Insectivorous Bats in Eastern Mediterranean Planted Pine Forests—Effects of Forest Structure on Foraging Activity, Diversity, and Implications for Management Practices

Table S1. Bat passes per species and percentage of sites in which they occurred in pine plantations of the Judean Lowlands, Israel (total number of sites = 29).

Species	N of passes	% Sites
Pipistrellus kuhlii	1742	100.00
Taphozous nudiventris	1111	86.21
Eptesicus serotinus	821	86.21
Tadarida teniotis	647	68.97
Pipistrellus pipistrellus	337	55.17
Miniopterus schreibersii	166	41.38
Hypsugo savii	28	20.69
Myotis spp.	11	24.14
Rhinolophus ferrumequinum	4	6.90
Rhinolophus hipposideros	3	6.90
Rhinopoma microphyllum	2	3.45
Rhinopoma cystops	2	6.90
Rhinolophus euryale	2	3.45

Table S2. Parameters used for the species identification: frequencies (middle, start, end) and call structure for each bat species.

Species	Best frequency (kHz)	Start frequency	End frequency	Call structure
Eptesicus serotinus	30	45	25	FM/QCF
Hypsugo savii	35	60	30	FM/QCF
Miniopterus schreibersii	55	48	120	FM/QCF
Myotis capaccinii	50–52	40	70	FM
Myotis nattereri	45–50	120	20	FM
Myotis emarginatus	45–50	40	120	FM
Myotis blythii	35	60	30	FM
Myotis myotis	35	60	30	FM
Nyctalus noctula	20	18	25	FM/QCF
Pipistrellus kuhlii	40	35	60	FM-CF/QCF
Pipistrellus pipistrellus	45	42	90	FM-CF/QCF
Rhinolophus hipposideros	110	104	108	FM/CF/FM
Rhinolophus ferrumequinum	80	70	67	FM/CF/FM
Rhinolophus euryale	102	93	89	FM/CF/FM
Rhinopoma cystops	26–28	26	28	QCF
Rhinopoma microphyllum	30	22	37	QCF
Tadarida teniotis	12–18	17	12	QCF
Otonycteris hemprichii	20–40	20	40	FM
Taphozous nudiventris	25	22	27	FM/CF/FM

Table S3. Forest structure parameters of each type of forest (mean value and standard deviation), measured as % of cover in pine (*Pinus halepensis*) plantations of Judean Lowlands, Israel.

Parameter	Young forest (n=7)		Adult forest (n=22)		No understory (n=8)		Low density understory (n=7)		High density understory (n=7)		Total (n=29)	
	Mean	*SD*	*Mean*	*SD*	*Mean*	*SD*	*Mean*	*SD*	*Mean*	*SD*	*Mean*	*SD*
Pine density	24.46	10.95	17.73	8.01	19.25	6.01	18.29	9.43	15.43	7.96	19.35	9.27
Canopy closure	2.31	2.27	4.17	1.75	4.82	1.81	3.40	1.34	4.20	1.74	3.72	2.05
Accessibility	16.21	11.81	20.76	8.61	15.64	4.26	17.32	7.32	30.04	5.54	19.66	9.68
Pine girth 1.0 m	60.18	9.74	105.06	18.43	101.09	13.32	102.77	21.47	111.89	18.27	94.23	25.48
DBH	57.38	11.48	100.85	18.01	95.95	11.33	99.18	21.36	108.13	18.27	90.36	24.98
Shrubs	1.57	0.72	1.72	0.70	1.75	0.76	2.00	0.69	1.39	0.48	1.68	0.71
Bush	28.07	8.62	35.68	18.25	33.43	13.05	43.06	22.46	30.87	16.26	33.84	16.77
Tree	44.12	21.04	69.16	18.81	72.41	20.82	63.54	15.35	71.07	18.26	63.11	22.14
Understory	3.31	3.20	20.91	21.52	0.47	0.82	16.50	7.50	48.70	11.38	16.66	20.26
No cover	27.56	13.93	7.30	12.44	13.86	17.64	5.46	5.45	1.64	4.02	12.19	15.47

Table S4 Full list of models with respective Akaike Information Criterion values modified for small sample size (AICc). Variable names and description are provided in the Materials and Methods section.

Dependent Variable	Distribution	Independent Variables	AICc
Species richness	Gaussian	understory + pine density + DBH + canopy closure + accessibility + shrubs + bush	115.98
	Poisson	understory + pine density + DBH + canopy closure + accessibility + shrubs + bush	134.13
	Negative Binomial	understory + pine density + DBH + canopy closure + accessibility + shrubs + bush	138.88
Total activity	Poisson	understory + pine density + DBH + canopy closure + accessibility + shrubs + bush	2727.68
	Negative Binomial	understory + pine density + DBH + canopy closure + accessibility + shrubs + bush	371.22
Open-habitat species	Poisson	understory + pine density + DBH + canopy closure + accessibility + shrubs + bush	1841.86
	Negative Binomial	understory + pine density + DBH + canopy closure + accessibility + shrubs + bush	273.42
Cluttered-habitat species	Poisson	understory + pine density + DBH + canopy closure + accessibility + shrubs + bush	1528.26
	Negative Binomial	understory + pine density + DBH + canopy closure + accessibility + shrubs + bush	339.56
Pipistrellus kuhlii	Poisson	understory + pine density + DBH + canopy closure + accessibility + shrubs + bush	312.12
	Negative Binomial	understory + pine density + DBH + canopy closure + accessibility + shrubs + bush	312.12
Pipistrellus pipistrellus	Poisson	understory + pine density + DBH + canopy closure + accessibility + shrubs + bush	305.85
	Negative Binomial	understory + pine density + DBH + canopy closure + accessibility + shrubs + bush	162.88
Eptesicus serotinus	Poisson	understory + pine density + DBH + canopy closure + accessibility + shrubs + bush	765.86
	Negative Binomial	understory + pine density + DBH + canopy closure + accessibility + shrubs + bush	219.86