

1 **Table S1**  $F_{ST}$  (upper diagonal) and  $\phi_{ST}$  (lower diagonal) population pairwise  
 2 comparisons. None of the values are associated to a significant p-value  
 3 (0.05).

	<i>C. puniceus</i>			<i>C. nufar</i>		
	PE	RB	PR	PE	RB	PR
PE		0.0001	0.0009		-0.0009	0.0003
RB	0.0001		0.002	0.001		0.0018
PR	0.008	-0.011		0.024	-0.002	

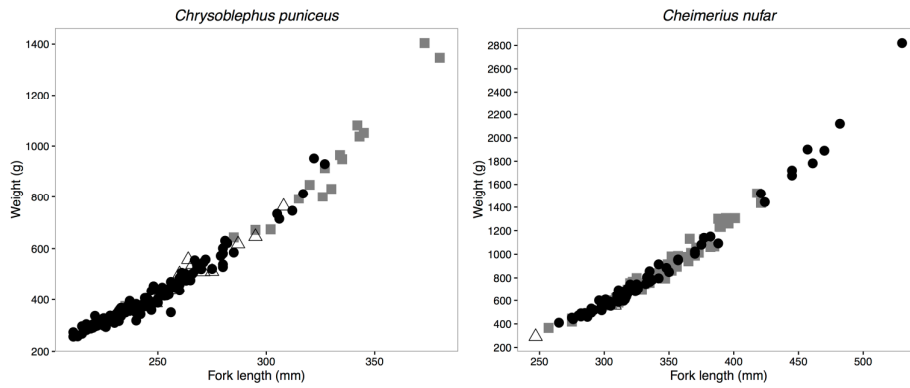
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6 **Table S2**  $F_{IS}$  per locus per population. In grey, the loci that were  
 7 subsequently removed from further analysis.

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Fis		PE	PR	RB
	SA1	0.00	-0.03	-0.02
	SA10	0.04	0.01	0.03
	SA2	0.02	0.10	-0.05
	SA25	-0.17	-0.23	-0.03
	SA3	0.48	0.45	0.34
santer	SA6	-0.20	-0.09	0.09
	SL25	0.16	-0.20	-0.20
	SL26	0.46	-0.01	0.14
	SL27	0.06	0.00	0.15
	SL34	0.00	-0.07	-0.02
	SL7	0.08	-0.01	0.03
	SL1	-0.06	0.05	-0.21
	SL17	0.02	-0.04	-0.02
	SL25	-0.01	-0.02	-0.13
	SL26	-0.11	-0.14	0.03
	SL27	0.06	0.01	0.10
slinger	SL29	-0.03	-0.06	0.11
	SL3	-0.02	0.03	-0.01
	SL33	-0.01	-0.10	-0.02
	SL34	0.18	0.01	0.08
	SL35	0.45	0.44	0.32
	SL7	-0.03	0.02	0.02

