

Supporting information: bioclimatic suitability of flying foxes habitat and Hendra virus spillover

Bioclimatic variables used for each species

Table 1: Variables selected for each species as described in methods.

Variable	Meaning	<i>P. alecto</i>	<i>P. conspicillatus</i>	<i>P. poliocephalus</i>	<i>P. scapulatus</i>	HeV
<i>bio1</i>	Annual Mean Temperature	✓		✓		
<i>bio2</i>	Mean Diurnal Temperature Range	✓	✓	✓	✓	✓
<i>bio3</i>	Isothermality (BIO2/BIO7) (* 100)			✓		
<i>bio4</i>	Temperature Seasonality (standard deviation *100)		✓			
<i>bio5</i>	Max Temperature of Warmest Month			✓	✓	✓
<i>bio6</i>	Min Temperature of Coldest Month			✓		
<i>bio7</i>	Temperature Annual Range (BIO5-BIO6)	✓	✓			
<i>bio8</i>	Mean Temperature of Wettest Quarter			✓	✓	
<i>bio9</i>	Mean Temperature of Driest Quarter				✓	✓
<i>bio10</i>	Mean Temperature of Warmest Quarter					
<i>bio11</i>	Mean Temperature of Coldest Quarter					
<i>bio12</i>	Annual Precipitation	✓			✓	
<i>bio13</i>	Precipitation of Wettest Month		✓			
<i>bio14</i>	Precipitation of Driest Month	✓				
<i>bio15</i>	Precipitation Seasonality (Coefficient of Variation)				✓	✓
<i>bio16</i>	Precipitation of Wettest Quarter		✓			
<i>bio17</i>	Precipitation of Driest Quarter					
<i>bio18</i>	Precipitation of Warmest Quarter	✓			✓	✓
<i>bio19</i>	Precipitation of Coldest Quarter		✓	✓		

Spatial patterns used for model training and testing

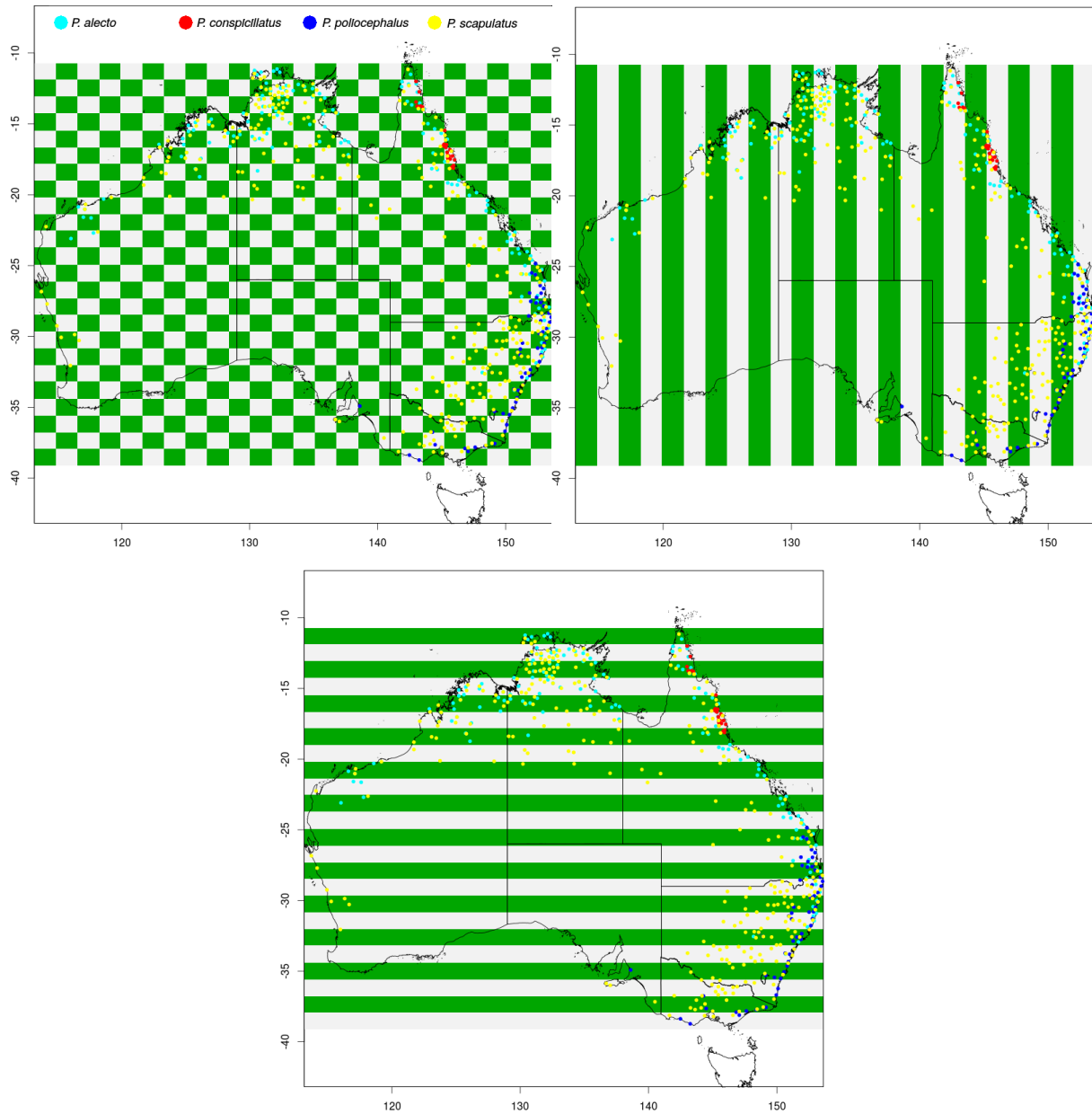


Figure 1. Spatial patterns used to select training and testing data. Colour points represent the four FF species presence points used to train models after filtering to reduce spatial autocorrelation.

