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Potential distribution of hybrids between *Crocodylus acutus* and *Crocodylus moreletii* on the Mexican Pacific coast outside the natural hybridisation zone

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Supplementary information

Appendix I

Figures

Figure S1 Appendix. Herpetofaunistic Provinces used in the modelling of niche of *C. acutus* (Desierto del Colorado-Sonora, Mexicana del Oeste, Petén, Yucateca and Veracruzana), *C. moreletii* (Tamaulipecan, Veracruzana, Yucateca and Petén) and hybrids (Mexicana del Oeste, Petén, Yucateca, Veracruzana, Tamaulipecan).

Figure S2 Appendix. Pairwise Czikanowski niche overlap values. The vertical red line represents the observed value of the mean pairwise Czikanowski niche overlap for all comparisons, while the left histogram displays values generated by random model. (A) *C. acutus* x hybrids, (B) *C. acutus* x *C. moreletii*, and (C) *C. moreletii* x hybrids. In all comparisons we found significantly higher niche overlap than expected by chance ($p < 0.05$).

Figure S3 Appendix. Comparison of Box-and-whisker graphs of 16 climatic variables (Bio1, Bio4, Bio5, Bio7-Bio19) between *C. acutus*, *C. moreletii* and hybrids.

Figure S4 Appendix. Model of adaptability of *C. acutus* presented in percentage. In light orange the "M" area is defined.

Figure S5 Appendix. Model of adaptability of *C. moreletii* presented in percentage. In light orange the "M" area is defined.

Figure S6 Appendix. Model of adaptability of hybrids presented in percentage. In light orange the "M" area is defined.