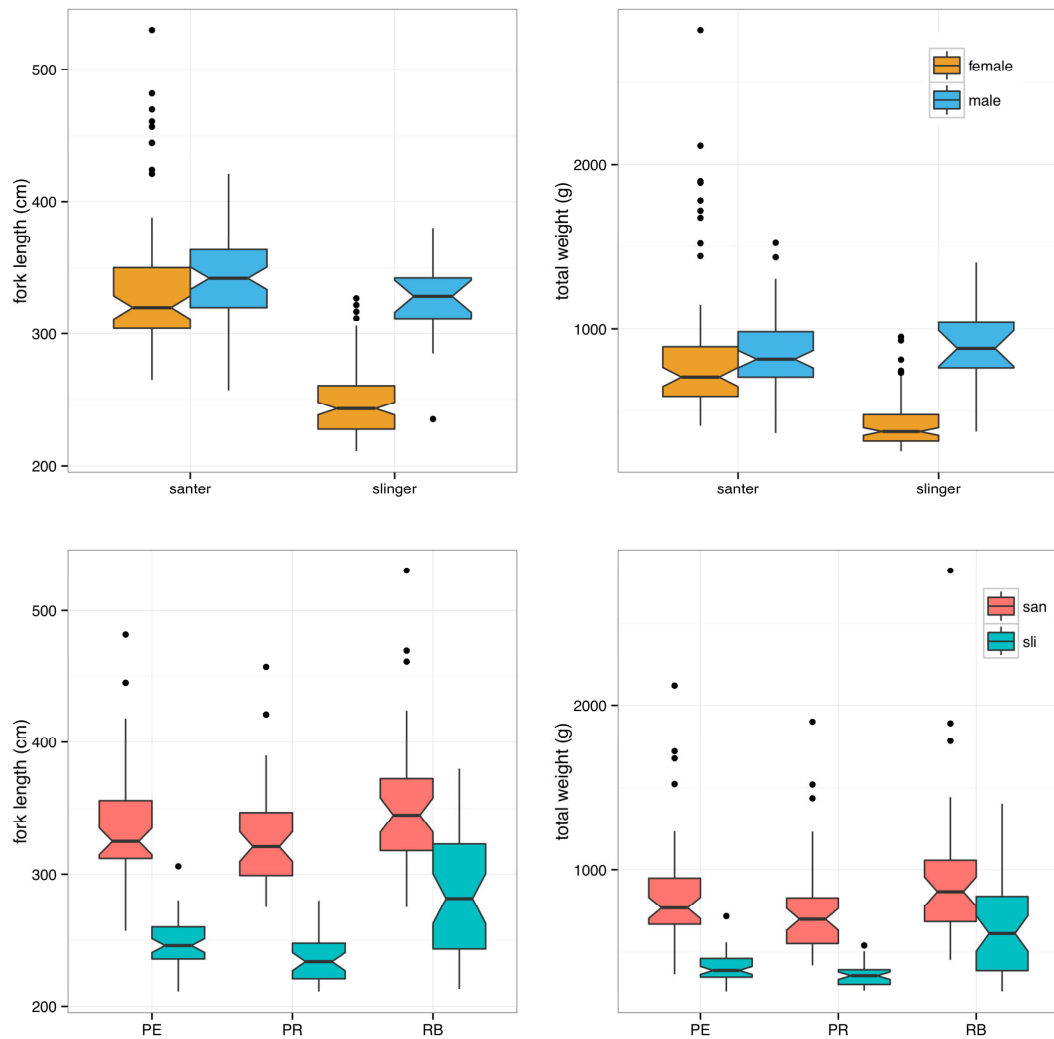


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14 **Figure S1:** Weight-length relationships in *Crysolephus puniceus* (FL =  
 15  $29.727(\text{mass})^{0.3525}$ ) and *Cheimerius nufar* (FL =  $33.328(\text{mass})^{0.347}$ ). Males  
 16 (grey square), females (black circle) and unidentified sex in *C. puniceus*  
 17 (white triangle) are identified.

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22 **Figure S2:** Fork length and mass of slinger, *Chrysoblephus puniceus* and23 santer, *Cheimerius nufar* males and females at three locations of the

