Electronic Supplementary Material

Comparisons between control groups (clear ink versus unmanipulated males)

In all analyses, males with clear ink on their wings and unmanipulated males were statistically indistinguishable. Except where stated, the statistical tests presented below compare clear and unmanipulated males in models with all treatments, including blackened males.

A. Survival analyses

i. All males, $n = 146$, $z = -0.15$, $p = 0.88$

ii. Males resighted for one or more days, $n = 111$, $z = -0.45$, $p = 0.67$

iii. Males resighted for one or more days that were ever within 4 m of a *H. titia* territory holder, $n = 62$, $z = -1.31$, $p = 0.19$

B. Female mate recognition analyses

i. Proportion of attempted tandems that resulted in a successful mating (mixed effect binomial model of tandems [success = 1, failure = 0] with a random intercept for male IDs), overall, $n = 444$, $z = -0.12$, $p = 0.9$; non-territory holders, $n = 91$, $z = -0.07$, $p = 0.941$; territory holders, $n = 353$, $z = 0.24$, $p = 0.81$

ii. Mating rates (negative binomial model of the count of matings with an offset term [see main text]), overall, treatment *d.f.* = 110, $z = 0.49$, $p = 0.62$; non-territory holders, *d.f.* = 107, $z = 1.297$, $p = 0.19$; territory holders, *d.f.* = 71, $z = 0.90$, $p = 0.369$

iii. Copulatory wheel duration (mixed effect model of the logarithm of the duration of copulatory wheels with a random intercept for male IDs), $n = 119$, $z = -0.26$, $p = 0.79$

iv. Remating probability (binomial mixed-effect model of remating with a random intercept for female ID), within one day, $n = 255$, $z = -0.37$, $p = 0.71316$; within three days, $n = 255$, $z = -1.12$, $p = 0.26$

v. Subsequent mates' treatments (binomial lag model with a lag variable for the subsequent mate treatment used as a predictor with a random intercept for female), within one day, $n = 76$, $z = -0.369$, $p = 0.712$; within three days, $n = 141$, $z = -0.47$, $p = 0.64$

C. *H. titia* nearest territory holder analyses

i. Distance to nearest *H. titia* territory holder (mixed-effect model of the logarithm of the distance to the nearest *H. titia* territory holder with a random intercept for male ID), territory holders, $n = 673$, $z = 0.08$, $p = 0.93$; all males, $n = 1045$, $z = 0.42$, $p = 0.68$

ii. Probability of being within a 4 m radius of a territorial *H. titia* male (binomial mixed-effect model with a random intercept for male ID), territory holders, $n = 674$, $z = 0.08$, $p = 0.93$; all males, $n = 673$, $z = -0.24$, $p = 0.81$

iii. Territory tenure*ever within 4m of *H. titia* territory holder interaction: For this analysis, dataset was restricted to control males (i.e., test for interaction without experimentally blackened males), interaction *d.f.* = 60, $z = 1.19$, $p = 0.24$; main effects: ever within 4m estimate = 0.35 $z = 1.59$, $p = 0.11$; treatment estimate = -0.56, $z = -1.54$, $p = 0.12$

D. Fighting rates analyses (see Supplementary Table 1)

Chi-squared goodness of fit tests: Expected proportion of males of each treatment on the transects

To calculate the expected proportion of males belonging to each treatment, we obtained the number of days each male was resighted and summed this number for all males of each treatment to calculate the total count of male-days for each treatment, which yielded an expected proportion of 0.389 for blackened males and 0.611 for control males. This approach accounts for the expected reduction in survival for blackened males that interacted with heterospecific males (see main text). Resulting values for the expected and observed numbers of fights are presented in Supplementary Fig. 1.

Analyses of nearest H. titia territory holders

Blackened males were just as likely as control males to be near *H. titia* males: neither the minimum distance to the nearest territorial *H. titia* male (mixed-effect models of the logarithm of the distance to the nearest *H. titia* territory holder on each day and a random intercept for male ID, all male-days: n = 1045, z = 0.88, p = 0.38; territorial males: n = 673, z = 0.3, p = 0.76) nor the probability of being within a 4 m radius of a territorial *H. titia* male (binomial mixed-effect regression with a random intercept for male ID, all male-days: n = 1045**,** z = 0.04, p = 0.97; males on territorial days: n = 673, z = -0.01, p = 0.99) depended on *H. americana* male treatment.

Statistical approach for testing for a female mating bias of first or last mates

To determine if females bias either their first or last matings toward control males, we first estimated the proportion of each treatment we would expect if females were mating randomly with respect to treatment. Given that females sometimes mated with unmarked, unmanipulated males that had yet to enter the experiment, we calculated an expected proportion of these males from the recorded fights (4.78%) and used this to adjust the null expectations for the proportion of non-experimentally blackened mates (expected proportion of blackened mates = 0.37, control and unmarked mates = 0.63).

To calculate the actual proportion of males of each treatment with which females mated, we fit binomial mixed effect models of the mate's treatment (experimental vs. control/unmarked) with random intercepts for female IDs to estimate the proportion of mates ± standard error. For a model built with the treatment of the first male a female mated with each day, the mean proportion of control/unmarked mates was 0.6424 (95% CI: 0.5696-0.7093), and for a model built with the treatment of females' last mates, the mean proportion of control/unmarked mates was 0.6664 (95% CI: 0.5820902-0.7413). In both cases, the confidence interval contains the expected proportion (0.63), so there is no evidence for discrimination among treatments for either first or last mates.

