Supplementary Figures and Tables

The Influence of Host Plant Volatiles on the Attraction of Longhorn Beetles to Pheromones

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Supplementary Tables

Table S1. Total trap catches for the first experiment, testing pheromones with crude host material. Within a row, means with the same letter or no letter are not significantly different (Dunn's Test).

Species	Subfamily	Pher.	Pher. + conifer	Pher. + oak	Conifer material	Oak material	Blank control	Total inds. trapped	Treatment replicates	Kruskal-Wallis
Phymatodes obliquus	Cerambycinae	403a	162b	334ab	2c	3c	1c	905	78	$P < 0.001$
Phymatodes grandis	Cerambycinae	44a	13b	40a	0b	1b	0b	98	45	$P < 0.001$
Brothylus conspersus	Cerambycinae	7ab	4ab	9a	0b	3ab	0b	23	16	$P = 0.003$
Brothylus gemmulatus	Cerambycinae	9a	3ab	8a	0b	0b	0b	20	12	$P < 0.001$
Tetropium abietis	Spondylidinae	6ab	11a	3ab	0b	0b	0b	20	16	$P < 0.001$
Monochamus clamator	Lamiinae	2b	10a	13a	0b	2b	0b	27	21	$P < 0.001$
Tragosoma depsarium	Prioninae	8ab	18a	11a	1b	0b	0b	38	26	$P < 0.001$

Table S2. Volatiles identified from oak and conifer species that elicited responses from antennae of oak-infesting Cerambycinae species, in coupled gas chromatography-electroantennogram detection (GC-EAD) analyses.

	hexanal	hexanol	(*Z*)-3-hexenol	(*E*)-2-hexenol	α-pinene	(*E*)-2-hexenal	camphene	β-pinene	β-myrcene	3-carene	limonene	β-phellandrene	1,8-cineole	benzaldehyde	borneol	camphor	4-allylanisole	methyl salicylate	(*E*)-β-caryophyllene	unidentified
Brothylus conspersus ♀		x	x	x																1
Brothylus conspersus ♂		x	x	x	x			x	x				x					x		3
Haplidus testaceus ♀			x		x			x	x	x	x	x					x			16
Haplidus testaceus ♂																				
Molorchus eberneus ♂		x	x	x				x	x	x	x		x		x	x	x	x		1
Neoclytus modestus ♀	x	x	x	x	x	x	x	x	x	x	x	x	x				x	x		8
Neoclytus modestus ♂																				
Phymatodes grandis ♀																				
Phymatodes grandis ♂		x	x					x	x			x		x			x			1
Phymatodes infuscatus ♀		x	x	x	x								x	x			x	x		5
Phymatodes infuscatus ♂																				
Phymatodes obliquus ♀		x	x	x	x	x		x	x	x	x		x		x	x	x	x	x	1
Phymatodes obliquus ♂		x	x	x	x	x							x				x	x		

Table S3. Volatiles identified from oak and conifer species that elicited responses from antennae of conifer-infesting cerambycid species, in coupled gas chromatography-electroantennogram detection analyses.

		hexanal	hexanol	(*Z*)-3-hexenol	(*E*)-2-hexenol	α-pinene	(*E*)-2-hexenal	camphene	β-pinene	β-myrcene	3-carene	limonene	β-phellandrene	1,8-cineole	benzaldehyde	borneol	camphor	4-allylanisole	methyl salicylate	(*E*)-β-caryophyllene	unidentified active cmpds
Asemum caseyi	Spondylidinae		x	x	x	x	x		x	x	x	x			x		x	x	x	x	1
Asemum nitidum	Spondylidinae		x	x	x		x											x	x		
Asemum striatum	Spondylidinae										x	x					x	x	x		1
Callidium sp. ♀	Cerambycinae		x	x	x	x		x	x	x	x		x	x			x	x	x		1
Callidium sp. ♂	Cerambycinae		x	x	x	x		x	x	x	x		x		x		x		x		2
Monochamus clamator ♀	Lamiinae				x	x			x	x	x		x	x					x		1
Monochamus clamator ♂	Lamiinae																				
Ortholeptura valida	Lepturinae								x			x		x			x	x			1
Poliaenus oregonus ♀	Lamiinae																				
Poliaenus oregonus ♂	Lamiinae		x	x	x	x					x								x		1
Pseudostylopsis sp.	Lamiinae			x	x	x			x	x	x	x	x			x	x	x		x	17

Table S4. Total trap catches for the second experiment, testing pheromones with reconstructed host plant volatiles at three release rates (LR= low release rate, MR=medium release rate, HR=high release rate. Within a row, means with the same letter or no letter are not significantly different (Dunn's Test).

