SM5. Mean and 95% credible intervals for each parameter estimate of the multispecies co-occurrence model. Estimates are on the logit scale.

								95% CI		
Parameter	$\mathbf{Prey}$	Predator	Covariate	Mean	Median	Direction effect	Pr(direction effect)	Lower 2.5	Upper 97.5	
Predator occupancy model										
$eta_0$		coyote		0.94	0.94	positive	1.00	0.70	1.21	
$eta_0$		badger		-0.02	-0.02	negative	0.57	-0.26	0.24	
$eta_0$		swift fox		-1.95	-1.95	negative	1.00	-2.35	-1.53	
Autologistic to	${f erm}$									
$\theta$		coyote		-0.04	-0.04	negative	0.57	-0.42	0.35	
heta		badger		0.81	0.80	positive	1.00	0.36	1.27	
heta		swift fox		0.90	0.90	positive	0.95	-0.17	2.01	
heta	jackrabbit			-0.30	-0.30	negative	0.87	-0.85	0.21	
heta	cottontail			1.17	1.17	positive	1.00	0.71	1.62	
Predator-prey co-occurrence model										
$\beta_0$ ind x site	jackrabbit	no predators		-3.48	-3.45	negative	1.00	-4.54	-2.61	
$\beta_0$ ind x site	jackrabbit	coyote		1.53	1.50	positive	1.00	0.76	2.48	
$\beta_0$ ind x site	jackrabbit	badger		1.41	1.40	positive	1.00	0.73	2.18	
$\beta_0$ ind x site	jackrabbit	swift fox		1.09	1.05	positive	0.97	-0.07	2.43	
$\beta_0$ ind x site	cottontail	no predators		-1.98	-1.97	negative	1.00	-2.56	-1.46	
$\beta_0$ ind x site	cottontail	coyote		0.02	0.01	positive	0.52	-0.48	0.55	
$\beta_0$ ind x site	cottontail	badger		0.61	0.60	positive	0.98	0.05	1.23	
$\beta_0$ ind x site	cottontail	swift fox		0.19	0.19	positive	0.63	-0.94	1.33	
$\beta_1$ ind x site	jackrabbit	no predators	prairie	0.26	0.26	positive	0.74	-0.53	1.05	
$\beta_1$ ind x site	jackrabbit	coyote	prairie	0.11	0.11	positive	0.62	-0.63	0.86	
$\beta_1$ ind x site	jackrabbit	badger	prairie	0.46	0.46	positive	0.92	-0.18	1.07	
$\beta_1$ ind x site	jackrabbit	swift fox	prairie	-0.38	-0.39	negative	0.85	-1.11	0.36	
$\beta_2$ ind x site	jackrabbit	no predators	vegHeight	-1.18	-1.16	negative	0.99	-2.29	-0.18	
$\beta_2$ ind x site	jackrabbit	coyote	vegHeight	0.05	0.04	positive	0.54	-0.78	0.94	
$\beta_2$ ind x site	jackrabbit	badger	vegHeight	1.08	1.06	positive	1.00	0.25	2.03	
$\beta_2$ ind x site	jackrabbit	swift fox	vegHeight	-0.46	-0.45	negative	0.84	-1.41	0.44	
$\beta_3$ ind x site	jackrabbit	no predators	grass	-1.44	-1.42	negative	1.00	-2.55	-0.49	
$\beta_3$ ind x site	jackrabbit	coyote	grass	0.96	0.94	positive	0.98	0.05	2.04	
$\beta_3$ ind x site	jackrabbit	badger	grass	-0.01	-0.02	negative	0.52	-0.74	0.73	
$\beta_3$ ind x site	jackrabbit	swift fox	grass	0.04	0.07	positive	0.54	-1.40	1.35	
$\beta_4$ ind x site	jackrabbit	no predators	forbs	-0.68	-0.66	negative	0.97	-1.51	0.03	
$\beta_4$ ind x site	jackrabbit	coyote	forbs	0.16	0.14	positive	0.65	-0.56	0.96	

$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	$\beta_4$ ind x site	jackrabbit	badger	forbs	0.00	0.00	positive	0.50	-0.67	0.64
$β_1$ ind x site cottontail covote prairie 0.43 0.43 positive 0.94 0.91 0.99 $β_1$ ind x site cottontail covote prairie 0.008 0.03 negative 0.86 0.66 0.23 $β_1$ ind x site cottontail badger prairie 0.008 0.03 negative 0.62 0.60 0.45 $β_1$ ind x site cottontail site cottontail no predators well-eight 0.01 0.01 positive 0.51 0.51 0.71 0.68 $β_2$ ind x site cottontail no predators well-eight 0.03 0.02 positive 0.51 0.51 0.71 0.68 $β_2$ ind x site cottontail no predators well-eight 0.07 0.07 negative 0.50 0.06 0.67 0.52 $β_2$ ind x site cottontail badger well-eight 0.07 0.07 negative 0.00 0.00 0.067 0.52 $β_3$ ind x site cottontail badger well-eight 0.09 0.58 positive 0.00 0.00 0.01 1.53 $β_3$ ind x site cottontail badger grass 0.19 0.18 positive 0.75 0.36 0.76 $β_3$ ind x site cottontail badger grass 0.19 0.18 positive 0.58 0.58 0.58 0.59 0.58 $β_3$ ind x site cottontail badger grass 0.05 0.05 negative 0.64 0.69 0.45 0.44 $β_3$ ind x site cottontail badger grass 0.05 0.05 negative 0.58 0.58 0.59 0.53 0.53 $β_4$ ind x site cottontail badger grass 0.063 0.061 negative 0.57 0.58 0.59 0.53 0.59 0.59 0.59 0.59 0.59 0.59 0.59 0.59			0				1			
