

## SUPPLEMENTARY MATERIALS

### METHODS

#### Photography

We collected dewlap data using photographic approaches. Photographs were taken with a Canon Rebel XTi Digital SLR camera set to custom white balance calibrated with a WhiBal® reference card (Michael Tapes Design). The right side of each lizard's dewlap was extended against an 18% Delta 1 Gray Card (CPM, Inc.), adjacent to a ruler and a Mini ColorChecker® color card (x-rite, Inc.) and photographs were taken without the flash, in a dark room with the lizard illuminated by two 50W Halogena bulbs (Philips, Inc.). Tracing paper was placed in front of the bulbs to diffuse the light and reduce glare. Lizards were immobilized using self-adherent medical wrap and dewlaps were extended with self-closing forceps whose tips were coated with black rubber (Plasti Dip International) to reduce glare.

Table S1. Collection localities and sample sizes for *Anolis sagrei* in the Cayman Islands.

Site IDs correspond to the numbers on the map in Fig. 1. Sample sizes used for dewlap and microsatellite analyses are provided.

Island	Site (Map ID)	GPS Degrees N	GPS Degrees W	N (Dewlap / Genetics)
Cayman Brac	L&M Superstore (1)	19.73244	-79.78450	11/11
Cayman Brac	Botanical Garden (2)	19.72380	-79.79838	12/12
Cayman Brac	Soccer Field (3)	19.72782	-79.77621	11/11
Cayman Brac	Peter's Cave Overlook (4)	19.75312	-79.74110	10/10
Cayman Brac	Lighthouse (5)	19.75124	-79.72344	10/10
Cayman Brac	R&L Plant Nursery (6)	19.72461	-79.81614	10/10
Cayman Brac	Port Authority (7)	19.74444	-79.76731	11/11
Cayman Brac	Peter's Cave Trailhead (8)	19.75355	-79.74127	11/12
Cayman Brac	Brac Reef Resort (9)	19.68459	-79.88777	11/11
Cayman Brac	South Road (east end) (10)	19.73616	-79.73581	14/14
Cayman Brac	South Road (empty lot) (11)	19.71769	-79.77339	10/10
Cayman Brac	1758 South Road (12)	19.70435	-79.81732	10/11
Cayman Brac	Bluff Road (13)	19.73918	-79.75911	11/11
Cayman Brac	Deadman's Point Trail (14)	19.71303	-79.82159	10/10
Cayman Brac	Bat Cave (15)	19.69661	-79.83772	10/10
Cayman Brac	Cayman Brac Museum (16)	19.71143	-79.83292	10/9
Cayman Brac	Billy's Supermarket (17)	19.70124	-79.86472	10/11

Cayman Brac	Rebekah's Cave (18)	19.69120	-79.86161	12/12
Grand Cayman	Cayman Turtle Farm (19)	19.38014	-81.41726	0/4
Grand Cayman	Sunset House (20)	19.28604	-81.38998	28/32
Grand Cayman	South Coast Hurley's (21)	19.28156	-81.34593	0/5
Grand Cayman	Queen Elizabeth Botanical Gardens (22)	19.31614	-81.16895	0/8
Grand Cayman	Sunnyfield Road (23)	19.32827	-81.08532	0/5
Grand Cayman	Cayman Kai (24)	19.36738	-81.27356	0/5
Little Cayman	Blossom Village (25)	19.65912	-80.08347	22/26
Little Cayman	East End (26)	19.69801	-79.97370	0/4

Table S2. Means  $\pm$  SD for measurements of body size (i.e., SVL and mass) and structural habitat use (i.e., perch height and diameter).

