No; Significant nr of loci involved in reproductive isolation.
Direction of introgression? Mostly Pb → Pc.
Kinds of selection present? Selection against heterozygote genotypes.

Ongoing Work

Estimate geographic cline for each loci to compare with genomic clines.

Literature cited