**Electronic Supplementary Material**

for

**Blood-seeking female horseflies prefer vessel-imitating temperature gradients on host-mimicking black targets: experimental corroboration of a new explanation of the visual unattractiveness of zebras to tabanids**

Dénes Száz, Péter Takács, Ádám Egri, Gábor Horváth\*

\*Corresponding author: Department of Biological Physics, ELTE Eötvös Loránd University,

H-1117 Budapest, Pázmány sétány 1, Hungary, gharago.elte.hu (orcid: 0000-0002-9008-2411)

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This file contains the following: Supplementary Tables S1, S2, S3, S4, S5, S6

**Supplementary Table S1:** Times *t* (second) spent by tabanids walking on the wireless (*t*wireless) and wired (*t*wired) areas of the horizontal plane test surface in field experiment 1 when the underlying wire was heated or unheated on each experimental day. Relative times: τwireless = *t*wireless/(*t*wireless+*t*wired), τwired = *t*wired/(*t*wireless+*t*wired). Relative-area-normalized relative times: *Q*wireless = τwireless/*A*wireless, *Q*wired = τwired/*A*wired, where *A*wireless = 94 % is the relative area of the test surface without underlying wire, and *A*wired = 6 % is the relative area of the surface with underlying wire. s.d.: standard deviation.

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| **Experiment 1****Horizontal plane test surface (*A*wireless = 94 %, *A*wired = 6 %)** |
|  | **Heated wire** | **Unheated wire** |
| **Experimental****day (2022)** | **Wireless****area** | **Wired****area** | **Wireless****area** | **Wired****area** |
| **3 July** | *t*wireless = 2321 sτwireless = 92.99 %*Q*wireless = 0.989 | *t*wired = 175 sτwired = 7.01 %*Q*wired = 1.169 | *t*wireless = 2911 sτwireless = 93.69 % *Q*wireless = 0.997 | *t*wired = 196 sτwired = 6.31 %*Q*wired = 1.051 |
| **8 July** | *t*wireless = 2116 sτwireless = 94.80 % *Q*wireless = 1.009 | *t*wired = 116 sτwired = 5.20 % *Q*wired = 0.866 | *t*wireless = 2791 sτwireless = 96.21 % *Q*wireless = 1.023 | *t*wired = 110 sτwired = 3.79 % *Q*wired = 0.632 |
| **14 July** | *t*wireless = 1996 sτwireless = 94.73 % *Q*wireless = 1.008 | *t*wired = 111 sτwired = 5.27 % *Q*wired = 0.878 | *t*wireless = 2301 sτwireless = 94.46 % *Q*wireless = 1.005 | *t*wired = 135 sτwired = 5.54 % *Q*wired = 0.924 |
| **21 July** | *t*wireless = 1615 sτwireless = 93.73 % *Q*wireless = 0.997 | *t*wired = 108 sτwired = 6.27 % *Q*wired = 1.045 | *t*wireless = 2815 sτwireless = 95.07 % *Q*wireless = 1.011 | *t*wired = 146 sτwired = 4.93 % *Q*wired = 0.822 |
| **28 July** | *t*wireless = 1302 sτwireless = 92.87 % *Q*wireless = 0.988 | *t*wired = 100 sτwired = 7.13 % *Q*wired = 1.189 | *t*wireless = 1538 sτwireless = 93.33 % *Q*wireless = 0.993 | *t*wired = 110 sτwired = 6.67 % *Q*wired = 1.112 |
| **2 August** | *t*wireless = 1240 sτwireless = 92.33 % *Q*wireless = 0.982 | *t*wired = 103 sτwired = 7.67 % *Q*wired = 1.278 | *t*wireless = 1519 sτwireless = 93.59 % *Q*wireless = 0.996 | *t*wired = 104 sτwired = 6.41 % *Q*wired = 1.068 |
| **8 August** | *t*wireless = 755 sτwireless = 90.64 % *Q*wireless = 0.964 | *t*wired = 78 sτwired = 9.36 % *Q*wired = 1.561 | *t*wireless = 1410 sτwireless = 94.44 % *Q*wireless = 1.005 | *t*wired = 83 sτwired = 5.56 % *Q*wired = 0.927 |
| **Total** | *t*wireless = 11345 sτwireless = 93.48 % | *t*wired = 791 sτwired = 6.52 % | *t*wireless = 15285 sτwireless = 94.53 % | *t*wired = 884 sτwired = 5.47 % |
| **Mean****± s. d.** | **τwireless = 93.16** **± 1.45 %*****Q*wireless = 0.991** **± 0.015** | **τwired = 6.84** **± 1.45 %*****Q*wired = 1.141** **± 0.242** | **τwireless = 94.40** **± 1.00 %*****Q*wireless = 1.004** **± 0.011** | **τwired = 5.60** **± 1.00 %*****Q*wired = 0.934** **± 0.167** |

