Supplemental Online Appendix

Table A1. To assess functional connectivity of Pacific marten (*Martes caurina*) we identified three stand types of interest (open, simple, complex) but divided these into subclasses (numbers). We used California Wildlife Habitat Relationships ((Mayer and Laudenslayer 1988) to evaluation vegetation classification. Listed CWHR vegetation types include lodgepole pine (LPN, *Pinus contorta*), ponderosa pine (PPN, *P. ponderosa*), Jeffery pine (JPN, *P. jefferii*), red fir (RFR, *Abies magnifica*), white fir (WFR, *A. concolor*), pine and fir dominated Sierra mixed conifer (SMC-P, SMC-F respectively), subalpine mixed conifer (SCN), montane riparian (MRI), mixed chaparral (MCH), perennial grassland (PGS), annual grassland (AGS), and barren (BAR). Vegetation sizes include diameter at breast height (DBH) class 1 = <2.5cm, class 2 = 2.5-15cm, class 3 = 15–27 cm, class 4 = 28–60 cm, class 5 = >60 cm, class 6 =>60 cm with multi-layered canopy. Density classes include sparse (10-24% canopy cover), open (25-39%) moderate (40–60%), and dense (>60%).

Stand	Description	Management Event(s) as listed in FACTs	Management Description	CWHR Vegetation Types	CWHR Vegetation Sizes	CWHR Vegetation Density
Open	Recently managed (1) and managed	Group selection	Small clearing <2 acres with <60 sq. ft./acre	LPN, MRI, RFR, SCN, SMC-F, SMC-	1-5	sparse, open

	before 2000 (2)	Regenerating clear-cut	Complete tree removal	P, WFR		
		Overstory removal	Removal of all merchantable trees			
		Shelterwood harvest	Removal of merchantable trees, but retaining select trees for re-seeding			
Open	Natural openings (3)	NA		AGS, BAR, PGS	NA	NA
Simple	Recently managed (4) and managed before 2000 (5)	Fuels reduction	Understory plants, lower limbs, and small diameter trees removed	LPN, MRI, RFR, SCN, SMC-F, SMC-P, WFR	3-5	open, moderate
		Commercial thinning - no	Variable amounts of merchantable trees			

biomass	removed
Commercial thinning - biomass	Merchantable trees removed in addition to small diameter (<12” dbh)
Pre-commercial thinning - hand	Small diameter (<12” dbh) trees and understory removed by hand
Pre-commercial thinning - mechanical	Small diameter (<12” dbh) trees and understory removed by machines
Windthrow fuels reduction	Downed trees, logs, and hazards removed.

Simple	Managed inconsistently (6)	Salvage logging	Removal of dead and dying trees, often along roads	LPN, MRI, RFR, SCN, SMC-F, SMC-P, WFR	3-5	open, moderate
		Sanitation cut	Removal of dead and dying trees			
		Single tree selection				
		Fire restoration and regeneration				
Complex	Dense managed (7) and unmanaged (8)	Managed includes any activity, but we envision "managed" stands as regenerated forests		ASP, DFR, LPN, JPN, MCH, MHW, MRI, PPN, RFR, SCN, SMC-F, SMC-P, WFR	2-4	moderate, dense

Complex	Predicted high quality reproductive habitat (see Kirk and Zielinski 2009) managed (9) and unmanaged (10)	Managed includes any activity, but we envision "managed" stands as regenerated forests		LPN, MRI, RFR, SCN, SMC-F, SMC-P, WFR	4-6	moderate, dense

Table A2. We collected descriptive vegetative metrics collected along food-titration experiments to characterize our stand types (complex, simple, open). We report the average value and standard error (x±SE).