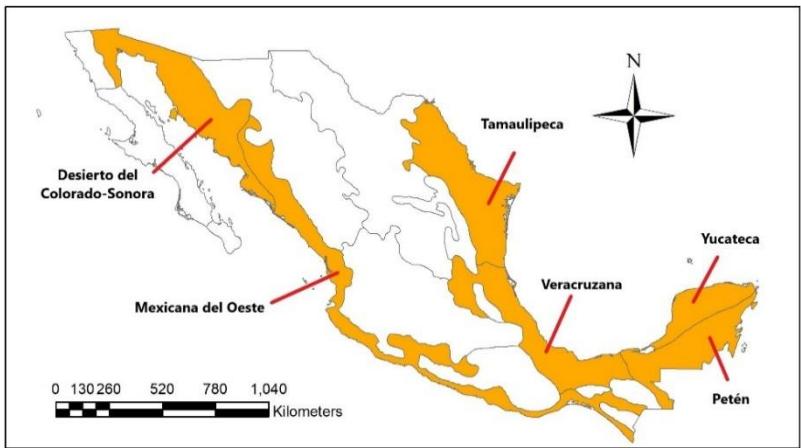


Figure S1 Appendix

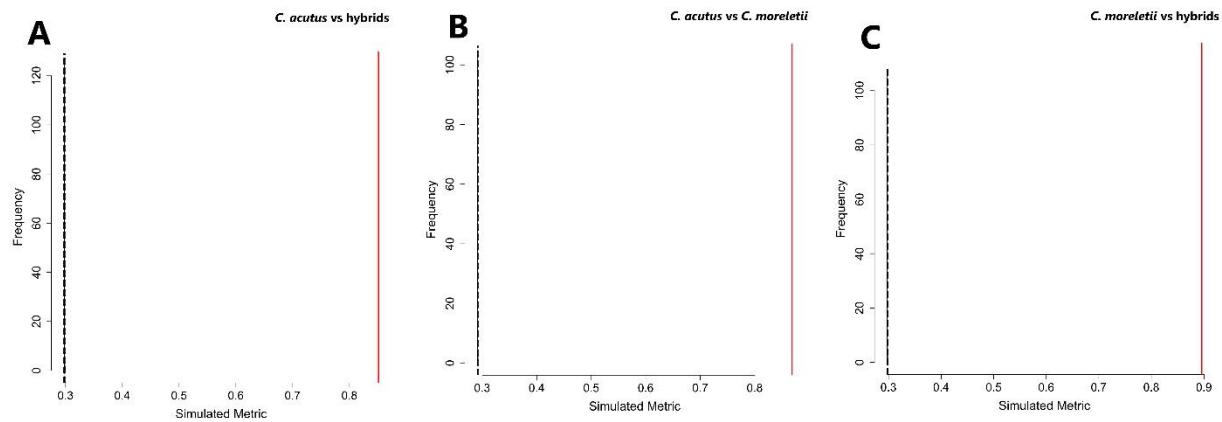


Figure S2 Appendix



Figure S3 Appendix

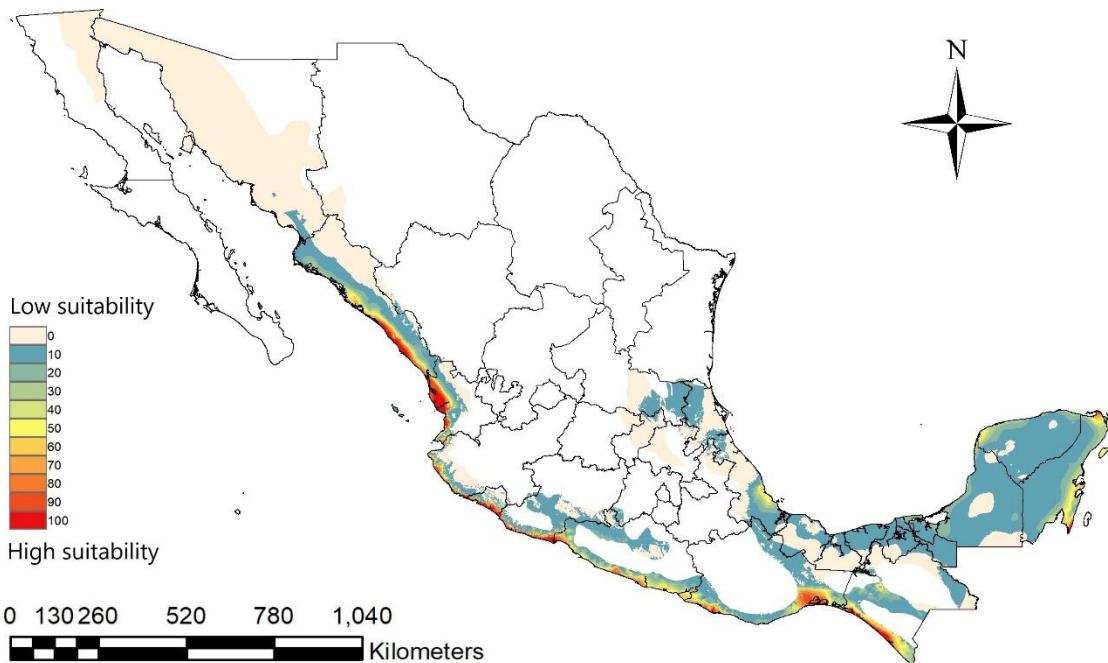


Figure S4 Appendix

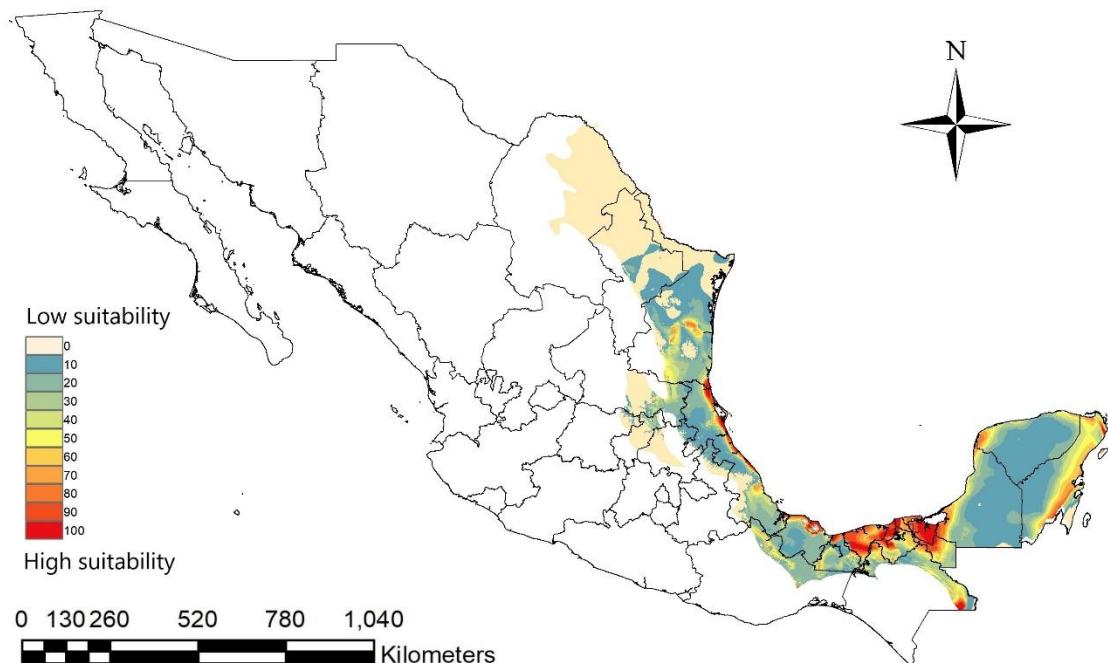


Figure S5 Appendix

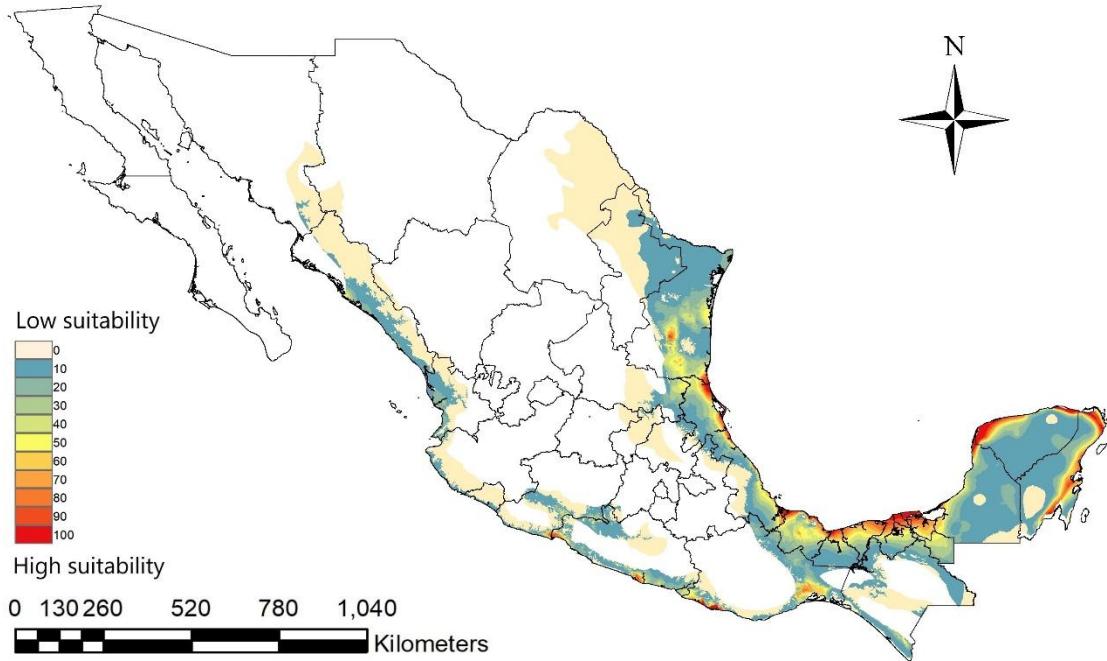


Figure S6 Appendix

Appendix I Tables

Table S1 Appendix. Herpetofaunistic provinces of the study area "M" of *C. acutus*, *C. moreletii* and hybrids crocodiles for ecological niche analysis.

Herpetofaunistic provinces	<i>C. acutus</i>	<i>C. moreletii</i>	Hybrids
Tamaulipecas	●	●	
Veracruzana	●	●	●
Yucateca	●	●	●
Petén	●	●	●
Mexicana del Oeste	●		●
Desierto del Colorado-Sonorense	●		

Table S2 Appendix. Records sources of *C. acutus*, *C. moreletii* and hybrids crocodiles for ecological niche analyses through which the risk of displacement of parental species by hybrids was assessed.

	<i>C. acutus</i>	<i>C. moreletii</i>	Hybrids
SNIB	72	2218	0
iNaturaLista	79	0	0
GBIF	0	42	0
Literature	179	102	277
Total	285	2362	277

Table S3 Appendix. Environmental profile of, *C. moreletii*, *C. acutus* and hybrid crocodiles. Average values are displayed \pm standard deviation and in parentheses the range of each climatic variable.

