Wildlife Biology

WLB-00869

Higashide, D., Kuriyama, T., Takagi, S., Nakashima, Y., Fukasawa, K., Yajima, G., Kasada, M. and Yokoyama, M. 2021. Effectiveness of signs of activity as relative abundance indices for wild boar. – Wildlife Biology 2021: wlb.00869

Appendix 1

Table A1. The forest conditions at each study sites and survey period or date

Pref.	Site	Area (km^2)	Rate of forest coverage (%)					Survey period or date	
			DB	EB	EC	BF	Total	Camera trap	Activity signs
Hyogo	H1	26.2	44	0	41	1	87	14 Sep 2017 – 17 Oct 2017	12 Oct 2017
	H2	26.2	46	0	37	3	86	10 Oct 2017 – 17 Nov 2017	11 Oct 2017
	H3	26.2	48	0	29	0	77	4 Oct 2017 – 7 Nov 2017	10 Oct 2017
	H4	26.2	19	0	68	1	88	20 Oct 2017 – 21 Nov 2017	1 Nov 2017
	H5	26.3	28	0	63	0	90	10 Nov 2017 – 21 Dec 2017	15 Nov 2017
	H6	26.4	11	0	51	2	63	27 Nov 2017 – 11 Jan 2018	12 Dec 2017
Chiba	C1	20.1	32	5	14	6	58	14 Dec 2017 – 15 Jan 2018	17 Dec 2017
	C2	55.2	16	7	19	9	51	31 Oct 2017 – 13 Jan 2018	14 Dec 2017
	C3	31.0	52	3	27	2	84	31 Oct 2017 – 14 Jan 2018	13 Dec 2017
	C4	23.2	52	7	21	2	81	15 Nov 2017 – 14 Jan 2018	17 Dec 2017
	C5	11.0	38	8	26	10	83	1 Nov 2017 – 15 Jan 2018	16 Dec 2017
	C6	29.7	0	40	22	2	64	31 Oct 2017 – 15 Jan 2018	16 Dec 2017
	C7	14.8	21	7	32	3	63	1 Nov 2017 – 14 Jan 2018	2 Dec 2017
	C8	14.6	12	26	33	3	74	31 Oct 2017 – 15 Jan 2018	15 Dec 2017

DB, Deciduous broad-leaved forest; EB, Evergreen broad-leaved forest; EC, Evergreen coniferous forest; BF, Bamboo forest