Metric	Description	Complex	Simple	Open
Overstory	Average canopy cover percent, moosehorn coverscope	49.6±1.5	26.7±2.1	3.0±0.8
	Canopy cover standard error	11.8±0.2	10.8±0.5	2.2±0.5
	Basal area of live trees	217.0±7.8	127.8±8.5	37.5±9.3
	Basal area of snags	24.2±2.3	10.6±2.7	4.6±1.4
	Basal area of live trees >61-cm diameter	47.4±3.8	22.2±4.6	8.9±2.3
	Basal area of snags >61-cm diameter	9.9±1.2	3.1±1.1	1.8±0.8
	Percent dwarf-mistletoe (*Arceuthobium* sp.) on live trees	3.0±0.5	1.5±0.2	1.1±0.3
Understory	Percent shrub cover	1.3±0.5	3.8±1.1	13.8±2.3
	Percent sapling cover	6.0±1.0	1.6±0.5	1.1±0.4
	Percent understory cover (shrub+sapling)	7.3±1.1	5.4±1.2	15.3±2.5
	Average log diameter (cm) in Brown (1974) decay class 1-3, indicating sound wood	32.4±1.2	29.3±1.4	34.2±2.1
	Number of logs in decay class 1-3	2±0.1	0.9±0.1	0.6±0.1

(Brown 1974)			
Total number of logs	2.9±0.2	2.1±0.5	1.1±0.2

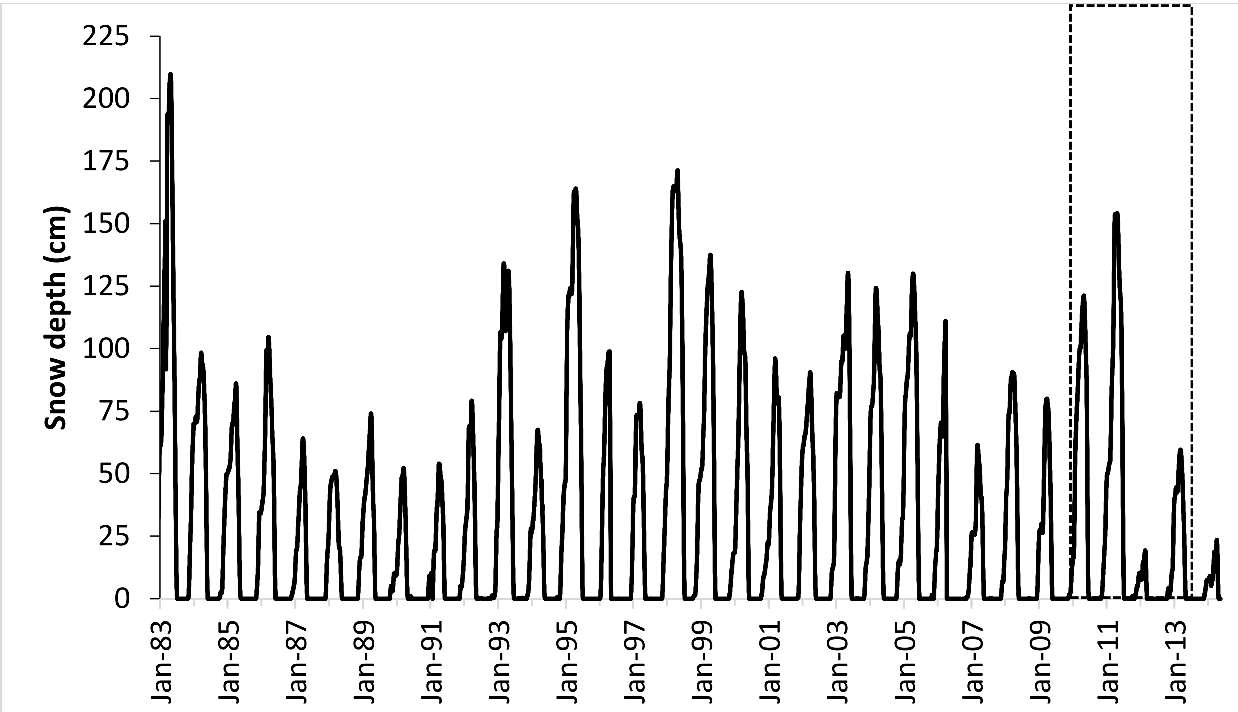
Table A3. We report the composition of stand types and range within seasonal marten home range (mean ± standard errors (SE)). Size differences between winter and summer are largely due to differing individuals between each season – not an expansion or contraction of individual home range size.