$β_1$ ind x site         cottontail         coyote         prairie         -0.30         -0.30         negative         0.66         -0.86         -0.86         0.23 $β_1$ ind x site         cottontail         swift fox         prairie         -0.08         negative         0.62         -0.66         0.74 $β_2$ ind x site         cottontail         swift fox         prairie         0.03         0.03         positive         0.51         -0.61         0.71         0.68 $β_2$ ind x site         cottontail         swift fox         vegHeight         0.01         0.01         positive         0.53         -0.63         0.72 $β_2$ ind x site         cottontail         badger         vegHeight         0.07         -0.07         negative         0.60         -0.67         0.52 $β_3$ ind x site         cottontail         swift fox         vegHeight         0.07         -0.05         negative         0.60         -0.67         0.52 $β_3$ ind x site         cottontail         swift fox         grass         0.19         0.18         positive         0.75         -0.36         0.76 $β_3$ ind x site         cottontail         swift fox         grass							•			
$β_1$ ind x site         cottontail         badger         prairie         -0.08         -0.08         negative         0.62         -0.60         0.45 $β_1$ ind x site         cottontail         swift fox         prairie         -0.08         -0.08         negative         0.54         -0.66         0.74 $β_2$ ind x site         cottontail         coyote         vegHeight         0.03         0.02         positive         0.53         -0.63         0.72 $β_2$ ind x site         cottontail         badger         vegHeight         -0.07         -0.07         negative         0.60         -0.67         0.52 $β_2$ ind x site         cottontail         badger         vegHeight         -0.09         -0.31         1.53 $β_3$ ind x site         cottontail         badger         grass         -0.19         0.18         positive         0.75         -0.36         0.76 $β_3$ ind x site         cottontail         badger         grass         -0.05         -0.05         negative         0.64         -0.69         0.45 $β_3$ ind x site         cottontail         swift fox         grass         -0.05         -0.05         negative         0.85         -	, -		-	-			•			
$β_1$ ind x site         cottontail         swift fox         prairie         0.03         0.03         positive         0.54         -0.66         0.74 $β_2$ ind x site         cottontail         no predators         vegHeight         0.01         0.05 itve         0.51         -0.71         0.68 $β_2$ ind x site         cottontail         badger         vegHeight         0.07         -0.07         negative         0.60         -0.67         0.52 $β_2$ ind x site         cottontail         badger         vegHeight         0.07         -0.07         negative         0.60         -0.67         0.52 $β_3$ ind x site         cottontail         no predators         grass         0.19         0.18         positive         0.06         -0.67         0.52 $β_3$ ind x site         cottontail         no predators         grass         0.01         negative         0.64         -0.69         0.45 $β_3$ ind x site         cottontail         swift fox         grass         -0.05         -0.05         negative         0.58         -0.54         0.44 $β_3$ ind x site         cottontail         swift fox         grass         -0.65         -0.55         negative<	, -		•	-			9			
$β_2$ ind x site         cottontail         no predators         vegHeight         0.01         positive         0.51         -0.71         0.68 $β_2$ ind x site         cottontail         coyote         vegHeight         0.03         0.02         positive         0.53         -0.63         0.72 $β_2$ ind x site         cottontail         side         cottontail         swift fox         vegHeight         0.59         0.58         positive         0.60         -0.60         -0.67         0.52 $β_2$ ind x site         cottontail         swift fox         vegHeight         0.59         0.58         positive         0.90         -0.31         1.53 $β_3$ ind x site         cottontail         no predators         grass         -0.11         -0.10         negative         0.64         -0.99         0.45 $β_3$ ind x site         cottontail         badger         grass         -0.65         -0.05         negative         0.58         -0.54         0.44 $β_3$ ind x site         cottontail         swift fox         grass         -0.63         -0.61         negative         0.58         -0.54         0.44 $β_3$ ind x site         cottontail         cottontail	, -		9	-			9			