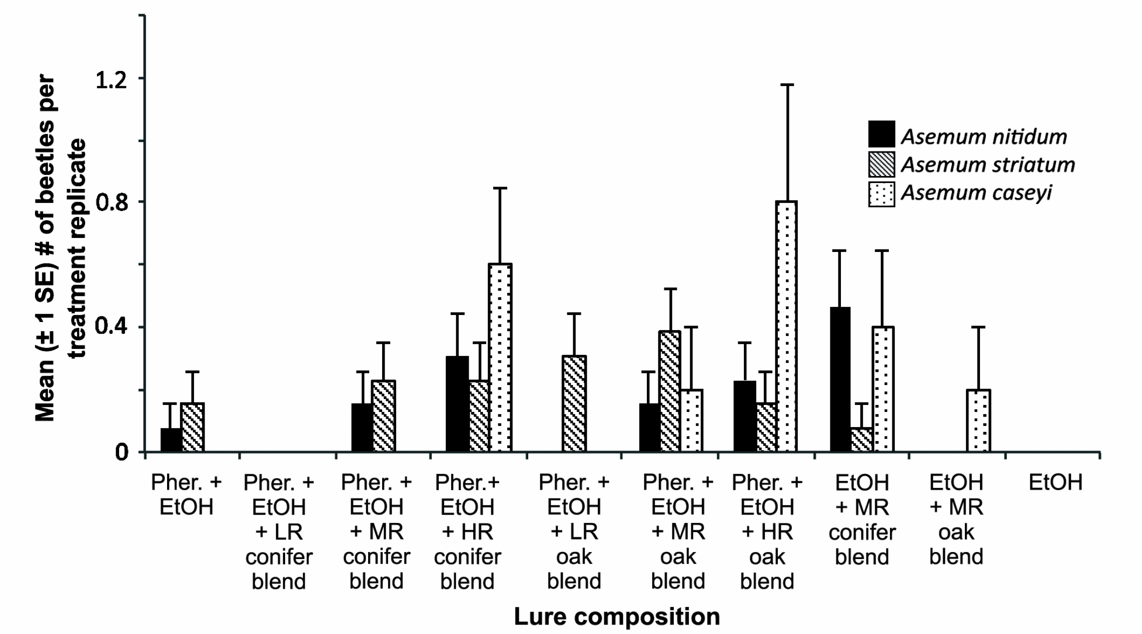
Experiment 2	Subfamily	Pher. + EtOH	Pher. + EtOH + LR conifer	Pher. + EtOH + MR conifer	Pher. + EtOH + HR conifer	Pher. + EtOH + LR oak	Pher. + EtOH + MR oak	Pher. + EtOH + HR oak	EtOH + MR conifer	EtOH + MR oak	EtOH	Total inds. trapped	Trt. reps	Kruskal-Wallis
Phymatodes obliquus	Cerambycinae	293a	217ab	99bc	27cd	202ab	37cd	8d	0d	6d	7d	896	67	$P < 0.001$
Phymatodes grandis	Cerambycinae	68a	47ab	32ab	17bc	35ab	22bc	18bc	1c	2c	1c	243	45	$P < 0.001$
Brothylus gemmulatus	Cerambycinae	90abc	78ab	42a	22abc	43abc	32abc	10abc	0c	4abc	1bc	322	19	$P < 0.001$
Neocyltus modestus	Cerambycinae	10a	0b	2b	0b	2b	0b	0b	0b	0b	6ab	20	17	$P < 0.001$
Neospondylis upiformis	Spondylidinae	0b	3b	7ab	35a	0b	5b	0b	1b	0b	0b	51	13	$P < 0.001$
Asemum nitidum	Spondylidinae	1	0	2	4	0	2	3	6	0	0	18	13	$P = 0.015$
Asemum striatum	Spondylidinae	2	0	3	3	4	5	2	1	0	0	20	13	$P = 0.059$
Asemum caseyi	Spondylidinae	0	0	0	3	0	1	4	2	1	0	11	5	$P = 0.043$
Xylotrechus albonotatus	Cerambycinae	1	1	1	5	0	0	0	0	0	2	10	7	$P = 0.024$
Monochamus clamator	Lamiinae	1b	1b	5b	10a	0b	0b	1b	0b	0b	0b	18	15	$P < 0.001$

Table S5. Total trap catches for the third experiment, testing pheromones with subsets of host plant volatiles. Italicized numbers were not included in the statistical analyses based on experimental objectives. Means with the same letter or no letter are not significantly different (Dunn's Test).