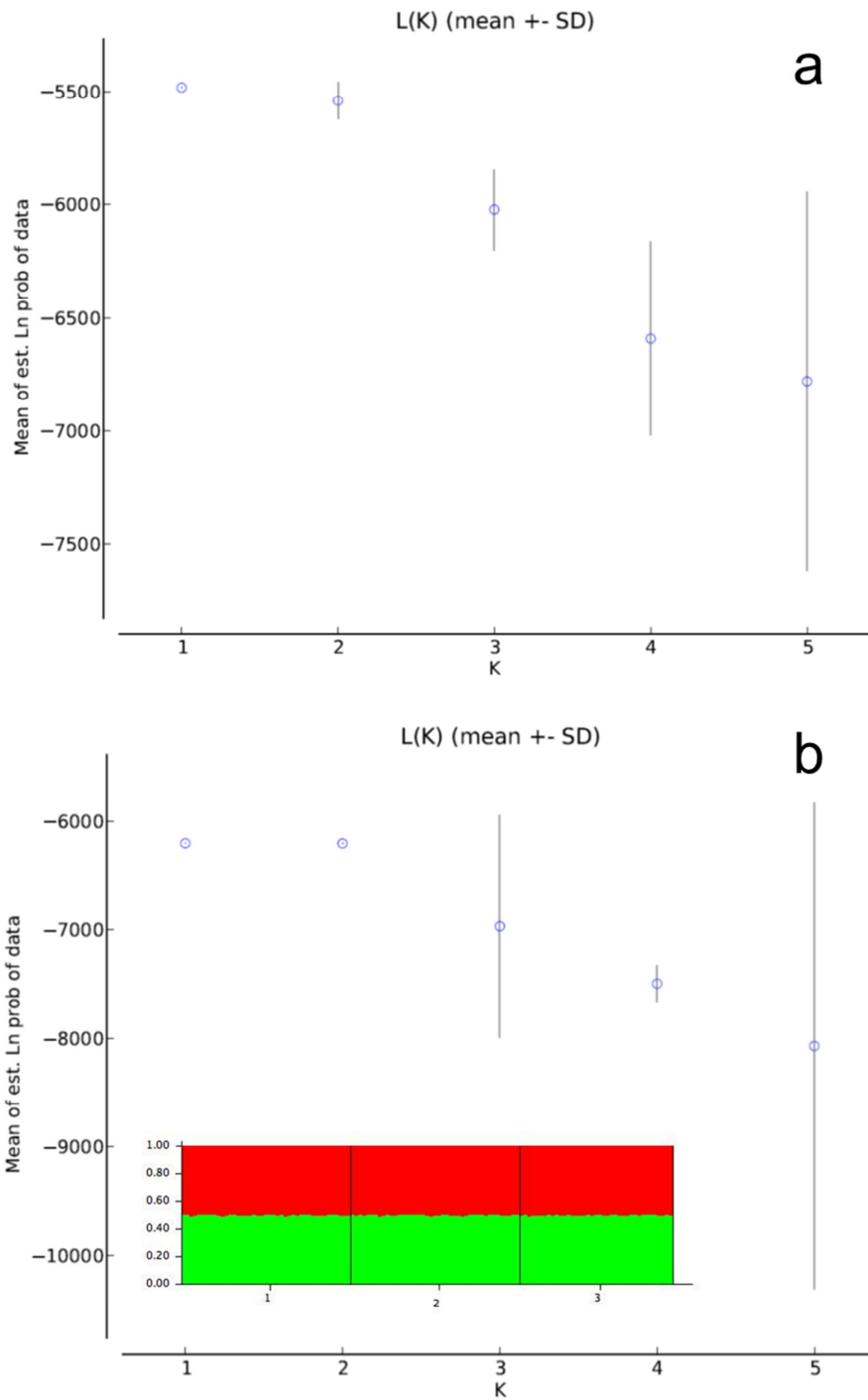
24 KwaZulu-Natal coast of South Africa. The notch represents the 95%