$β_2$ ind x site         cottontail         coyote         vegHeight         0.03         0.02         positive         0.53         -0.63         0.72 $β_2$ ind x site         cottontail         badger         vegHeight         -0.07         -0.07         negative         0.60         -0.67         0.52 $β_2$ ind x site         cottontail         no predators         grass         0.19         0.18         positive         0.75         -0.36         0.76 $β_3$ ind x site         cottontail         no predators         grass         -0.11         -0.10         negative         0.64         -0.69         0.45 $β_3$ ind x site         cottontail         swift fox         grass         -0.05         -0.95         negative         0.58         -0.54         0.44 $β_3$ ind x site         cottontail         swift fox         grass         -0.05         -0.61         negative         0.85         -1.90         0.53 $β_4$ ind x site         cottontail         swift fox         grass         -0.52         0.51         positive         0.98         0.02         1.05 $β_4$ ind x site         cottontail         badger         forbs         -0.55         <	, -			•			•			
$β_2$ ind x site cottontail         badger vegHeight $-0.07$ $-0.07$ negative $0.60$ $-0.67$ $0.52$ $β_2$ ind x site cottontail         swift fox vegHeight $0.59$ $0.58$ positive $0.50$ $-0.31$ $1.53$ $β_3$ ind x site cottontail         cottontail         coyote         grass $-0.11$ $-0.10$ negative $0.64$ $-0.69$ $0.45$ $β_3$ ind x site cottontail         badger         grass $-0.05$ $-0.05$ negative $0.58$ $-0.54$ $0.44$ $β_3$ ind x site cottontail         badger         grass $-0.05$ $-0.05$ negative $0.58$ $-0.54$ $0.44$ $β_3$ ind x site cottontail         no predators         forbs $0.52$ $0.51$ positive $0.98$ $0.02$ $1.05$ $β_4$ ind x site cottontail         no predators         forbs $-0.52$ $0.51$ positive $0.98$ $0.02$ $0.53$ $β_4$ ind x site cottontail         swift fox         forbs $-0.24$ $-0.23$ negative $0.57$			-				•			
$β_2$ ind x site         cottontail         swift fox         vegHeight         0.59         0.58         positive         0.90         -0.31         1.53 $β_3$ ind x site         cottontail         no predators         grass         0.19         0.18         positive         0.75         -0.36         0.76 $β_3$ ind x site         cottontail         badger         grass         -0.05         -0.05         negative         0.58         -0.54         0.44 $β_3$ ind x site         cottontail         badger         grass         -0.63         -0.61         negative         0.58         -0.54         0.44 $β_4$ ind x site         cottontail         no predators         forbs         0.52         0.51         positive         0.98         0.02         1.05 $β_4$ ind x site         cottontail         coyote         forbs         -0.24         -0.23         negative         0.80         -0.81         0.30 $β_4$ ind x site         cottontail         swift fox         forbs         0.12         1.05         positive         0.80         -0.81         0.30 $β_4$ ind x site         cottontail         swift fox         forbs         1.12         1.05<	, -		v				•			
$β_3$ ind x site         cottontail         no predators         grass         0.19         0.18         positive         0.75         -0.36         0.76 $β_3$ ind x site         cottontail         coyote         grass         -0.11         -0.10         negative         0.58         -0.54         0.44 $β_3$ ind x site         cottontail         badger         grass         -0.05         -0.05         negative         0.58         -1.90         0.53 $β_4$ ind x site         cottontail         swift fox         grass         -0.63         -0.61         negative         0.85         -1.90         0.53 $β_4$ ind x site         cottontail         no predators         forbs         -0.52         0.51         positive         0.98         0.02         1.05 $β_4$ ind x site         cottontail         badger         forbs         -0.52         -0.51         positive         0.98         0.02         1.05 $β_4$ ind x site         cottontail         badger         forbs         -0.52         -0.51         positive         0.80         -0.81         0.30 $β_4$ ind x site         cottontail         swift fox         robs         -0.21         -0.21 <td>, -</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>9</td> <td></td> <td></td> <td></td>	, -						9			
