SUPPLEMENTARY FIGURES

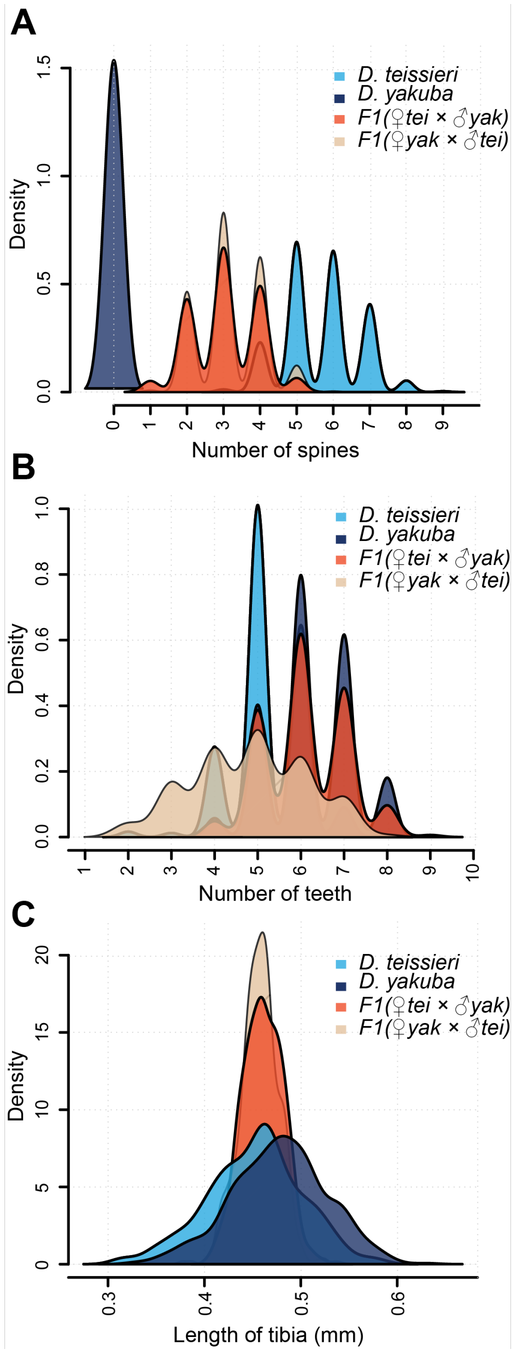

FIGURE S1. A combination of three phenotypic traits effectively discriminates between *D. yakuba*, *D. teissieri*, F_1(♀*tei* × ♂*yak*), and F_1(♀*yak* × ♂*tei*) genotypes. Related to STAR Methods. A) the number of anal spines, **B**) the number of teeth in sex combs, and **C**) tibial length (mm). All traits were measured in lab-produced individuals at 24ºC. See the text for all statistical analyses. Note that density plots are presented versus histograms for visual clarity, and weights shown for intermediate values are uninformative. These three traits were used to classify field-collected individuals into three categories: *D. yakuba*, *D. teissieri*, and F1 hybrids.