Island	N	SVL (mm)	N	Mass (g)	N	Perch height (cm)	N	Perch diameter (cm)
Cayman Brac	194	50.3 $\pm$ 5.7	194	3.6 $\pm$ 1.2	149	66.5 $\pm$ 53.7	127	6.9 $\pm$ 8.3
Grand Cayman	41	50.1 $\pm$ 5.5	28	3.1 $\pm$ 0.9	39	55.9 $\pm$ 40.0	33	6.4 $\pm$ 6.2
Little Cayman	22	50.3 $\pm$ 5.5	22	3.5 $\pm$ 1.2	16	81.4 $\pm$ 60.2	16	6.3 $\pm$ 3.5

Table S3. Pairwise  $F_{ST}$  values ( $\pm$  SE) comparing the three Cayman Islands with all samples for each island pooled on the off-diagonal and the mean pairwise  $F_{ST}$  values ( $\pm$  SE) for sampling sites within islands on the diagonal. Only two sites were sampled on Little Cayman.

	Cayman Brac	Grand Cayman	Little Cayman
Cayman Brac	$0.042 \pm 0.015$		
Grand Cayman	$0.209 \pm 0.019$	$0.071 \pm 0.028$	
Little Cayman	$0.161 \pm 0.023$	$0.235 \pm 0.019$	0.118

Fig. S1. Results of the Bayesian cluster analysis in STRUCTURE using the multilocus genotypes from 10 microsatellite loci. Vertical lines represent individuals and abbreviations are CB=Cayman Brac, LC=Little Cayman, and GC=Grand Cayman. A)  $K=2$  is the most likely number of genetic clusters with populations from Cayman Brac and Little Cayman forming a single genetic cluster distinct from Grand Cayman. The individual with mixed ancestry from Grand Cayman (GC066) is intermediate with Cayman Brac in the PCoA (see Fig. 4), and the Cayman Brac lizards with a low percentage of mixed ancestry include intermediates with Grand Cayman. B) When forcing  $K=3$  genetic clusters, GC066 shows some genetic affinity with Cayman Brac and another Grand Cayman lizard (JJK1128) shows some similarity with Little Cayman (see the PCoA in Fig. 4). Numerous Cayman Brac individuals show some level of mixed ancestry, including a high percentage of shared genetic variation with Little Cayman as well as a low level of shared genetic ancestry with Grand Cayman as in the  $K=2$  plot. C) When reducing the dataset to Cayman Brac and Little Cayman samples only, STRUCTURE supports  $K=2$  genetic clusters. However, in this case, Little Cayman is a genetically uniform group, whereas Cayman Brac shows extensive mixture between two genetic units.