$β_3$ ind x site         cottontail         coyote         grass         -0.11         -0.10         negative         0.64         -0.69         0.45 $β_3$ ind x site         cottontail         badger         grass         -0.05         -0.05         negative         0.58         -0.54         0.44 $β_3$ ind x site         cottontail         swift fox         grass         -0.63         -0.61         negative         0.85         -1.90         0.53 $β_4$ ind x site         cottontail         swift fox         forbs         0.52         0.51         positive         0.98         0.02         1.05 $β_4$ ind x site         cottontail         coyote         forbs         -0.05         -0.05         negative         0.87         -0.63         0.50 $β_4$ ind x site         cottontail         swift fox         forbs         1.12         1.05         positive         0.80         -0.81         0.30 $β_4$ ind x site         cottontail         swift fox         forbs         1.12         1.05         positive         0.80         -0.81         0.30 $β_4$ ind x site         cottontail         swift fox         forbs         1.12         0.11	, =						•			
$β_3$ ind x site         cottontail         badger         grass         -0.05         -0.05         negative         0.58         -0.54         0.44 $β_3$ ind x site         cottontail         swift fox         grass         -0.63         -0.61         negative         0.85         -1.90         0.53 $β_4$ ind x site         cottontail         cottontail         copyote         forbs         -0.55         -0.05         negative         0.57         -0.63         0.50 $β_4$ ind x site         cottontail         badger         forbs         -0.24         -0.23         negative         0.80         -0.81         0.30 $β_4$ ind x site         cottontail         badger         forbs         1.12         1.05         positive         0.80         -0.81         0.30 $β_4$ ind x site         cottontail         swift fox         forbs         1.12         1.05         positive         0.80         -0.81         0.30 $β_4$ ind x site         cottontail         cottontail         -0.11         -0.11         negative         0.80         -0.81         -0.32         2.89           Prever detection model         -0.07         0.07         0.07 <t< td=""><td>, -</td><td></td><td>-</td><td>~</td><td></td><td></td><td>•</td><td></td><td></td><td></td></t<>	, -		-	~			•			
$β_3$ ind x site         cottontail         swift fox         grass         -0.63         -0.61         negative         0.85         -1.90         0.53 $β_4$ ind x site         cottontail         no predators         forbs         0.52         0.51         positive         0.98         0.02         1.05 $β_4$ ind x site         cottontail         cottontail         badger         forbs         -0.24         -0.23         negative         0.80         -0.81         0.30           β <sub>4</sub> ind x site         cottontail         swift fox         forbs         1.12         1.05         positive         0.80         -0.81         0.30           β <sub>4</sub> ind x site         cottontail         swift fox         forbs         1.12         1.05         positive         0.80         -0.81         0.30           β <sub>4</sub> ind x site         cottontail         swift fox         forbs         1.12         1.05         positive         0.80         -0.81         0.30           Predatorland         0.02         -0.11         -0.11         -0.11         negative         0.90         -0.28         0.06 $α_1$ cottontail         vegHeight         -0.17         -0.	, -		•	~			0			