Appendix 2

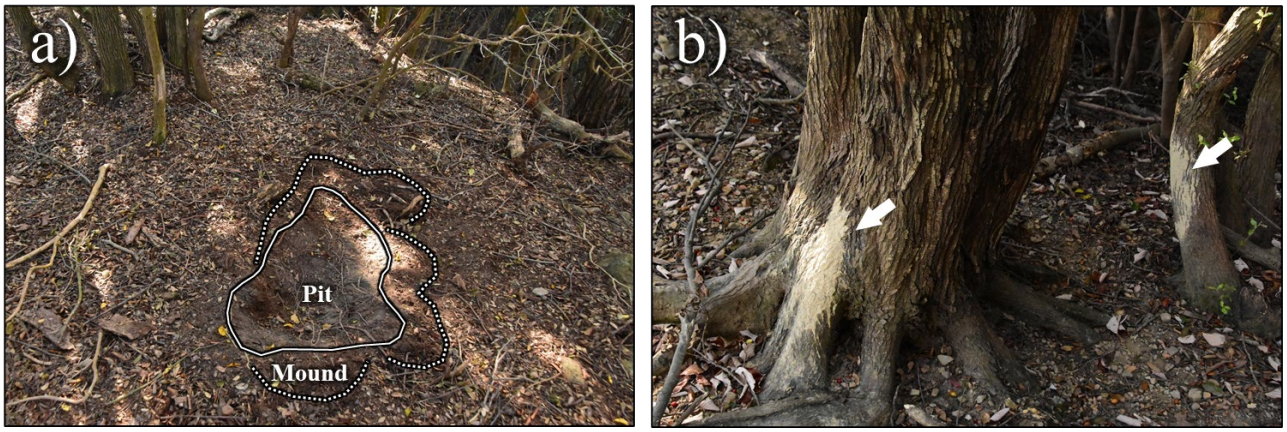

Figure A1. Example of activity signs of wild boar; a) the digging marks (independent pit is surrounded by white line and mounds are surrounded white dash line); b) the rubbing marks with mud attached on the tree trunk (white arrows)

Appendix 3

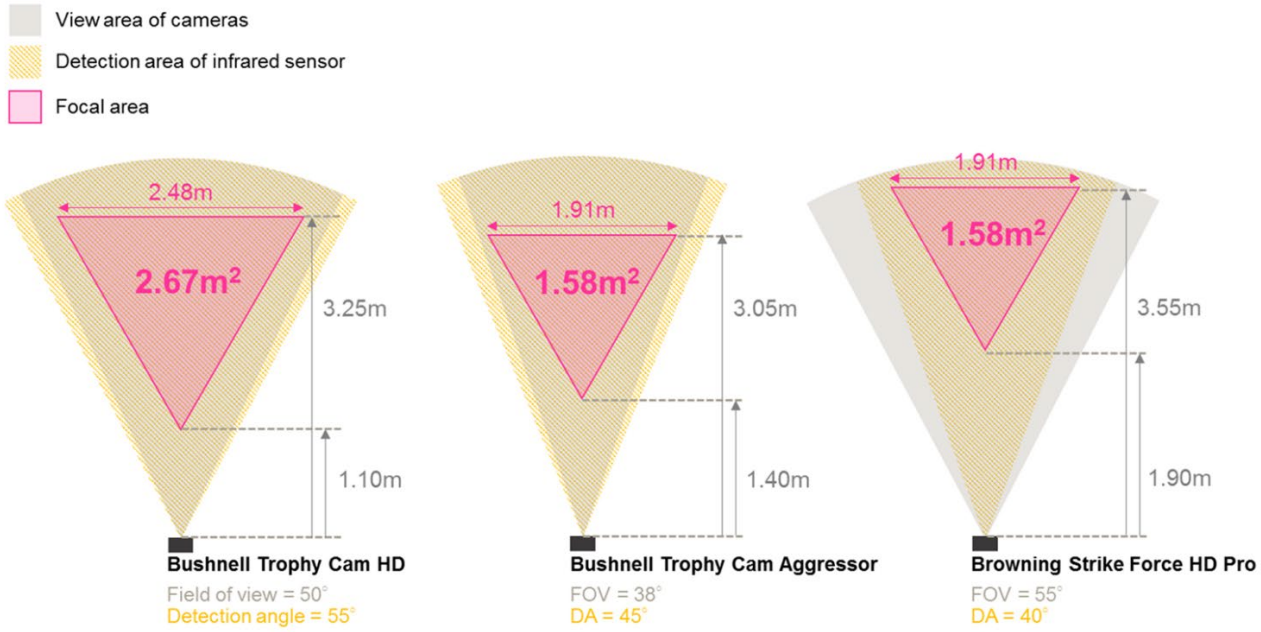

Figure A2. View area, detection area and focal area of each infrared-triggered cameras (Bushnell Trophy Cam HD, Bushnell Trophy Cam Aggressor and Browning Strike Force HD Pro) which we used in this study.

Appendix 4

Table A2. Selection of the distribution for staying time in the focal area by WAIC. We ran three MCMC chains in parallel for 20 000 iterations for each distribution models, following a burn-in period of 20 000 iterations of each chains and thinning to every 20th sample. A gamma distribution with shape (0.001) and rate parameters (0.001) were used as the prior distribution for rate parameter of exponential distribution. The prior distributions of shape and rate parameters for gamma and Waible distributions were assigned the gamma distribution with shape (0.001) and rate parameters (0.001). The prior distributions of mean and precision for log-normal distribution were assigned the gamma distribution with shape (0.001) and rate parameters (0.001).