Climatic variable	Species		
	<i>C. moreletii</i>	Hybrids	<i>C. acutus</i>
Bio 1 Annual Mean Temperature (°C)	25.29 \pm 0.91 (20.78- 26.47)	25.52 \pm 0.92 (23.45-26.95)	25.59 \pm 0.91 (21.82-27.81)

Bio 2	Annual Mean Diurnal Range (°C)	10.42 ± 1.15 (6.50-15.06)	10.85 ± 1.35 (8.54-14.11)	12.15 ± 1.52 (5.83-15.32)
Bio 3	Isothermality (°C) (Bio2/Bio7*100)	56.1 ± 4.382 (45.53- 68.29)	59.3 ± 6.45 (6.45-72.20)	63.41 ± 5.72 (50.31-76.75)
Bio 4	Temperature Seasonality (Standard deviation *100)	250.02 ± 55.89 (173.16- 470.41)	227.63 ± 86.46 (117.48- 468.11)	231.5 ± 92.50 (88.99-435.08)
Bio 5	Max Temperature of Warmest Month (°C)	34.53 ± 1.16 (30.43- 37.29)	34.27 ± 1.19 (32.12-36.69)	34.14 ± 1.15 (30.88-36.72)
Bio 6	Min Temperature of Coldest Month (°C)	15.94 ± 1.50 (7.95-18.99)	15.88 ± 1.76 (10.00-17.71)	14.84 ± 2.52 (9.93-19.28)
Bio 7	Annual Temperature Range (°C) (Bio5 – Bio6)	18.58 ± 1.50 (12.22- 26.17)	18.38 ± 2.18 (15.81-25.82)	19.3 ± 2.98 (11.60-26.12)
Bio 8	Mean Temperature of Wettest Quarter (°C)	26.54 ± 1.07 (22.16- 28.75)	26.83 ± 0.88 (24.64-28.47)	27.63 ± 0.95 (24.26-29.47)
Bio 9	Mean Temperature of Driest Quarter (°C)	25.07 ± 2.23 (17.98- 27.56)	24.47 ± 1.99 (18.97-27.59)	24.17 ± 1.22 (21.71-27.59)
Bio 10	Mean Temperature of Warmest Quarter (°C)	27.76 ± 0.68 (22.60- 28.82)	27.74 ± 0.56 (25.83-28.71)	27.99 ± 0.72 (24.56-29.62)
Bio 11	Mean Temperature of Coldest Quarter (°C)	22.3 ± 1.33 (16.89- 24.04)	22.87 ± 1.84 (18.13-25.76)	22.92 ± 1.81 (18.91-26.80)
Bio 12	Annual Precipitation (mm)	1914 ± 633.49 (592.25- 3778.42)	1273.9 ± 511.89 (644.98- 2524.91)	1112.69 ± 452.99 (423.65- 3159.18)
Bio 13	Precipitation of Wettest Month (mm)	327.82 ± 94.78 (114.70- 564.53)	253.84 ± 102.42 (116.95- 525.08)	267.34 ± 98.25 (122.56- 606.19)
Bio 14	Precipitation of Driest Month (mm)	42.44 ± 18.53 (7.8- 127.91)	21.76 ± 15.15 (0.78-54.2)	7.31 ± 11.96 (0.3-64.26)
Bio 15	Precipitation Seasonality (CV) (coefficient of variation, in %)	62.54 ± 10.33 (44.18- 99.39)	75.78 ± 22.50 (47.42-118.43)	105.22 ± 22.50 (46.12-131.72)

Bio 16	Precipitation of Wettest Quarter (mm)	782.6 ± 252.19 (295.38- 1515.45)	598.32 ± 233.74 (291.52- 1474.60)	681.51 ± 260.30 (278.26- 1606.11)
Bio 17	Precipitation of Driest Quarter (mm)	159.25 ± 65.47 (32.45- 428.04)	82.27 ± 55.27 (7.49-210.88)	30.28 ± 42.30 (1.71-240.14)
Bio 18	Precipitation of Warmest Quarter (mm)	533.91 ± 158.85 (220.30- 1100.75)	424.44 ± 135.96 (58.69- 1048.15)	503.9 ± 253.43 (103.78- 1070.52)
Bio 19	Precipitation of Coldest Quarter (mm)	355.87 ± 160.33 (43.62- 860.00)	174.2 ± 148.84 (15.01-584.64)	61.86 ± 86.72 (1.71-465.75)