

S1. Operational definitions for mating events and behaviours recorded in mating trials.

		Definition
Events		
	coupling	Event/position in which males limbs are clasped on the dorsal surface of the female (regardless of orientation).
	attempt	Event during which males move from coupling position to either side of the female (with the head of the male oriented towards the head of the female)
	copulation	Occurs following a successful attempt; where the male intromittent organ is inserted into female genital opening.
Behaviours		
Male	stridulation	Rapid dorso-ventral movements resulting in vibrational/audible signal. In cases where multiple bouts occurred in rapid series, behaviours were counted as separate observations when separated by at least 1s.
	antennation	Anterio-ventral extension of the antennae over the female while the male is dorsally mounted on the female thorax.
	forelimb ‘tapping’	Rapid alternating (left and right) contact between male forelimbs and the dorsal surface of the female thorax. In cases where multiple bouts occurred in rapid series, behaviours were counted as separate observations when separated by at least 1s.
	rear leg ‘rubbing’	Rapid ‘rubbing’ contact between male rear legs and the female abdomen or connexiva(e). In cases where multiple bouts occurred in rapid series, behaviours were counted as separate observations when separated by at least 1s.
Female	stridulation	Rapid dorso-ventral movements resulting in vibrational/audible signal. In cases where multiple bouts occurred in rapid series, behaviours were counted as separate observations when separated by at least 1s.
	shaking	Side-to-side motion of females in response to male coupling or copulation attempts.

S2. Measuring color pattern traits from digital photographs

Because coloration in *P. americana* is somewhat complex and color patches are not easily defined with morphological landmarks, total area provided an objective measure. Dorsal photographs were obtained by placing an individual bug in a plastic Petri dish stuffed with a cut out layer of compressible foam to restrain the bug during photography. A standard ruler and (Liquitex ® Acrylic) paint chips were permanently mounted on the transparent lid of the Petri dish, for scale and color reference. To obtain lateral photographs, a paper clip was fashioned into a clamp (using pieces of cardboard and compressible foam glued to the arms of the clip) to restrain the bug. Permanently mounted on the visible surface of the clamp was a standard ruler and paint chips for scale and color reference. Both sexes also express a patch of coloration on the latero-ventral surface of the abdomen (i.e. on the abdominal sternites and connexiva). Unlike the thorax, the abdomen is soft and became noticeably compressed by the restraining device during photography. This made it difficult to get a precise measure of color pattern area of this patch and, therefore, this was not included in the analyses. Digital photographs were taken using a Nikon CoolPix 995 under standardized illumination (Leica fibre optic light source). Images were later analyzed using Scion ® Image software (<http://www.scioncorp.com>) to measure area of dark coloration. The area of dark pigmentation (hereafter, simply referred to as *coloration*) was measured using the threshold function where ‘dark’ was defined as a pixel with a value of 200 (on a scale of 0 to 255), based on measurements from pilot studies demonstrating this method as a reliable measure of the total amount of visible coloration; within-sample repeatability > 0.90).

S3. Morphological and behavioural predictors of latency to the first mating attempt by male *Phymata americana* (Part 3, lab study). Multiple linear regression estimates (*b*) +/- standard error (SE) of the effects of morphology and behaviour of male-female pairs on attempt latency. *P*-values < 0.05 denoted by asterisks (n = 71). These results indicate that relatively high male courtship rates also attempted copulations sooner; this may reflect an effect of overall male ‘vigor’ on the outcome of mating events. We found no evidence of female morphological traits in determining male attempt latency, suggesting that males do not discriminate (when it comes to performing copulation attempts) among females based on the traits considered in this study.

variable	<i>b</i>	SE	t	<i>P</i> -value
male pronotum	0.139	0.198	0.703	0.485
male weight	-0.203	0.193	-1.052	0.297
male dorsal	-0.124	0.222	-0.557	0.580
male lateral	0.042	0.209	0.203	0.840
male antenna	0.197	0.157	1.254	0.215
male courtship	-0.356	0.115	-3.083	0.003*
female pronotum	0.014	0.162	0.088	0.930
female weight	-0.177	0.182	-0.974	0.334
female dorsal	0.118	0.182	0.651	0.518
male pronotum x female pronotum	0.202	0.176	1.146	0.257
full model $F_{10,60} = 1.575$, $p = 0.136$, $R^2 = 0.208$				