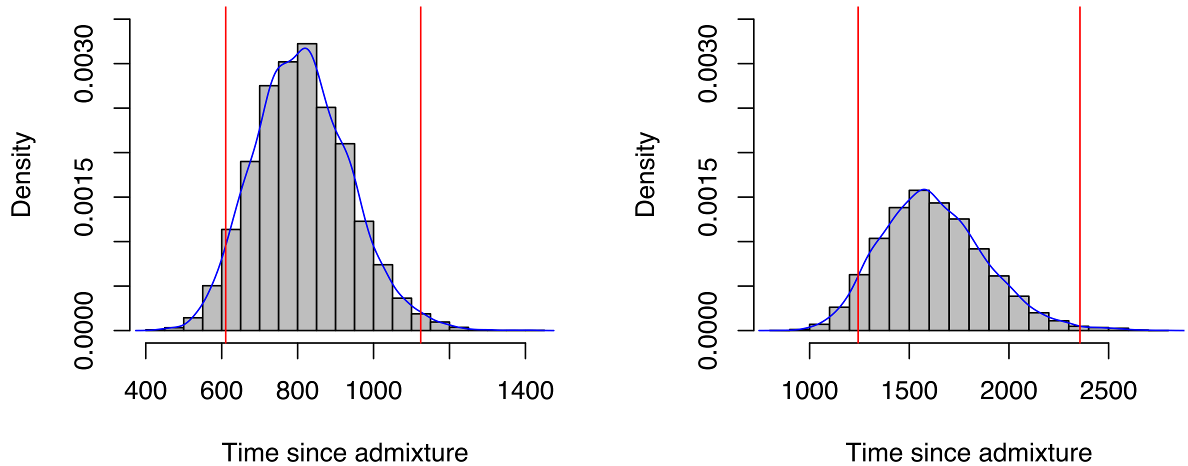

FIGURE S2. **The time since admixture between *D. yakuba* and *D. teissieri* under two different models. Related to STAR methods.** We modeled introgression with **A**) a single pulse of hybridization and **B**) a continuous influx of admixed individuals. Physical distances were converted to genetic distances using the Comeron start point rate [S1]. Note that these genetic distances were measured for *D. melanogaster* and or analyses assume similar recombination rates in orthologous syntenic blocks of *D. melanogaster*, *D. yakuba*, and *D. teissieri*. Red lines show the 95% confidence intervals of the mean divergence time in generations [Single pulse: (610.59, 1124.16); Continuous admixture: (1243.39, 2356.35)].

2009						
Altitude	***D. teissieri***		***D. yakuba***		**Hybrids**	
	Open	Forest	Open	Forest	Open	Forest
1,200	8	45	87	2	9	4
1,650	3	37	7	9	4	1
2009 Total	11	82	94	11	13	5

2013						
Altitude	***D. teissieri***		***D. yakuba***		**Hybrids**	
	Open	Forest	Open	Forest	Open	Forest
200	0	0	141	23	0	0
650	0	5	241	44	0	0
1,200	14	311	264	30	24	7
1,420	23	201	173	19	44	8
1,650	16	284	145	22	15	2
1,850	18	154	71	6	28	14
2,020	0	50	31	1	2	0
2013 Total	71	1,005	1,066	145	113	31

TABLE S1. The distributions of *D. yakuba*, *D. teissieri*, and their hybrids in open and forest habitats, at different altitudes. Related to Figure 2. Flies sampled in 2013 were used in the mark-recapture release experiment, and only flies that survived until this experiment are included here. While sampling of each habitat is reported for hybrids, these genotypes were circumscribed to the center of the forest-open habitat ecotone.

Environmental condition	**Factor**	**df**	***F*-value**	***P*-value**
Temperature	Altitude	1	19.19	< 0.0001
	Habitat	1	177.79	< 0.0001
	Altitude × Habitat	1	24.45	< 0.0001
Humidity	Altitude	1	519.55	< 0.0001
	Habitat	1	171.54	< 0.0001
	Altitude × Habitat	1	35.56	< 0.0001

TABLE S2. ANCOVA reveals significant effects of both altitude and habitat (open vs. forest) on both temperature and humidity across the island of Bioko. Related to Figure 2.