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$β_4$ ind x site         cottontail         swift fox         forbs         1.12         1.05         positive         0.92         -0.32         2.89           Prey detection model $α_0$ jackrabbit         -0.11         -0.11         negative         0.90         -0.28         0.06 $α_0$ cottontail         vegHeight         -0.29         -0.29         negative         0.81         -0.09         0.23 $α_1$ jackrabbit         vegHeight         -0.29         -0.29         negative         0.98         -0.34         0.00 $α_2$ jackrabbit         prairie         -0.06         -0.06         negative         0.98         -0.34         0.00 $α_2$ jackrabbit         prairie         -0.06         -0.06         negative         0.83         -0.20         0.07 $α_2$ cottontail         prairie         -0.02         negative         0.89         -0.41         -0.05           Predator detection model $α_0$ badger         -0.25         -0.25         negative         1.00         -0.34         -0.16 $α_0$ swift fox	, -		•				0			
Prey detection model $α_0$ jackrabbit         -0.11         -0.11         negative         0.90         -0.28         0.06 $α_0$ cottontail         0.07         0.07         positive         0.81         -0.09         0.23 $α_1$ jackrabbit         vegHeight         -0.29         -0.29         negative         1.00         -0.46         -0.12 $α_1$ cottontail         vegHeight         -0.17         -0.17         negative         0.98         -0.34         0.00 $α_2$ jackrabbit         prairie         -0.06         -0.06         negative         0.83         -0.20         0.07 $α_2$ cottontail         prairie         -0.02         -0.22         negative         0.83         -0.20         0.07 $α_2$ cottontail         prairie         -0.02         -0.22         negative         0.99         -0.41         -0.05           Predator detection model $α_0$ badger         -0.25         -0.25         negative         1.00         -1.18         -0.89 $α_0$ swift fox         -1.64         -1.64 <td>, -</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>0</td> <td></td> <td></td> <td></td>	, -						0			
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$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	·				-0.11	-0.11	negative	0.90	-0.28	0.06
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$		v								
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$				vegHeight			•			
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$α_2$ cottontail         prairie         -0.22         -0.22         negative         0.99         -0.41         -0.05           Predator detection model $α_0$ coyote         -0.25         -0.25         negative         1.00         -0.34         -0.16 $α_0$ badger         -1.03         -1.03         negative         1.00         -1.18         -0.89 $α_0$ swift fox         -1.64         -1.64         negative         1.00         -2.11         -1.17 $α_1$ coyote         vegHeight         -0.24         -0.24         negative         1.00         -0.33         -0.16 $α_1$ badger         vegHeight         -0.02         -0.02         negative         0.65         -0.13         0.09 $α_1$ swift fox         vegHeight         -0.80         negative         1.00         -1.12         -0.48 $α_2$ coyote         prairie         -0.04         -0.04         negative         0.81         -0.12         0.05 $α_2$ badger         prairie         -0.51         -0.51         negative         1.00         -0.63	=	jackrabbit		0 0			0	0.83		0.07
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\alpha_2$	cottontail		prairie	-0.22	-0.22	negative	0.99	-0.41	-0.05
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	Predator dete	ction mode	1							
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$lpha_0$		coyote		-0.25	-0.25	negative	1.00	-0.34	-0.16
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$lpha_0$		badger		-1.03	-1.03	negative	1.00	-1.18	-0.89
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\alpha_0$		swift fox		-1.64	-1.64	negative	1.00	-2.11	-1.17
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\alpha_1$		coyote	vegHeight	-0.24	-0.24	negative	1.00	-0.33	-0.16
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\alpha_1$		badger	vegHeight	-0.02	-0.02	negative	0.65	-0.13	0.09
$\alpha_2$ badger prairie -0.51 -0.51 negative 1.00 -0.63 -0.38	$\alpha_1$		swift fox	vegHeight	-0.80	-0.80	negative	1.00		
	$lpha_2$		coyote	prairie	-0.04	-0.04	negative	0.81	-0.12	0.05
$\alpha_2$ swift fox prairie -0.26 -0.26 negative 0.99 -0.50 -0.03	$lpha_2$		9	prairie			negative			
	$lpha_2$		swift fox	prairie	-0.26	-0.26	negative	0.99	-0.50	-0.03