	Female			Male		
	n	Mean±SE	Range	n	Mean±SE	Range
Summer						
Size (km^2)	5	2.01±0.38	0.99-3.33	11	4.98±0.81	1.29-8.93
% Complex	5	56.6±8.5	32.8-75.5	11	66.5±2.9	52.9-78.2
% Simple	5	33.4±7.8	16.6-59.2	11	24.7±3.3	12.1-42.7
% Open	5	10.0±1.6	7.9-16.4	11	8.8±1.6	1.2-17.8
Winter						
Size (km^2)	5	3.40±0.59	1.34-4.69	14	6.48±0.61	1.82-11.49
% Complex	5	66.4±6.6	43.0-78.5	14	62.7±3.8	32.0-81.4
% Simple	5	28.6±6.7	15.0-51.0	14	28.1±3.2	13.1-59.0
% Open	5	4.2±1.1	0.2-6.4	14	8.6±1.9	1.0-24.2

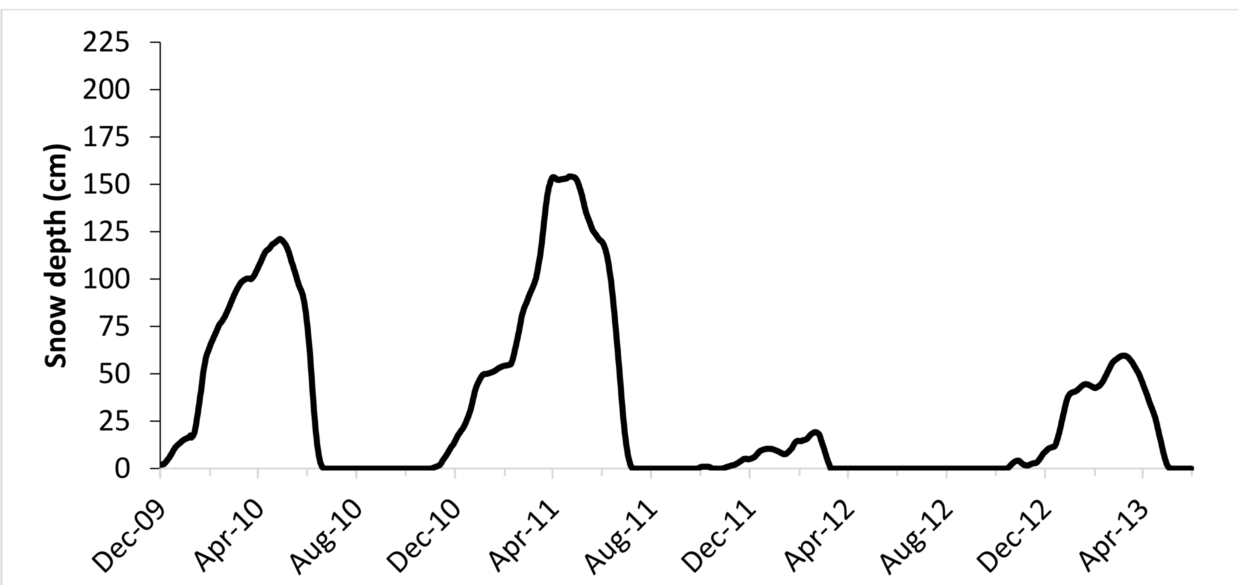
Figure A1. Snow depth in our study area and during data collection. Snow depth (cm) fluctuated between winter seasons at Humbug Summit Weather Station (HMB), Lassen National Forest, California (Ca Department of Water Resources). This station was located at 2010 meters elevation in a southeast-facing opening with <5% slope. It represents minimum snowfall depth within our study area. A) Smoothed 2-week average snow depth at HMB between January 1983 and May 2014 with our study period represented by the dashed box. B) Snow depth at HMB during our study (Dec 2009-May 2013). We designated the summer and winter field seasons as July-November and December-June, but winter data was only collected with >20cm snow cover.