Genotype	*N*	Mean	SD	***D. yakuba***	***D. teissieri***	**F_1(♀*yak* × ♂*tei*)**	**F_1(♀*tei* × ♂*yak*)**
D. yakuba	198	6.63	1.53		-8.64	11.11	-9.45
D. teissieri	198	4.73	1.69	**< 0.001**		2.67	0.93
F_1(♀*yak* × ♂*tei*)	198	4.50	1.47	**<0 .001**	**< 0.038**		1.77
F_1(♀*tei* × ♂*yak*)	198	4.76	1.50	**<0.001**	0.789	0.29	

TABLE S3. **Desiccation resistance of *D. yakuba, D. teissieri*, and the two reciprocal hybrids with sexes were pooled. Related to Figure 3.** Sample sizes (*N*), mean time in hours until death, and standard deviations (SD) are reported. The last four columns show our statistical analyses of particular comparisons as a 4 × 4 matrix. The upper triangular matrix shows the z-values from Tukey's HSD pairwise comparisons, and the lower triangular matrix shows associated *P*-values. Statistically significant differences ($P < 0.05$) are indicated in boldface.

Temperature regime	Species	Number of generations per year	Estimated time of admixture (Single pulse model)/years	Estimated time of admixture (continuous model)/years
15ºC/21ºC	*D. teissieri*	7.34	83.19-153.16	169.40-321.03
18ºC/24ºC	*D. teissieri*	7.79	78.38-144.31	159.61-302.48
21ºC/27ºC	*D. teissieri*	8.83	69.15-127.31	140.81-266.86
26ºC/31ºC	*D. teissieri*	10.58	57.71-106.25	117.52-222.72
15ºC/21ºC	*D. yakuba*	15.82	38.60-71.06	78.60-148.95
18ºC/24ºC	*D. yakuba*	17.54	34.81- 64.09	70.89-134.34
21ºC/27ºC	*D. yakuba*	23.49	25.99-47.86	52.93-100.31
26ºC/31ºC	*D. yakuba*	26.35	23.17-42.66	47.19-89.43

TABLE S4. Approximate age of the admixture event accounting for differences in generation time due to temperature. Related to STAR methods. The number of generations per year was inferred by measuring the generation time for both *D. yakuba* and *D. teissieri* under four different temperature regimes. Note that the number of generations per year in *D. teissieri* incorporate the fact that *Parinari* is only found for only half the year.

Archipelago	Hybrid zone	Reference
Macaronesia	*Culex pipiens/ Cx. quinquefasciatus*	[S2,S3]
	Drosophila subobscura/D. madeirensis	[S4]
	Argyranthemum broussonetii/A. frutescens	[S5,S6]
	Argyranthemum hierrense/A. haouarytheum	[S7]
	Pericallis appendiculata	[S8]
	Chromosomal races of *Mus musculus domesticus*	[S9]
	Sideritis cretica cretica	[S10]
	Sideritis gomerae	[S10]
	Sideritis canariensis	[S10]
Afronesia	*D. santomea/D. yakuba*	[S11]
	D. teissieri/D. yakuba	This report
	Cercopithecus Monkeys	[S12]
	Hyperolius molleri/H. thomensis	[S13]
	Schistometopum thomens/S. ephele	[S14]
	Anopheles gambiae M/S	[S15]
	Zosterops fidelinus/Speirops brunneus	[S16]
	Neospiza concolor/Speirops rufobrunneus	[S16]
	Psittacus erithacus erithacus/P. e. timneh	[S17]

TABLE S5. Reported hybrid zones in the Macaronesian and Afronesian archipelagos. Both archipelagos have an equal number of reported hybrid zones despite Macronesia having an area five times larger than Afronesia. Related to STAR methods.

Species	N_{REL}	N_{REC}	**Mean distance (m)**	**SD**
D. yakuba	500	25	84.0	94.34
D. teissieri	500	22	45.45	67.10
D. melanogaster	500	16	93.75	99.79
D. simulans	500	33	190.91	112.82

TABLE S6. Preliminary releases of *D. melanogaster* subgroup species indicated that flies on average travel less than 200 m in 24 hr. **Related to STAR methods and Figure 3.** *D. yakuba* and *D. teissieri* travel under 100 m on average in 24 hr. The total number of flies released (N_{REL}), the total number of flies recaptured (N_{REC}), the mean distance (m) traveled from the release point, and standard deviations (SD) are reported.

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