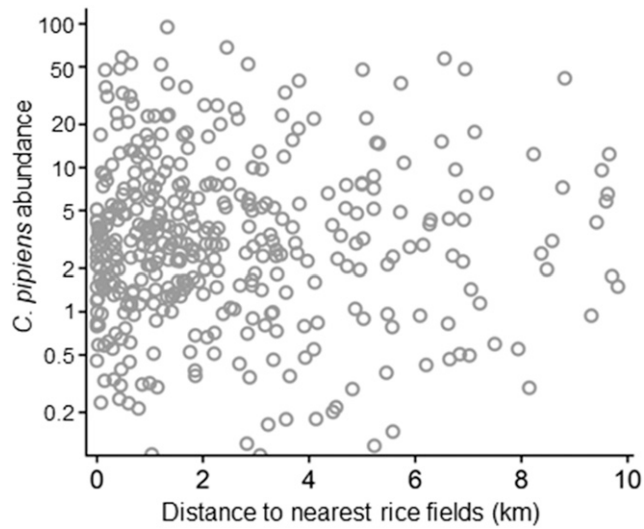
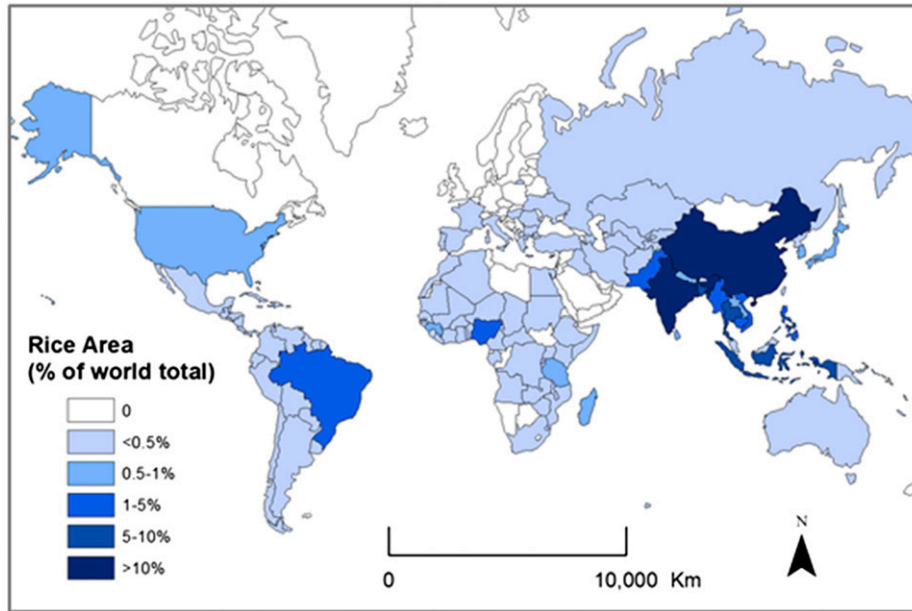


SUPPLEMENTAL FIGURE 1. Relative contribution to West Nile virus (WNV)-infected *Culex* species across the United States (US), 2004–2009. Columns show average fraction of WNV-positive pools attributed to each mosquito species (all US,  $N = 821$ ), shown with and without adjustment for county human population sizes.



SUPPLEMENTAL FIGURE 2. *Culex pipiens* mosquito abundance and distance to rice fields. *Culex pipiens* abundance (mosquitoes per New Jersey light trap-week) in California between June and September, plotted against distance to nearest rice field ( $N = 388$ ). In contrast to *Culex tarsalis*, we observed no significant relationship ( $P = 0.74$ ) between distance to rice field and abundance of *C. pipiens*.



SUPPLEMENTAL FIGURE 3. Rice-growing areas of the world. Map showing the percent contribution of each country to total rice area in the world. Estimated rice area for each country based on mean rice-growing region from years 2010–2014 (Food and Agriculture Organization of the United Nations 2017).

SUPPLEMENTAL TABLE 1

List of predictor and response variables, transformations, and sources

Variables	Transformations	Source
WNV incidence	$\text{Log}_{10}(\text{WNV incidence} + 0.1)$	CDC cases by county 2004–2015
Irrigated (not-rice)	$\text{Log}_{10}(\text{irrigated} + 0.1)$	USGS MODIS: 2012, 250 m resolution (minus rice areas)
Developed	$\text{Log}_{10}(\text{developed})$	Cropland: NASS: 2008–2014, 30 m resolution
Open water	$\text{Log}_{10}(\text{open water} + 0.05)$	Cropland: NASS: 2008–2014, 30 m resolution
Wetland	$\text{Log}_{10}(\text{wetland} + 0.05)$	Cropland: NASS: 2008–2014, 30 m resolution
Forest	None	Cropland: NASS: 2008–2014, 30 m resolution
Rice	$\text{Log}_{10}(\text{rice})$	Cropland: NASS: 2008–2014, 30 m resolution
County area	Area, used to normalize	US Census Bureau: 2010
Mean rainfall	$\text{Log}_{10}(\text{rain})$	CDC Wonder NLDAS mean 2003–2011
Mean temperature	None	CDC Wonder NLDAS mean 2003–2011: 2 m above ground
Human population	Used to calculate WNV	US Census Bureau: 2010
Mean <i>Culex tarsalis</i>	$\text{Log}_{10}(\text{C. tarsalis mean} + 1)$	NJLT data 2000–2015, Calsurv vector control data

CDC = Centers for Disease Control and Prevention; NASS = National Agricultural Statistics Service; NJLT = New Jersey light trap; NLDAS = North America Land Data Assimilation System; MODIS = moderate resolution imaging spectroradiometer; US = United States; WNV = West Nile virus.

SUPPLEMENTAL TABLE 2

Output from generalized least squares model predicting human West Nile virus incidence on a county scale using land cover and climate predictors across California

Predictors	Coefficient/intercept	SE	P value
Irrigation (non-rice)	0.236	0.137	0.0943
Developed land	0.255	0.214	0.2419
Wetland	-0.304	0.150	0.0494
Open water	0.089	0.146	0.5458
Forest	0.001	0.006	0.9128
Rice fields	0.132	0.046	0.0072
Mean temperature	0.023	0.031	0.478
Mean rainfall	-0.403	0.649	0.5383
Intercept	-0.762	0.731	0.304

Model includes exponential spatial autocorrelation,  $N = 46$ .

SUPPLEMENTAL TABLE 3

Output from generalized least squares model predicting human West Nile virus incidence on a county scale using land cover and climate predictors across rice-growing areas in the rest of the US (excluding California)

Predictors	Coefficient/intercept	SE	P value
Irrigation (non-rice)	-0.01116	0.05282	0.8328
Developed land	0.534014	0.116767	< 0.0001
Wetland	0.035156	0.072197	0.6266
Open water	-0.12248	0.062228	0.0497
Forest	-0.0026	0.002292	0.2575
Rice fields	0.029085	0.025097	0.2472
Mean temperature	0.009563	0.025579	0.7087
Mean rainfall	0.812468	0.775813	0.2956
Intercept	-1.223	0.882	0.1664

US = United States. Model includes exponential spatial autocorrelation,  $N = 413$ .