Figure A2. **Raw data from titration experiments.** Each row represents an individual titration array. Each column represents a station and a circle within a column represents a visit (4 visits total). Marten detections are indicated by filled circles. Summer detection data were represented as Complex into Simple stands (A, upper left) and Complex into Openings (B, lower left). Winter detection data were Complex into Simple stands (C, upper right) and Complex into Openings (D, lower right). Stand types were colored for complex (green), border of two stand types (red), and open or simple (blue).

Figure A3. We did not observe differences between male and female patch use ($F = 0.50$, $P = 0.46$) within each season with non-incentivized methods (telemetry locations). We display mean (symbol) and 95% confidence intervals for winter and summer seasons (triangle, circle). Samples sizes differed between winter (5 female, 13 male) and summer (4 female, 12 male). During summer, one female (F05) contributed a high amount of variance in openings due to the number of locations in talus slopes, which may provide considerable cover. With female F05 included, the average selection value for open would change to 1.05± 0.67 (females), overlapping values for complex and simple stands (not displayed).



Snow depth (cm)
225
200
175
150
125
100
75
50
25
0
Jan-83
Jan-85
Jan-87
Jan-89
Jan-91
Jan-93
Jan-95
Jan-97
Jan-99
Jan-01
Jan-03
Jan-05
Jan-07
Jan-09
Jan-11
Jan-13



Snow depth (cm)
225
200
175
150
125
100
75
50
25
0
Dec-09
Apr-10
Aug-10
Dec-10
Apr-11
Aug-11
Dec-11
Apr-12
Aug-12
Dec-12
Apr-13

Figure A2.