**Supplementary Table S2:** Times *t* (second) spent by tabanids walking on the wireless (*t*wireless) and wired (*t*wired) areas of the 60o-tilted plane test surface in field experiment 2 when the underlying wire was heated or unheated on each experimental day. Relative times: τwireless = *t*wireless/(*t*wireless+*t*wired), τwired = *t*wired/(*t*wireless+*t*wired). Relative-area-normalized relative times: *Q*wireless = τwireless/*A*wireless, *Q*wired = τwired/*A*wired, where *A*wireless = 94 % is the relative area of the test surface without underlying wire, and *A*wired = 6 % is the relative area of the surface with underlying wire. s.d.: standard deviation.

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| **Experiment 2****60o-tilted plane test surface (*A*wireless = 94 %, *A*wired = 6 %)** |
|  | **Heated wire** | **Unheated wire** |
| **Experimental****day (2022)** | **Wireless****area** | **Wired****area** | **Wireless****area** | **Wired****area** |
| **4 July** | *t*wireless = 1628 sτwireless = 82.31 % *Q*wireless = 0.876 | *t*wired = 350 sτwired = 17.69 % *Q*wired = 2.949 | *t*wireless = 2823 sτwireless = 92.89 % *Q*wireless = 0.988 | *t*wired = 216 sτwired = 7.11 % *Q*wired = 1.185 |
| **10 July** | *t*wireless = 1410 sτwireless = 84.23 % *Q*wireless = 0.896 | *t*wired = 264 sτwired = 15.77 % *Q*wired = 2.628 | *t*wireless = 2907 sτwireless = 95.69 % *Q*wireless = 1.018 | *t*wired = 131 sτwired = 4.31 % *Q*wired = 0.719 |
| **17 July** | *t*wireless = 1372 sτwireless = 81.96 % *Q*wireless = 0.872 | *t*wired = 302 sτwired = 18.04 % *Q*wired = 3.007 | *t*wireless = 2131 sτwireless = 93.38 % *Q*wireless = 0.993 | *t*wired = 151 sτwired = 6.62 % *Q*wired = 1.103 |
| **23 July** | *t*wireless = 851 sτwireless = 77.93 % *Q*wireless = 0.829 | *t*wired = 241 sτwired = 22.07 % *Q*wired = 3.678 | *t*wireless = 2581 sτwireless = 94.06 % *Q*wireless = 1.000 | *t*wired = 163 sτwired = 5.94 % *Q*wired = 0.990 |
| **30 July** | *t*wireless = 787 sτwireless = 78.94 % *Q*wireless = 0.840 | *t*wired = 210 sτwired = 21.06 % *Q*wired = 3.511 | *t*wireless = 1714 sτwireless = 93.00 % *Q*wireless = 0.989 | *t*wired = 129 sτwired = 7.00 % *Q*wired = 1.167 |
| **3 August** | *t*wireless = 618 sτwireless = 74.91 % *Q*wireless = 0.797 | *t*wired = 207 sτwired = 25.09 % *Q*wired = 4.182 | *t*wireless = 1290 sτwireless = 92.08 % *Q*wireless = 0.980 | *t*wired = 111 sτwired = 7.92 % *Q*wired = 1.320 |
| **9 August** | *t*wireless = 561 sτwireless = 75.20 % *Q*wireless = 0.800 | *t*wired = 185 sτwired = 24.80 % *Q*wired = 4.133 | *t*wireless = 1102 sτwireless = 91.38 % *Q*wireless = 0.972 | *t*wired = 104 sτwired = 8.62 % *Q*wired = 1.437 |
| **Total** | *t*wireless = 7227 sτwireless = 80.43 % | *t*wired = 1759 sτwired = 19.57 % | *t*wireless = 14548 sτwireless = 93.54 % | *t*wired = 1005 sτwired = 6.46 % |
| **Mean****± s. d.** | **τwireless = 79.35** **± 3.62 %*****Q*wireless = 0.844** **± 0.038** | **τwired = 20.65** **± 3.62 %*****Q*wired = 3.4412** **± 0.603** | **τwireless = 93.21** **± 1.40 %*****Q*wireless = 0.992** **± 0.015** | **τwired = 6.79** **± 1.40 %*****Q*wired = 1.131** **± 0.233** |