25 confidence interval of the median value. The top graphs represent a

26 comparison of length (a) and weight (b) between males and females within

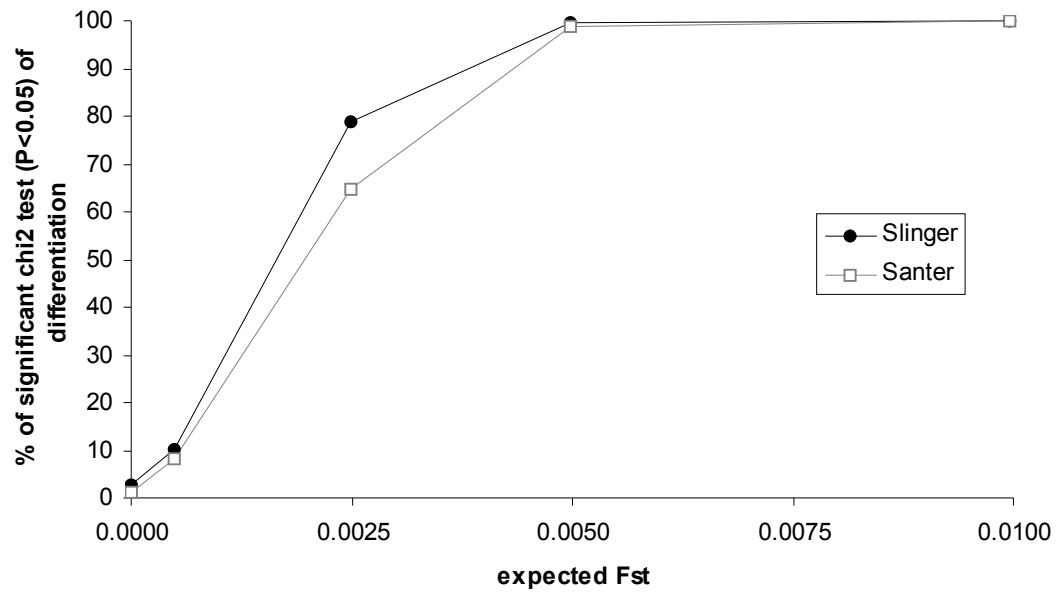
27 the species. The bottom ones represent instead the comparison between

28 locations and between species (males and females considered together).



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**Figure S2:** STRUCTURE results for santer, *Cheimerius nufar* (a), and slinger, *Chrysoblephus puniceus* (b). a barplot for K=2 is also included as an inset to b, to show that a K=2 has no geographical or biological meaning.



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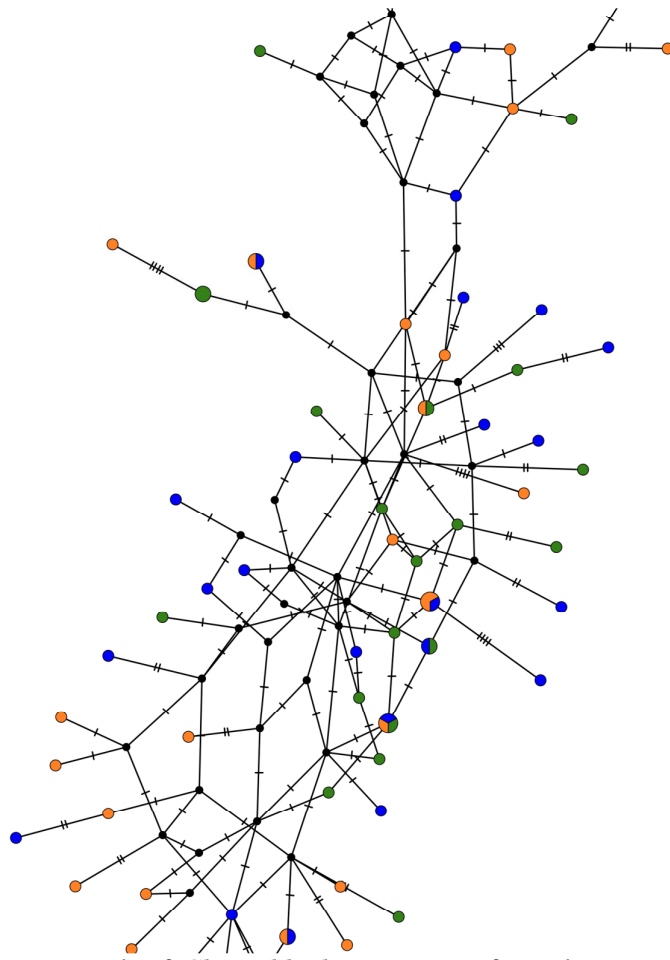
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39 **Figure S4:** Proportion of significant Chi<sup>2</sup> test ( $H_0 = \text{no differentiation}$ )

