

Supplementary

Figure S1. Distribution of pairwise differences in mitochondrial *COI* haplotypes from *Aedes aegypti* in Vietnam. The solid line represents the distribution expected under population expansion.

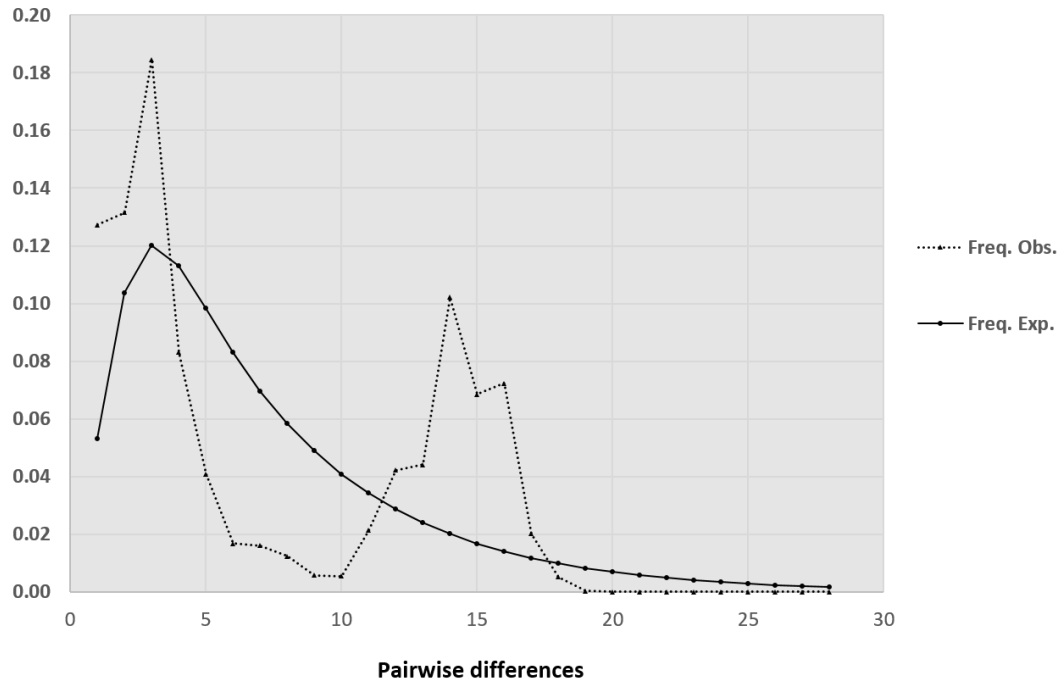


Table S1. Effects of species, climate, habitat, and their interactions on *Aedes aegypti* and *Ae. albopictus* abundance (Multi-Way ANOVA)

No.	Model	DFn	DFd	F-statistic	P-value
1	Species	1	102	6.253	0.014
2	Region	1	102	1.615	0.27
3	Habitat	2	102	98.786	<0.00001
4	Species:Region	1	102	81.021	<0.00001
5	Species:Habitat	2	102	17.434	<0.00001
6	Region:Habitat	2	102	1.047	0.355
7	Species:Region:Habitat	2	102	41.994	<0.00001

Table S2. Partitioning of genetic variation among *Aedes aegypti* populations in Vietnam

Hypotheses	Source of variation	Percentage of variation	F-statistic	P value
1. Two groups: North and South	Φ_{CT}	4.42	0.0442	0.02
- North (S07, S08, S09)	Φ_{SC}	-2.30	-0.0241	0.78
- South (S12, S14, S15, S17, S18)	Φ_{ST}	97.88	0.0211	0.43
2. Three groups: North, Central and South	Φ_{CT}	2.33	0.0234	0.113
- North (S07, S08, S09)	Φ_{SC}	-1.70	-0.0174	0.652
- Central (S12, S14, S15)	Φ_{ST}	99.36	0.0064	0.433
- South (S17, S18)				

Table S3. Geographic origin and GenBank accession codes of *COI* sequences of *Aedes aegypti* used in phylogeographic analysis.

Geographical area	Country	Accession Number	References
Central Africa	Cameroon	JQ926702	Paupy C., et al (2012)
West Africa	Bennin	KX446400	Bennett K.L., et al (2016)
	Bennin	KX446402	Bennett K.L., et al (2016)
	Guinea	HQ688292	Fort P., et al (2012)
	Guinea	HQ688293	Fort P., et al (2012)
East Africa	Kenya	KX420438	Bennett K.L., et al (2016)
	Kenya	KX420460	Bennett K.L., et al (2016)
	Kenya	MK533627	Musa A.M., et al (2020)
	Uganda	KX446420	Bennett K.L., et al (2016)
	Uganda	KX446438	Bennett K.L., et al (2016)
North America	Mexico	MT108569	Adeniran A.A., et al (2021)
	Mexico	MT108574	Adeniran A.A., et al (2021)
	Mexico	MT108661	Adeniran A.A., et al (2021)
	USA	GU907840	Cywinska A., et al (2016)
	USA	GU907841	Cywinska A., et al (2016)
	USA	JQ926684	Paupy C., et al (2012)
Caribbean	Martinique	JQ926696	Paupy C., et al (2012)
	Venezuela	JQ926701	Paupy C., et al (2012)
Central America	Panama	KX171389	Eskildsen et al (2018)
	Panama	KX171390	Eskildsen et al (2018)
	Panama	KX171394	Eskildsen et al (2018)
South America	Brazil	JQ926703	Paupy C., et al (2012)
	Chile	HQ991718	iBOL Data Release
	France: Guyana	HQ688297	Fort P., et al (2012)
	Peru	MN299016	Lapadula W.J., et al (2020)
	Argentina	MN299024	Lapadula W.J., et al (2020)
	France: Europa Island	HQ688296	Fort P., et al (2012)
Southwest Asia	India	MK542379	Asha A.V., et al (2019)
	India	MK635053	Barik T.K., et al (2019)
	Pakistan	KF406349	Ashfaq M., et al (2014)
Southeast Asia	Thailand	HQ688295	Fort P., et al (2012)
	Thailand	JQ926691	Paupy C., et al (2012)