**Supplementary Table S3:** Times *t* (second) spent by tabanids walking on the wireless (*t*wireless) and wired (*t*wired) areas of the vertical cylindrical test surface in field experiment 3 when the underlying wire was heated or unheated on each experimental day. Relative times: τwireless = *t*wireless/(*t*wireless+*t*wired), τwired = *t*wired/(*t*wireless+*t*wired). Relative-area-normalized relative times: *Q*wireless = τwireless/*A*wireless, *Q*wired = τwired/*A*wired, where *A*wireless = 96 % is the relative area of the test surface without underlying wire, and *A*wired = 4 % is the relative area of the surface with underlying wire. s.d.: standard deviation.

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| **Experiment 3****Vertical cylindrical test surface (*A*wireless = 96 %, *A*wired = 4 %)** |
|  | **Heated wire** | **Unheated wire** |
| **Experimental****day (2022)** | **Wireless****area** | **Wired****area** | **Wireless****area** | **Wired****area** |
| **6 July** | *t*wireless = 1512 sτwireless = 81.51 % *Q*wireless = 0.849 | *t*wired = 343 sτwired = 18.49 % *Q*wired = 4.623 | *t*wireless = 3399 sτwireless = 94.79 % *Q*wireless = 0.987 | *t*wired = 187 sτwired = 5.21 % *Q*wired = 1.304 |
| **11 July** | *t*wireless = 1320 sτwireless = 84.56 % *Q*wireless = 0.881 | *t*wired = 241 sτwired = 15.44 % *Q*wired = 3.860 | *t*wireless = 3223 sτwireless = 95.69 % *Q*wireless = 0.997 | *t*wired = 145 sτwired = 4.31 % *Q*wired = 1.076 |
| **18 July** | *t*wireless = 1267 sτwireless = 86.25 % *Q*wireless = 0.898 | *t*wired = 202 sτwired = 13.75 % *Q*wired = 3.438 | *t*wireless = 2811 sτwireless = 95.51 % *Q*wireless = 0.995 | *t*wired = 132 sτwired = 4.49 % *Q*wired = 1.121 |
| **26 July** | *t*wireless = 941 sτwireless = 84.93 % *Q*wireless = 0.885 | *t*wired = 167 sτwired = 15.07 % *Q*wired = 3.768 | *t*wireless = 2919 sτwireless = 95.77 % *Q*wireless = 0.998 | *t*wired = 129 sτwired = 4.23 % *Q*wired = 1.058 |
| **31 July** | *t*wireless = 810 sτwireless = 83.85 % *Q*wireless = 0.873 | *t*wired = 156 sτwired = 16.15 % *Q*wired = 4.037 | *t*wireless = 2871 sτwireless = 96.18 % *Q*wireless = 1.002 | *t*wired = 114 sτwired = 3.82 % *Q*wired = 0.955 |
| **5 August** | *t*wireless = 583 sτwireless = 82.58 % *Q*wireless = 0.860 | *t*wired = 123 sτwired = 17.42 % *Q*wired = 4.356 | *t*wireless = 1920 sτwireless = 95.00 % *Q*wireless = 0.990 | *t*wired = 101 sτwired = 5.00 % *Q*wired = 1.249 |
| **10 August** | *t*wireless = 412 sτwireless = 78.93 % *Q*wireless = 0.822 | *t*wired = 110 sτwired = 21.07 % *Q*wired = 5.268 | *t*wireless = 1829 sτwireless = 95.16 % *Q*wireless = 0.991 | *t*wired = 93 sτwired = 4.84 % *Q*wired = 1.210 |
| **Total** | *t*wireless = 6845 sτwireless = 83.61 % | *t*wired = 1342 sτwired = 16.39 % | *t*wireless = 18972 sτwireless = 95.47 % | *t*wired = 901 sτwired = 4.53 % |
| **Mean****± s. d.** | **τwireless = 83.23** **± 2.45 %*****Q*wireless = 0.867** **± 0.026** | **τwired = 16.77** **± 2.45 %*****Q*wired = 4.193** **± 0.613** | **τwireless = 95.44** **± 0.49 %*****Q*wireless = 0.994** **± 0.005** | **τwired = 4.56** **± 0.49 %*****Q*wired = 1.139** **± 0.122** |

