Supplementary Information: Stroud et al. *Nature Communications*

Supplementary Table 1. Site location details of all allopatric and sympatric populations in this study.

Treatment	Site	Site code	Latitude, Longitude
Established populations			
Allopatric: *A. sagrei*	F.I.U. Nature Preserve	FIU	25.7542, -80.3789
Allopatric: *A. sagrei*	A.D. Barnes Park	BP	25.7382, -80.3104
Allopatric: *A. sagrei*	Kendalwood Park	KP	25.6934, -80.3450
Sympatric	Red Road canal	RR	25.6737, -80.2839
Sympatric	Banyan Drive Park	BD	25.6881, -80.2842
Sympatric	Matheson Hammock park	MHS	25.6797, -80.2726
Allopatric: *A. cristatellus*	Barnacle State Park	BAR	25.7259, -80.2432
Allopatric: *A. cristatellus*	Kendall Indian Hammocks	KIH	25.6964, -80.3738
Allopatric: *A. cristatellus*	Matheson Hammock forest	MHA	25.6832, -80.2766
Novel sympatric population	Fairchild Botanical Gardens	FTBG	25.6769, -80.2710

Supplementary Table 2. Geographic distances between study sites (meters).

Site code	FIU	BP	KP	RR	BD	MHS	BAR	KIH	MHA
FIU									
BP	7,096								
KP	7,574	6,076							
RR	13,080	7,656	6,510						
BD	12,014	6,165	6,128	1,603					
MHS	13,507	7,535	7,421	1,316	1,493				
BAR	13,967	6,877	10,832	7,102	5,884	5,928			
KIH	6,455	7,879	2,908	9,366	9,036	10,321	13,504		
MHA	12,951	6,998	6,955	1,286	937	559	5,815	9,861	

Supplementary Table 3. Perch height and morphology. Sample sizes and basic summary statistics by site (and per treatment) for perch height and morphological analyses and allopatric vs. sympatric *A. sagrei* and *A. cristatellus*.

Species	Site	Perch height (mean; cm)	St. Err	*N* (perch height)	*N* (morphology)	*N* (diet)
Anolis sagrei						
Allopatric	**Combined**	**68.10**		**381**	**127**	**32**
	FIU	62.92	3.42	167	44	10
	BP	67.27	3.83	107	39	12
	KP	74.12	4.44	107	44	10
Sympatric	**Combined**	**49.67**		**242**	**115**	**32**
	RR	39.69	5.91	53	23	10
	BD	56.40	6.27	49	39	12
	MHS	52.91	5.64	140	53	10
Anolis cristatellus						
Sympatric	**Combined**	**134.73**		**205**	**107**	**35**
	RR	157.26	12.13	47	29	9
	BD	109.61	12.47	54	41	15
	MHS	137.32	8.41	104	37	11
Allopatric	**Combined**	**70.94**		**357**	**104**	**30**
	BAR	50.54	6.42	63	46	10
	KA	79.32	7.86	73	24	10
	MHA	82.96	4.18	221	34	10

Supplementary Table 4. Movement behavior. Sample sizes and basic summary statistics of number of lizards and length of observation by site (and per treatment) in allopatric vs. sympatric *A. sagrei* and *A. cristatellus*.

Species	Treatment	Site	No. lizards	Observation time (cumulative; mins)	Observation time (mean; mins)
A. sagrei	**Allopatric**	**Total**	**89**	**1279**	**14.36**
		FIU	28	389	13.89
		BP	30	440	14.67
		KP	31	450	14.52
A. sagrei	**Sympatric**	**Total**	**89**	**1329**	**14.94**
		RR	30	446	14.87
		BD	29	446	15.38
		MHS	30	437	14.57

Supplementary Table 5. Comparisons of movement behavior between sympatric and allopatric populations of *A. sagrei*. Data represent mean of site means of behavior rate per individual per hour $^{-1}$. $N_{individuals}$ represents number of independent lizards observed; (cum. mins) represents cumulative minutes of observation. Results in bold indicate significance at α = 0.05. All *p*-values are from linear mixed effects models with treatment (i.e., allopatry vs. sympatry) as a fixed effect and site as a random effect.

