Table S1. Model parameters describing the gene drive construct, mosquito bionomics and malaria epidemiology for simulations resembling releases on São Tomé, São Tomé and Príncipe.

Symbol:	Parameter:	Value:	Reference:
Gene drive construct:			
f_{HH}	Homozygous fitness (relative to wildtype) on female mosquitoes	0.9	[1]
f_H	Hemizygous fitness (relative to wildtype) on female mosquitoes	0.9	[1]
m_{HH}	Homozygous male mating competitiveness	1.05	[1]
m_H	Hemizygous male mating competitiveness	1.78	[1]
$p^M{}_W$	Probability of wildtype allele staying intact across one generation in male mosquitoes	0.0212	[1]
$p^M{}_H$	Probability of wildtype allele converting to H allele across one generation in male mosquitoes	0.979	[1]
$p^F{}_W$	Probability of wildtype allele staying intact across one generation in female mosquitoes	0.0015	[1]
$p^F{}_H$	Probability of wildtype allele converting to H allele across one generation in female mosquitoes	0.985	[1]
$p^{HH}{}_W$	Probability of wildtype allele staying intact across one generation in gravid, homozygous female mosquitoes	0.938	[1]
$p^{HH}{}_R$	Probability of wildtype allele converting to R allele across one generation in gravid, homozygous female mosquitoes	0.0122	[1]
$p^{HH}{}_B$	Probability of wildtype allele converting to B allele across one generation in gravid, homozygous female mosquitoes	0.0437	[1]
$p^H{}_W$	Probability of wildtype allele staying intact across one generation in gravid, hemizygous female mosquitoes	0.997	[1]
$p^H{}_R$	Probability of wildtype allele converting to R allele across one generation in gravid, hemizygous female mosquitoes	0.0007	[1]
$p^H{}_B$	Probability of wildtype allele converting to B allele across one generation in gravid, hemizygous female mosquitoes	0.0017	[1]
b_{WW}	Wildtype mosquito-to-human transmission probability	0.55	[1]
b_H	TP13 drive mosquito-to-human transmission probability	0	[1]
c	Human-to-mosquito transmission probability	0.15	[1]
Vector biology:			
β	Egg production per adult female (per day)	21	[2]
T_E	Mean duration of egg stage (days)	3	[2]
T_L	Mean duration of larval stage (days)	7	[2]
T_P	Mean duration of pupal stage (days)	1	[2]

$\mathrm{CV}(T_E)$	Coefficient of variation, egg stage	0.2	[3]
$\mathrm{CV}(T_L)$	Coefficient of variation, larval stage	0.3	[3]
$\mathrm{CV}(T_P)$	Coefficient of variation, pupal stage	0.2	[3]
K	Larval carrying capacity	Time-varying	[4]
μ	Adult mosquito mortality rate	Time-varying	[4]
f	Blood feeding rate	1/3	[5]
Q	Human blood index	0.9	[5]
Vector control:			
θ_B	Proportion of bites on a person in bed	0.89	[6]
θ_I	Proportion of bites on a person outdoors	0.97	[6]
r_{LLIN}	Probability of repeating a feeding attempt in the presence of long-lasting insecticide-treated nets	0.56	[6]
r_{IRS}	Probability of repeating a feeding attempt in the presence of indoor residual spraying	0.60	[6]
s_{LLIN}	Probability of feeding and surviving in the presence of long-lasting insecticide-treated nets	0.03	[6]
s_{IRS}	Probability of feeding and surviving in the presence of indoor residual spraying	0	[6]
Intervention setting and demography:			
N_H	Human population size	223,000	[7]
$PfPr$	All-ages *P. falciparum* prevalence	0.02	[8]
χ_{LLIN}	Proportion of population using long-lasting insecticide-treated nets	0.62	[7]
χ_{IRS}	Proportion of population using indoor residual spraying	0.665	[7]
f_T	Proportion of population using artemisinin-based combination therapy	0.02	[7]

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