**Supplementary Table S4:** Single-factor ANOVA test for experiment 1.

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| **SUMMARY** |  |  |  |  |  |  |
| **Groups** | **Count** | **Sum** | **Average** | **Variance** |  |  |
| Qwireless with heated wire | 7 | 6.9371 | 0.9910 | 0.0002 |  |  |
| Qwire with heated wire | 7 | 7.9851 | 1.1407 | 0.0587 |  |  |
| Qwireless with unheated wire | 7 | 7.0296 | 1.0042 | 0.0001 |  |  |
| Qwire with unheated wire | 7 | 6.5358 | 0.9337 | 0.0279 |  |  |
|  |  |  |  |  |  |  |
| **ANOVA** |  |  |  |  |  |  |
| **Source of variation** | **SS** | **df** | **MS** | **F** | **P-value** | **F crit** |
| Between groups | 0.1616 | 3 | 0.0539 | 2.4787 | 0.0855 | 3.0088 |
| Within groups | 0.5216 | 24 | 0.0217 |  |  |  |
|  |  |  |  |  |  |  |
| Total | 0.6832 | 27 |  |  |  |  |

**Supplementary Table S5:** Single-factor ANOVA test for experiment 2.

|  |  |  |  |  |  |  |
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| **SUMMARY** |  |  |  |  |  |  |
| **Groups** | **Count** | **Sum** | **Average** | **Variance** |  |  |
| Qwireless with heated wire | 7 | 5.9093 | 0.8442 | 0.0015 |  |  |
| Qwire with heated wire | 7 | 24.0881 | 3.4412 | 0.3633 |  |  |
| Qwireless with unheated wire | 7 | 6.9412 | 0.9916 | 0.0002 |  |  |
| Qwire with unheated wire | 7 | 7.9205 | 1.1315 | 0.0541 |  |  |
|  |  |  |  |  |  |  |
| **ANOVA** |  |  |  |  |  |  |
| **Source of variation** | **SS** | **df** | **MS** | **F** | **P-value** | **F crit** |
| Between groups | 31.8551 | 3 | 10.6184 | 101.3482 | 0 | 3.0088 |
| Within groups | 2.5145 | 24 | 0.1048 |  |  |  |
|  |  |  |  |  |  |  |
| Total | 34.3696 | 27 |  |  |  |  |

**Supplementary Table S6:** Single-factor ANOVA test for experiment 3.

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| **SUMMARY** |  |  |  |  |  |  |
| **Groups** | **Count** | **Sum** | **Average** | **Variance** |  |  |
| Qwireless with heated wire | 7 | 6.0688 | 0.8670 | 0.0007 |  |  |
| Qwire with heated wire | 7 | 29.3491 | 4.1927 | 0.3756 |  |  |
| Qwireless with unheated wire | 7 | 6.9595 | 0.9942 | 0.00003 |  |  |
| Qwire with unheated wire | 7 | 7.9732 | 1.1390 | 0.0148 |  |  |
|  |  |  |  |  |  |  |
| **ANOVA** |  |  |  |  |  |  |
| **Source of variation** | **SS** | **df** | **MS** | **F** | **P-value** | **F crit** |
| Between groups | 53.7731 | 3 | 17.9244 | 183.3275 | 0 | 3.0088 |
| Within groups | 2.3465 | 24 | 0.0978 |  |  |  |
|  |  |  |  |  |  |  |
| Total | 56.1196 | 27 |  |  |  |  |