| Trait	Estimate		S.E.	$t_{4,233}$	*P*	Difference in sympatry
A. sagrei						
Body size (SVL)	0.636	±	0.259	2.46	0.079	-
Forelimb	**0.323**	**±**	**0.107**	**3.03**	**0.006**	**Longer**
Hind limb	**0.459**	**±**	**0.170**	**2.70**	**0.012**	**Longer**
A. cristatellus						
Body size (SVL)	-0.436	±	0.204	-2.14	0.108	-
Forelimb	0.276	±	0.162	1.70	0.069	-
Hind limb	0.160	±	0.207	0.78	0.358	-

Supplementary Table 6. Morphological trait shifts between allopatry and sympatry in *Anolis sagrei* and *A. cristatellus*. All results are from Linear Mixed Effects Models, with model coefficient (±1 S.E.), *t* value with degrees of freedom, and significance value (*p*) given. All *p*-values are from linear mixed effects models with treatment (i.e., allopatry vs. sympatry) as a fixed effect and site as a random effect. To assess differences in traits relative to body size, all models included snout-vent length as a fixed effect. Results in bold indicate significance at α = 0.05.

Species		Allopatry	Sympatry	*df*	*t*	*p*	*Direction of difference*
	$N_{individuals}$	89	89				
Anolis sagrei	(cum. mins)	(1,279)	(1,329)				
Movement within the same perch		15.04	26.59	4,171	1.24	0.284	-
Moving between perches (on the same plant)		2.51	2.53	4,171	0.07	0.945	-
Moving between plants (cumulative)		4.46	5.79	4,171	-1.63	0.178	-
Moving between plants (above the ground)		3.72	2.42	4,171	-1.63	0.178	-
Moving between plants (across the ground)		**0.74**	**3.36**	**4,171**	**3.05**	**0.038**	**More frequent**
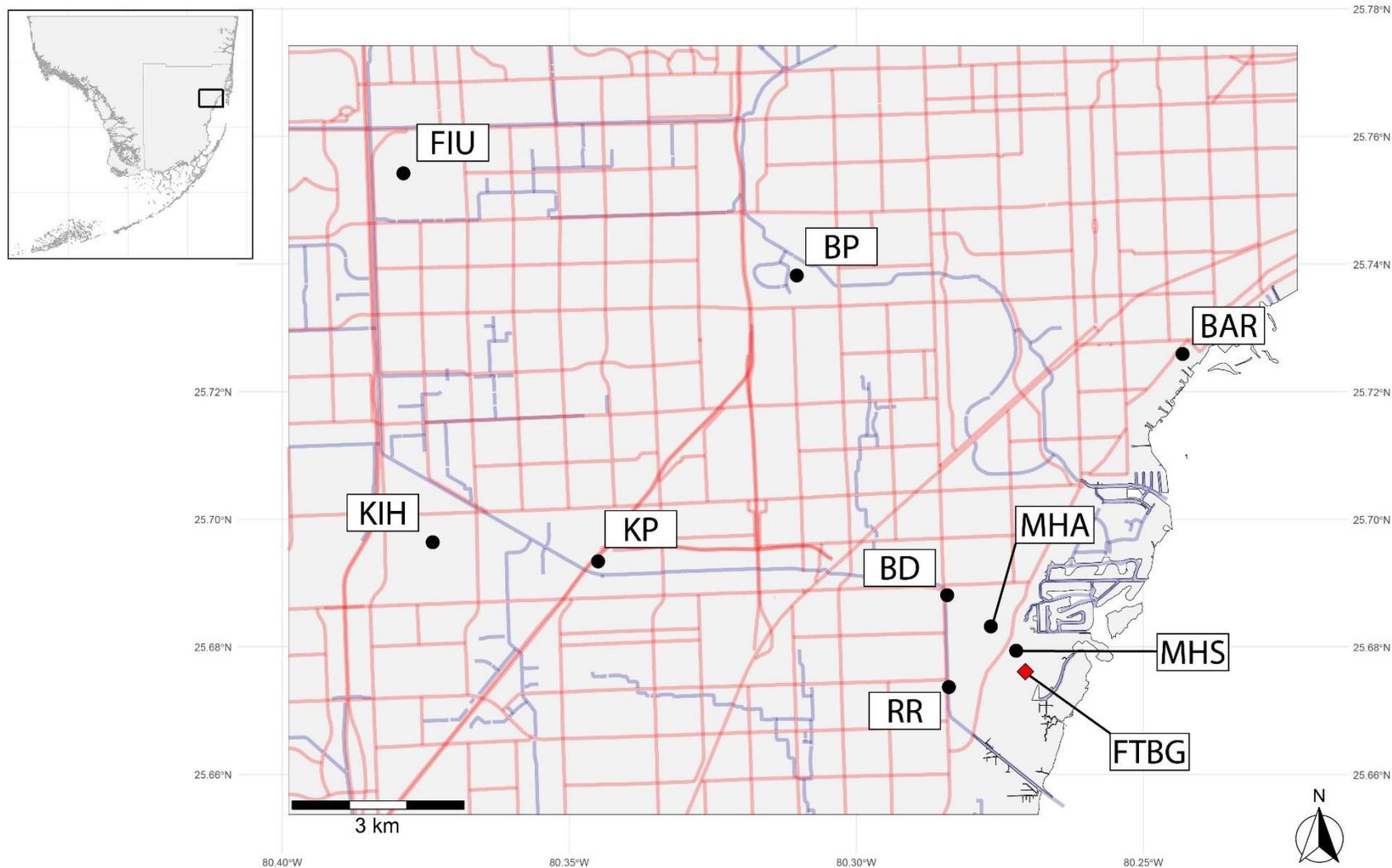
Supplementary Fig. 1. Location of study sites: see Supplementary Table 1 for information on connecting site code to site name. Red lines are major roads; blue lines are canals. Inset map of south Florida; black box highlights the study region. The base map was created using open data from Miami-Dade County's GIS Open Data Portal (https://gis-mdc.opendata.arcgis.com). All shapefiles
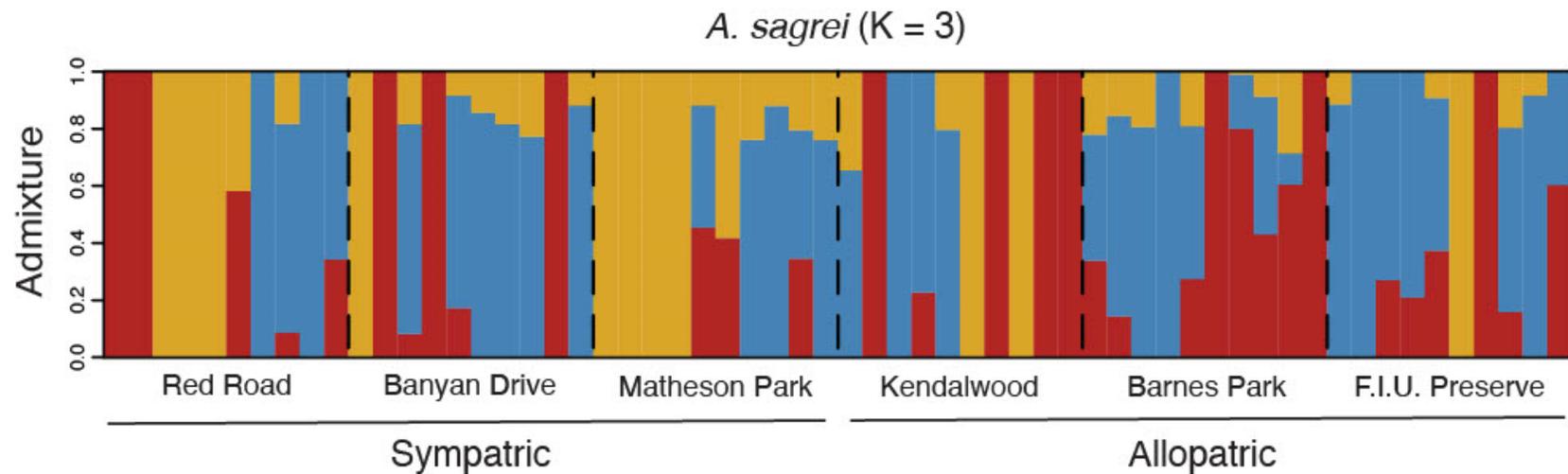
Supplementary Fig. 2. Admixture plot of our *Anolis sagrei* study populations in Miami (each population is separated by a vertical dashed line). Genetic demes (K=3) do not align with allopatry or sympatry.