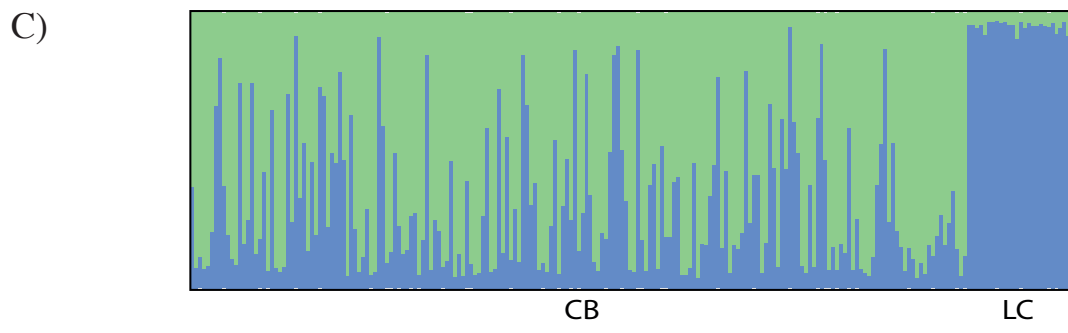
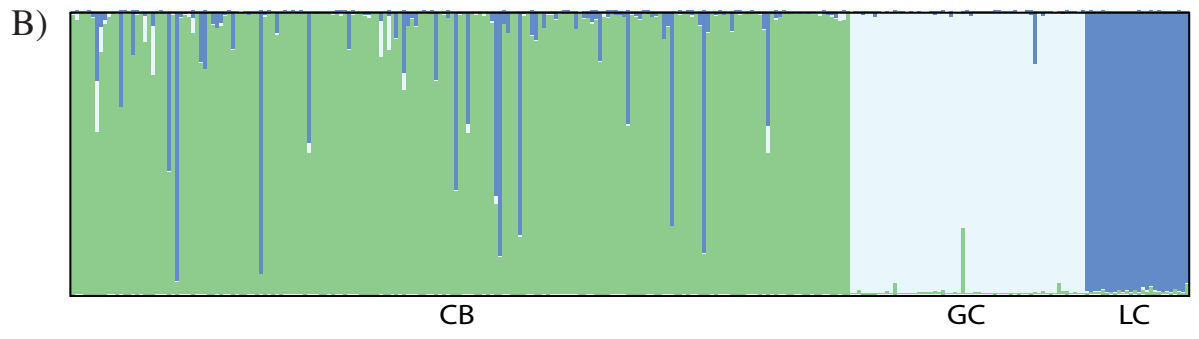
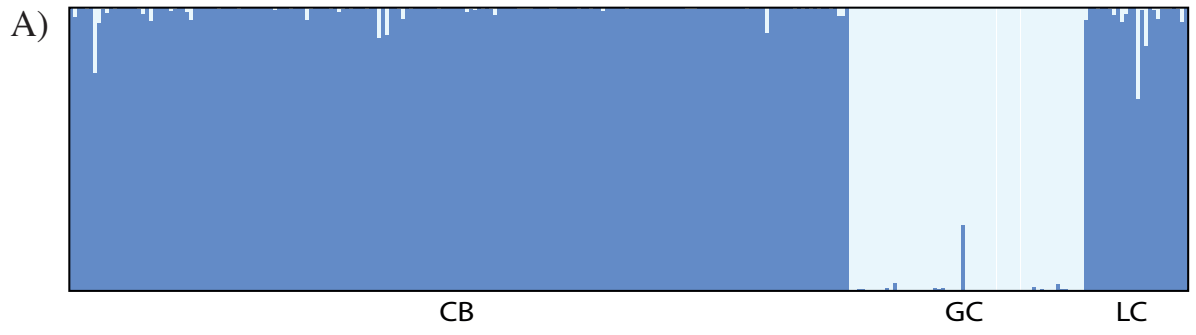
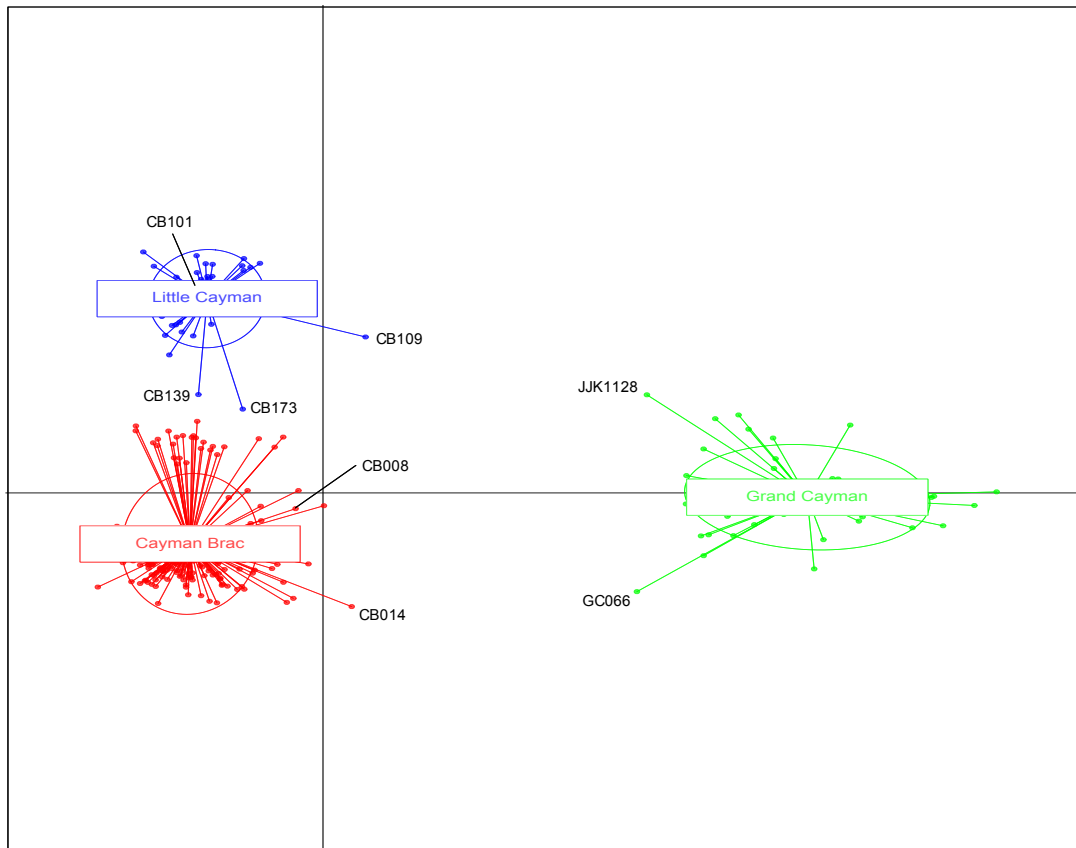