Performance of best models

Table 2: Performance of models selected. *P* values indicate the probability that the measured AUC ratio is less than 1 (the random prediction threshold) out of a maximum possible value of 2. In 1000 bootstraps the proportion of models with an AUC ratio < 1 is another measure of statistical

significance of the test. *Pteropus conspicillatus* was tested with a jackknife procedure.

Species	AUC ratio	S.D.	P	Proportion iterations < 1
<i>P. alecto</i>	1.45	0.08	0	0
<i>P. scapulatus</i>	1.35	0.05	0	0
<i>P. poliocephalus</i>	1.58	0.11	0	0

Table 3. Jackknife data used to validate *P. conspicillatus* model. Prediction rate of 0.92 (average omission rate of 0.8), $P = 0$.

Test point	Proportion area predicted	Test point	Proportion area predicted
1	0.2352693898	1	0.235899951
1	0.2379317593	1	0.2527149163
1	0.2211167939	1	0.2810201079
1	0.2246899741	0	0.2495621103
1	0.2614026484	1	0.2459188678
1	0.2374413228	1	0.2220276046
1	0.2179639879	1	0.2737336229
1	0.2445176207	1	0.2303650249
1	0.2773068031	1	0.2525747916
1	0.3039304981	1	0.2292440272
1	0.2951026414	1	0.2520843551
1	0.2272822812	1	0.245568556
0	0.2024802074	1	0.2251103482
1	0.2341483921		

Table 4. Distances to each species' centroids at the location of spillover events. The Kruskal wallis test intended to show that there are significant differences between species' DNC as evidence of greater association with HeV.

Spillover event	<i>P. alecto</i>	<i>P. conspicillatus</i>	<i>P. poliocephalus</i>	<i>P. scapulatus</i>	Minimum distance
1	5.3378609373	2.0608370502	11.7284151214	6.3683779325	<i>P. conspicillatus</i>
2	1.7242371724	16.7547937523	3.0736370577	2.1999593564	<i>P. alecto</i>
3	1.9786841497	4.6784806044	12.4348779627	2.4110835646	<i>P. alecto</i>
4	1.862397829	9.5371496092	17.34425031	3.2799188377	<i>P. alecto</i>
5	3.5268589296	22.590081733	4.0645363201	2.4194593175	<i>P. scapulatus</i>
6	2.3612793677	23.5458505055	2.4577651498	1.0724874264	<i>P. scapulatus</i>
7	2.7019279402	28.7587918178	5.6553650656	3.4192612445	<i>P. alecto</i>
8	1.3628660926	24.9629570367	2.6513789046	1.967012115	<i>P. alecto</i>
9	4.6406867346	32.0148873395	5.7301276137	1.649617618	<i>P. scapulatus</i>

10	1.9963440475	23.0686633191	3.0661586038	2.4810369866	<i>P. alecto</i>
11	2.3358903246	29.6367344474	3.8693518006	3.1539513424	<i>P. alecto</i>
12	1.5150527128	25.0224868495	2.6600498686	2.1504162905	<i>P. alecto</i>
13	1.978225318	4.9354574887	19.1765322354	3.2916636042	<i>P. alecto</i>
14	3.1305652337	3.413093958	11.1965212264	3.656908625	<i>P. alecto</i>
15	2.8799202334	3.3244337457	12.9351282905	2.2982371657	<i>P. scapulatus</i>
16	1.6425273756	21.0182273399	7.8396541016	2.0265268391	<i>P. alecto</i>
17	3.2282839327	1.9868616657	12.3936342845	3.807534739	<i>P. conspicillatus</i>
18	3.4908804042	2.4810350429	11.0169336043	3.9579914047	<i>P. conspicillatus</i>
19	1.399550698	9.8364951405	11.4480224992	1.8665053486	<i>P. alecto</i>
20	3.550425979	1.5409291413	9.3790484644	3.4596168151	<i>P. conspicillatus</i>
21	1.3308690772	20.6190381131	1.5666768181	1.4110347145	<i>P. alecto</i>
22	2.7334669983	26.8232258622	2.6322680235	0.6215221819	<i>P. scapulatus</i>
23	1.1891054827	22.3968525276	2.1087483904	1.7058767457	<i>P. alecto</i>
24	1.6041437369	20.7127499489	1.2055787599	1.0276671388	<i>P. scapulatus</i>
25	1.8689899487	25.0144936757	1.6563401201	1.6425312935	<i>P. scapulatus</i>
26	1.4124156699	24.1628136	4.8941808435	2.0007800599	<i>P. alecto</i>
27	1.208672631	26.3904097129	1.428703113	1.3808124008	<i>P. alecto</i>