Geographical area	Country	Accession Number	References
	Thailand	JQ926692	Paupy C., et al (2012)
	Thailand	KM613046	Ruangsittichai J., et al (2015)
	Thailand	KM613048	Ruangsittichai J., et al (2015)
	Thailand	KM613055	Ruangsittichai J., et al (2015)
	Cambodia	HQ688294	Fort P., et al (2012)
	Cambodia	JQ926688	Paupy C., et al (2012)
	Cambodia	JQ926689	Paupy C., et al (2012)
	Cambodia	JQ926690	Paupy C., et al (2012)
	Malaysia	MF148257	Adilah-Amrannudin N., et al (2018)
	Malaysia	MF148262	Adilah-Amrannudin N., et al (2018)
	Vietnam	JQ926686, 87	Paupy C., et al (2012)

Table S4. Worldwide survey of haplotype similarities of Vietnamese *Aedes aegypti* haplotypes

Haplotype	GenBank code	Region	Country	Publication
	MN299016	South America	Peru	Lapadula W.J., et al (2020)
	MN299008	South America	Puerto Rico	Lapadula W.J., et al (2020)
	MK542380	South Asia	India	Lakshmi K.V., et al (2019)
	KC970271	South Asia	India	Shinde,L.V. and Thete,K.D., (2014)
	MF443395-97	North America	Canada	Giordano B.V., et al (2018)
	MF148262, MF148257	Southeast Asia	Malaysia: Selangor	Adilah-Amrannudin N., et al (2018)
	MF043259	Europe	United Kingdom: England	DallimoreT.,et al (2017)
	KY022526	Europe	Germany	Kampen H., et al (2016)
	MW961318, 19	Europe	Portugal	Madeira s., et al (2021)
	MZ230361	Southeast Asia	Vietnam	Bega A., et al (2021)
H1	MK505603, MK505600, 01 MK505698, MK505695, MK505685,86 MK505679, MK505677, MK505672	Europe	United Kingdom: England	Hernández-Triana L.M., et al (2019)
	MW509605	South America	Puerto Rico	Hopken M.W., et al (2021)
	MT108574	North America	Mexico	Adeniran A.A., et al (2020)
	MN733743, MN733745-53	Pacific Ocean	New Caledonia	Rakotonirina A., et al (2020)
	HQ991718	South America	Chile	iBOL Data Release, Unpublished
	AF425846	North America	Canada, Lab conlony	Hickey D.A., et al (2002)
H2	MZ230363	Southeast Asia	Vietnam	Bega A., et al (2021)
	GU675484	Pacific Ocean	Australia	iBOL Data Release
H3	MK890402	South America	Ecuador	Cevallos,V. and Ponce,P., 2020
	KX420476	South America	Ecuador	Bennet K.L., et al (2016)
	MZ230362	Southeast Asia	Vietnam	Bega A., et al (2021)

	MT108569	North America	Mexico	Adeniran A.A., et al (2020)
	AY432106, AY432648	Europe	United Kingdom: Liverpool-strain	Bartholomay L.C., (2004)
	KF406376	Southwest Asia	Pakistan	Ashfaq M., et al (2014)
H7	HM399357	Pacific Ocean	Australia	iBOL Data Release
	MZ230364	Southeast Asia	Vietnam	Bega A., et al (2021)

Table S5. Correlation between genetic diversity and abundance of *Ae. aegypti* and *Ae. albopictus* across Vietnam.

Co-occurrence	Region	<i>Ae. aegypti</i>		<i>Ae. albopictus</i>	
		Hd, π	No. of individual/site	Hd, π^*	No. of individual/site
No	Northeast (S4, S5, S6)	NC	NC	0.760, 0.0022	432±43.6
	Northwest (S1, S2, S3)			0.9016, 0.0034	1112±238.2
Yes	North Delta and North Central coast (S7, S8, S9, S10, S11)	0.8413, 0.0100	202.8±156.5	0.8763, 0.0032	878±91.8
	Southern (S12, S13, S14, S15, S16, S17, S18)	0.8882, 0.0091	868±276.5	0.8308, 0.0025	401±143.1

Hd: Haplotype diversity, π : nucleotide diversity, NC: not computed, *genetic diversity indices data of *Aedes albopictus* were retrieved from Duong et al. 2021⁵².