Table S1. Summary of fighting rate analyses (*H. americana* males) comparing unmanipulated and control treatments. Analyses presented in italics restrict males in analyses to those who ever remained within 4 m of a territorial *H. titia* male (see main text and Table 1 for further details).

data set	**Intraspecific fights (*H. americana* v. *H. americana*)**		**Interspecific fights (*H. americana* v. *H. titia*)**	
	all fight types	**only escalated fights**	**all fight types**	**only escalated fights**
one fight per dyad per day	d.f. = 81, *z* = 1.46 , *p* = 0.14	d.f. = 81, *z* = 1.02, *p* = 0.31	d.f. = 81, *z* = 0.11 , *p* = 0.91 *d.f. = 55,* z = *-0.061,* p = *0.95*	d.f. = 81, *z* = 0.29, *p* = 0.77 *d.f. = 55,* z = *0.090,* p = *0.93*
all fight observations	d.f.= 81, *z* = 1.17, *p* = 0.24	d.f. = 81, *z*= 0.44, *p* = 0.66	d.f. = 81, *z* = -0.33 , *p* = 0.74 *d.f. = 55,* z = *-0.53 ,* p = *0.60*	d.f. = 81, *z* = -0.14 , *p* = 0.89 *d.f.=55,* z = *-0.37 ,* p = *0.71*

Figure S1. Representative photographs of females and additional *H. titia* males. Panel (a) shows a female *H. americana*, panels (b) & (c) show variation in female *H. titia*, and panels (d)-(f) show variation in wing pigmentation in *H. titia*. All individuals shown here were photographed during the experiment.

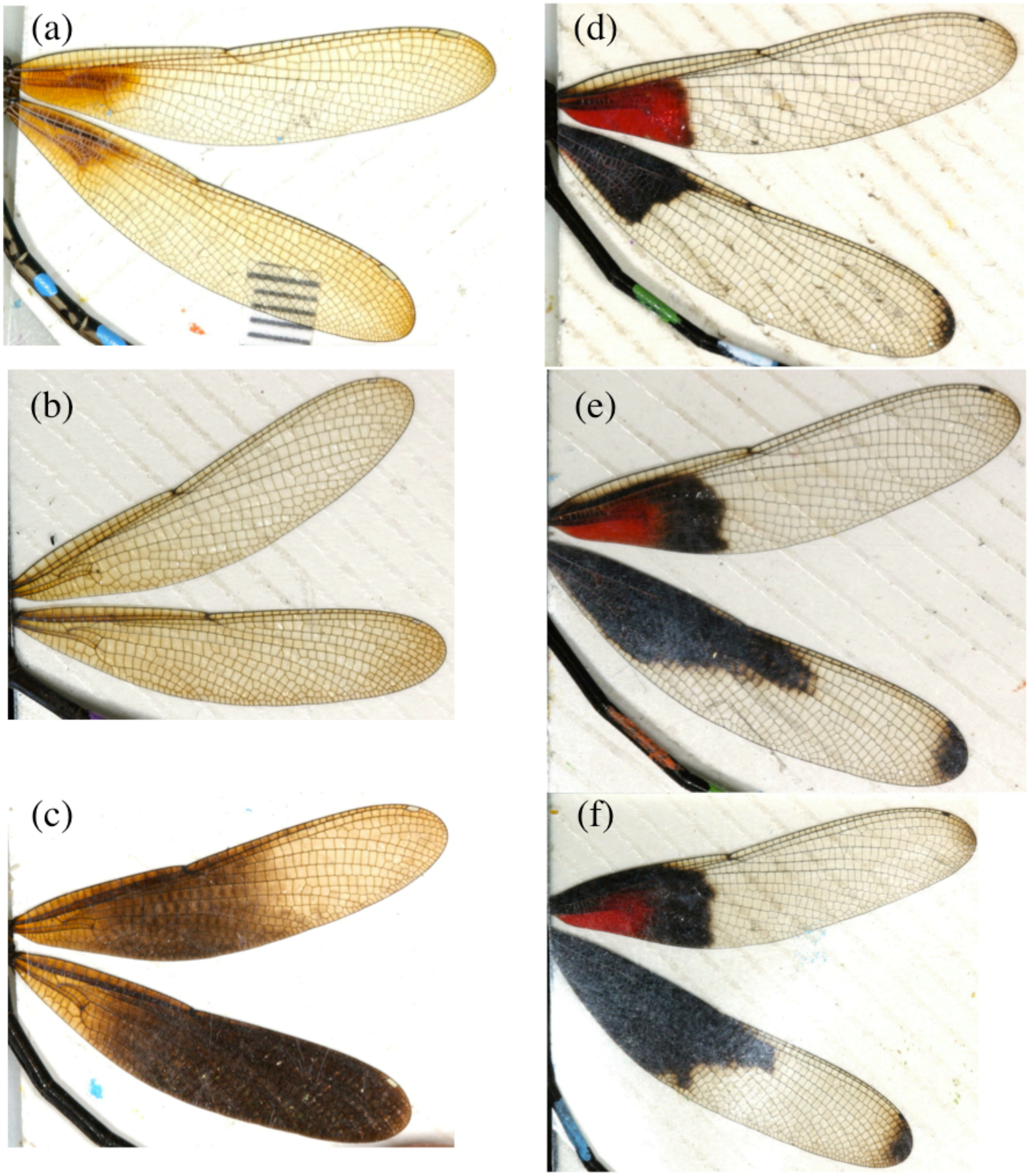

Figure S2. Expected and observed values of fights (reduced to one fight per dyad). See Table 1 in the main text for statistical analyses. Panels (a) & (b) present data for intraspecific fights, and panels (c) & (d) present data for interspecific fights. (b) & (d) show only escalated fights). $*p < 0.05$, $*** \ p < 0.001$