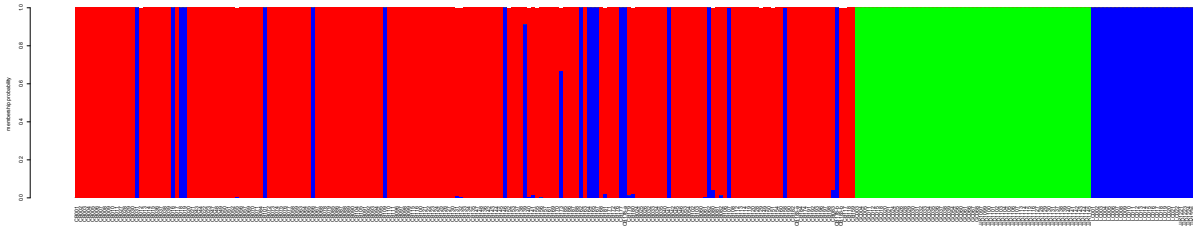
Fig. S2 - Genetic relatedness among individuals and genetic groupings on the first two PC axes from a discriminant analysis of principal components (DAPC) using the optimal number of PC axes. A) DAPC analysis without using the sample locations as *a priori* grouping information resulted in three genetic clusters corresponding to the islands. B) When not using *a priori* island information, numerous individuals sampled on Cayman Brac were assigned with high probability to Little Cayman, including CB101. C) DAPC analysis using sample locations as *a priori* information for groupings resulted in three genetic clusters corresponding to the islands. D) When using *a priori* island information, no individuals sampled on Cayman Brac were assigned to Little Cayman; however, some individuals had a high probability of membership with Little Cayman.

A)