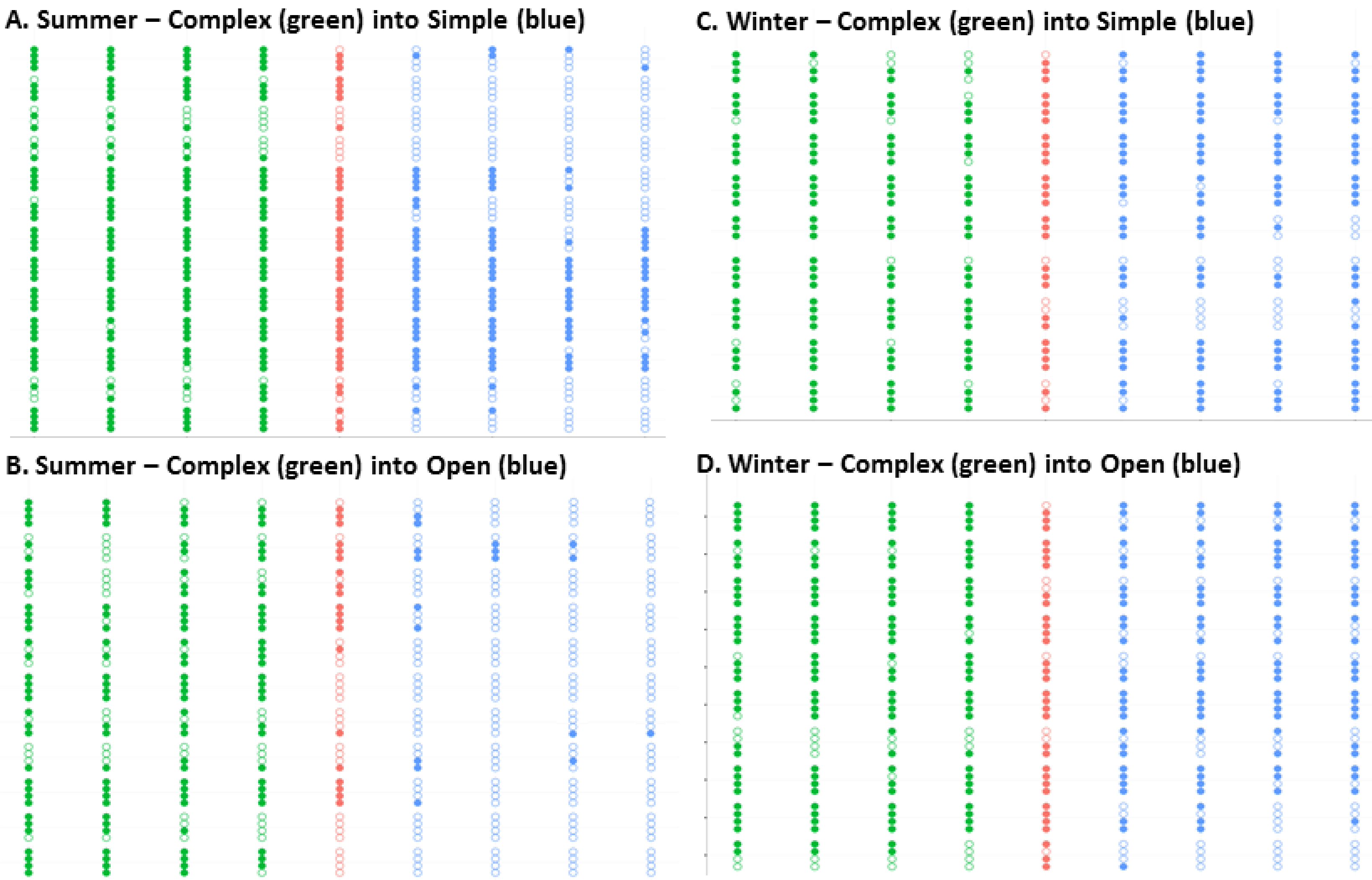
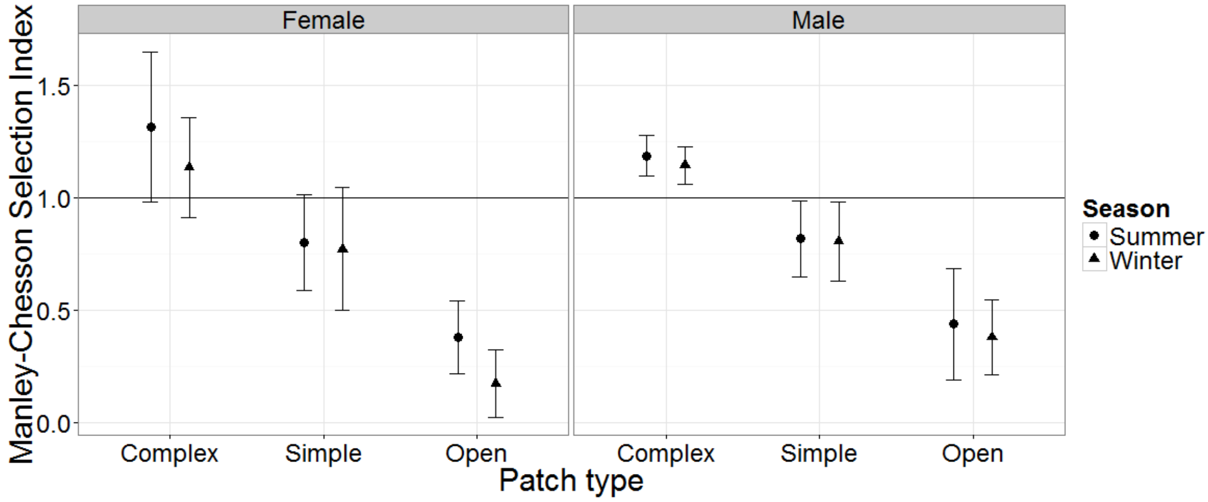

A. Summer – Complex (green) into Simple (blue)
C. Winter – Complex (green) into Simple (blue)
B. Summer – Complex (green) into Open (blue)
D. Winter – Complex (green) into Open (blue)

Figure A3.



Female
Male
Manley-Chesson Selection Index
1.5
1.0
0.5
0.0
Complex
Simple
Open
Complex
Simple
Open
Patch type
Season
Summer
Winter