Experiment 3	Subfamily	Pher.	Pher. + EtOH	Pher. + HR α-pinene	Pher. + EtOH + HR α-pinene	Pher. + HR conifer	Pher. + EtOH + HR conifer	Total inds. trapped	Treatment replicates	Kruskal-Wallis
Phymatodes obliquus	Cerambycinae	147	143	*61*	*66*	*14*	*27*	458	45	$P = 0.39$
Phymatodes grandis	Cerambycinae	28b	67a	*19*	*55*	*10*	*29*	208	45	$P = 0.004$
Brothylus conspersus	Cerambycinae	1	2	*1*	*3*	*2*	*1*	10	8	$P = 0.54$
Brothylus gemmulatus	Cerambycinae	41	40	*14*	*66*	*6*	*17*	184	17	$P = 0.97$
Neospondylis upiformis	Spondylidinae	*0*	*0*	7b	4b	26ab	59a	96	11	$P = 0.001$
Asemum nitidum	Spondylidinae	*3*	*0*	75a	37ab	18b	9b	142	29	$P < 0.001$
Asemum striatum	Spondylidinae	*0*	*0*	14a	9ab	1b	1b	25	11	$P = 0.002$
Tetropium abietis	Spondylidinae	*6*	*0*	3	1	0	3	13	9	$P = 0.28$
Xylotrechus albonotatus	Cerambycinae	*0*	*3*	1	1	0	3	8	6	$P = 0.20$
Monochamus clamator	Lamiinae	*2*	*3*	3ab	2b	13a	11ab	34	21	$P = 0.010$

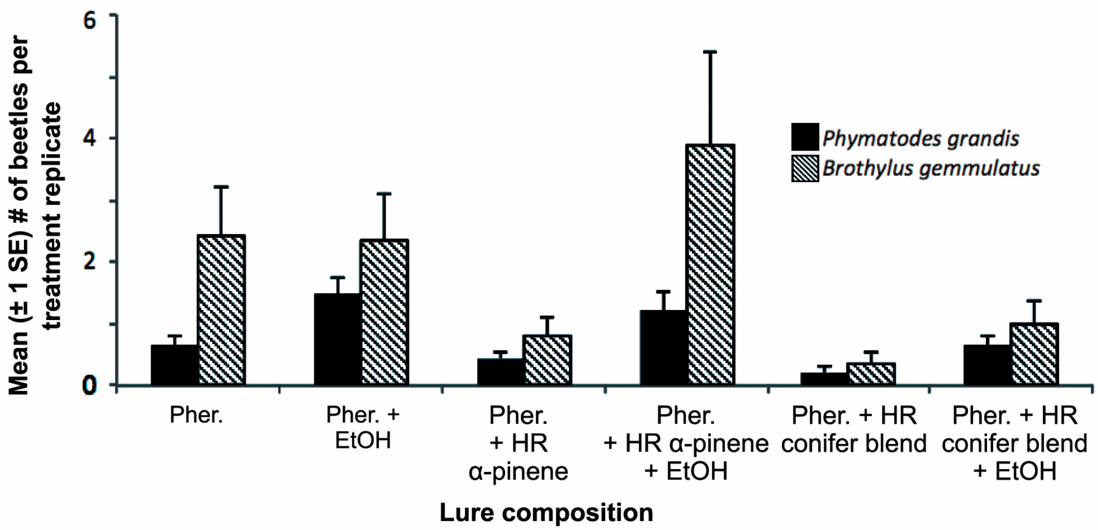
List of Supplementary Figures

Fig. S1



Mean (± 1 SE) # of beetles per treatment replicate
1.2
0.8
0.4
0
Asemum nitidum
Asemum striatum
Asemum caseyi
Pher. + EtOH
Pher. + EtOH + LR conifer blend
Pher. + EtOH + MR conifer blend
Pher.+ EtOH + HR conifer blend
Pher. + EtOH + LR oak blend
Pher. + EtOH + MR oak blend
Pher. + EtOH + HR oak blend
EtOH + MR conifer blend
EtOH + MR oak blend
EtOH
Lure composition

Fig. S2



Mean (± 1 SE) # of beetles per treatment replicate
6
4
2
0
Phymatodes grandis
Brothylus gemmulatus
Pher.
Pher. + EtOH
Pher. + HR α-pinene
Pher. + HR α-pinene + EtOH
Pher. + HR conifer blend
Pher. + HR conifer blend + EtOH
Lure composition