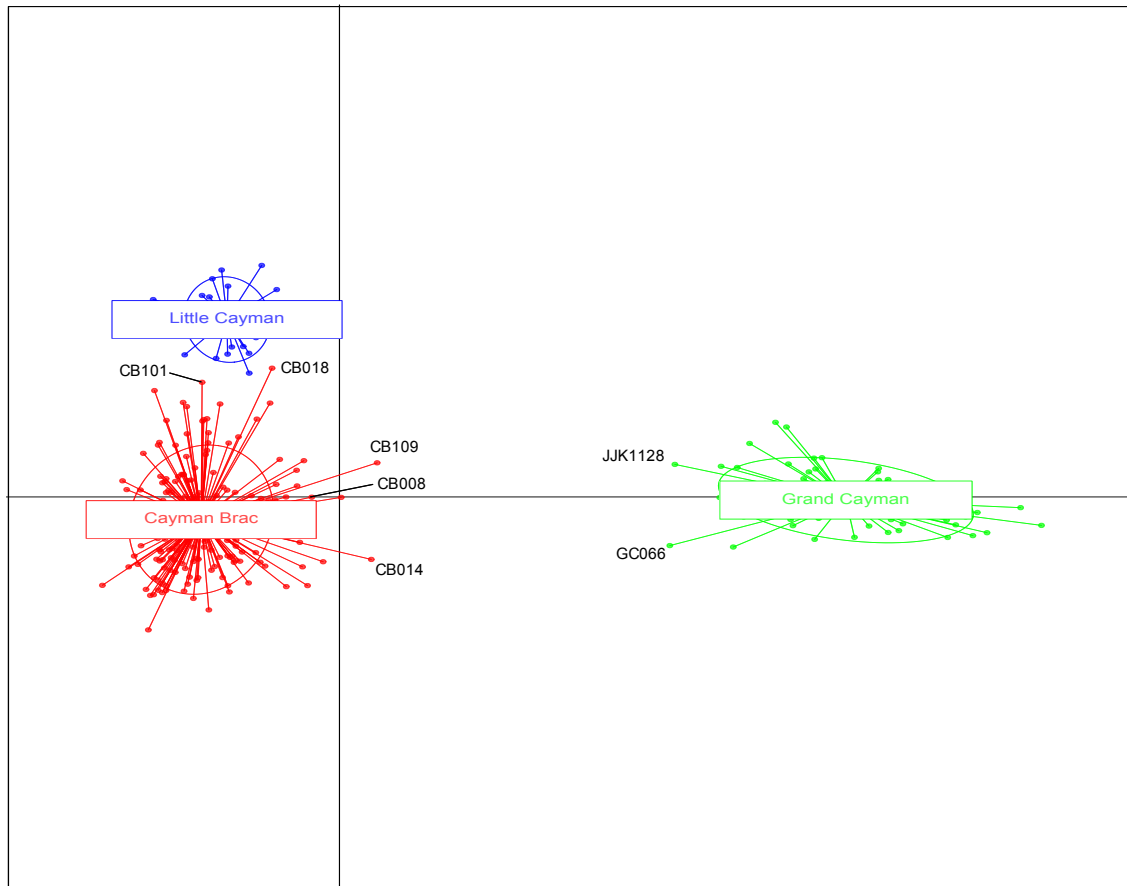




B)



C)



D)

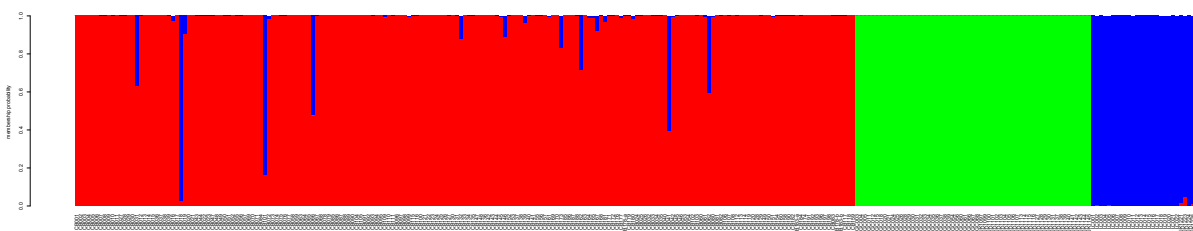


Fig. S3. Maximum likelihood phylogeny showing the relationships among ND2 haplotypes (540 bp) sampled on Cayman Brac, Grand Cayman, Little Cayman, and representative samples from south Florida and Cuba that show the invasive history. Little Cayman and Cayman Brac clades are sister to samples from Eastern Cuba (Santiago de Cuba), whereas lizards from Grand Cayman were introduced from non-native populations in south Florida, which originated from multiple sources across Cuba (Kolbe et al. 2004). The star indicates a red-dewlapped lizard (CB008) sampled on Cayman Brac that has an intermediate nuclear genotype and Grand Cayman mtDNA haplotype. Bootstrap values are shown for the major Cayman Island clades.