40 against the expected population differentiation as implemented in POWSIM

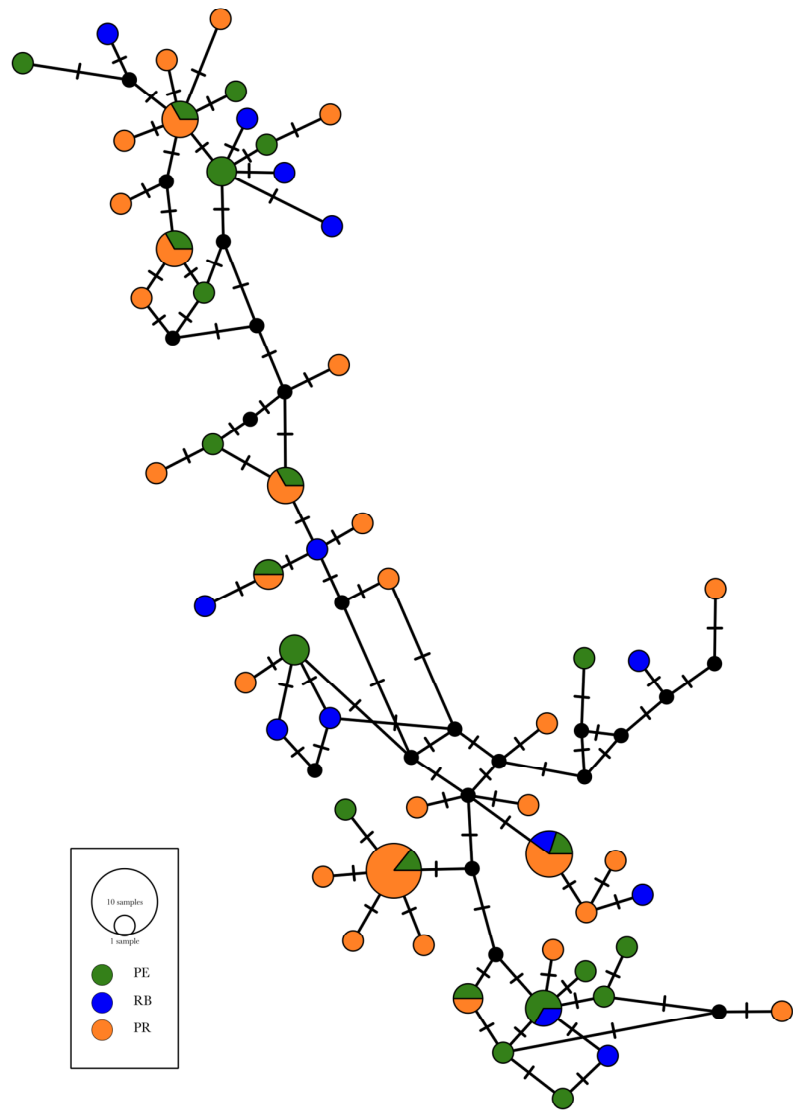
41 for slinger, *Chrysoblephus puniceus* and santer, *Cheimarius nufar*.

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44 **Figure S5:** Median-joining network of *Chrysoblephus puniceus* from three  
45 populations: Richards Bays (blue), Park Rynie (orange), Port Edward  
46 (green). The lines on the branches represent the number of mutational steps.



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48 **Figure S6:** Median-joining network of *Cheimerius nufar* from three  
 49 populations: Richards Bays (blue), Park Rynie (orange), Port Edward  
 50 (green). The lines on the branches represent the number of mutational steps.

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