Distributions	WAIC	ΔWAIC
Gamma	6020	0
Exponential	6036	16
Log-normal	6045	25
Weibull	8023	2003

Appendix 5

Table A3. Selection of the distribution for the number of encounters by WAIC. We ran three MCMC chains in parallel for 20 000 iterations for each distribution models, following a burn-in period of 20 000 iterations of each chains and thinning to every 20th sample. A gamma distribution with shape (0.001) and rate parameters (0.001) was used as the prior distribution for size parameter of negative binomial distribution. The prior distribution of probability parameter for Bernoulli distribution on each zero-inflated models was assigned the uniform prior value from 0 to 1.

Distributions	WAIC	ΔWAIC
Zero-inflated negative binomial	1003	0
Negative binomial	1116	113
Zero-inflated Poisson	1205	202
Poisson	2250	1247

Appendix 6

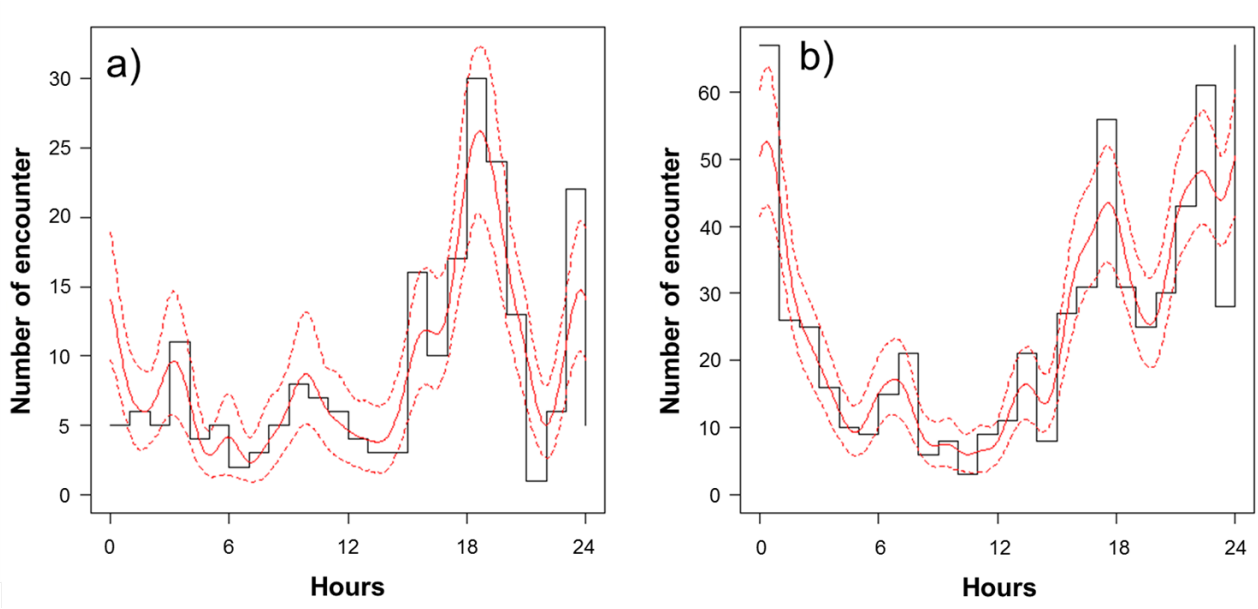

Figure A3. Activity pattern for wild boar in a) Hyogo prefecture and b) Chiba prefecture, Japan. The number of encounter that boars entered the focal area of infrared-triggered camera every hour (histogram), and kernel density (red curved line) estimated by the package activity in R (Rowcliffe et al. 2014).

Appendix 7

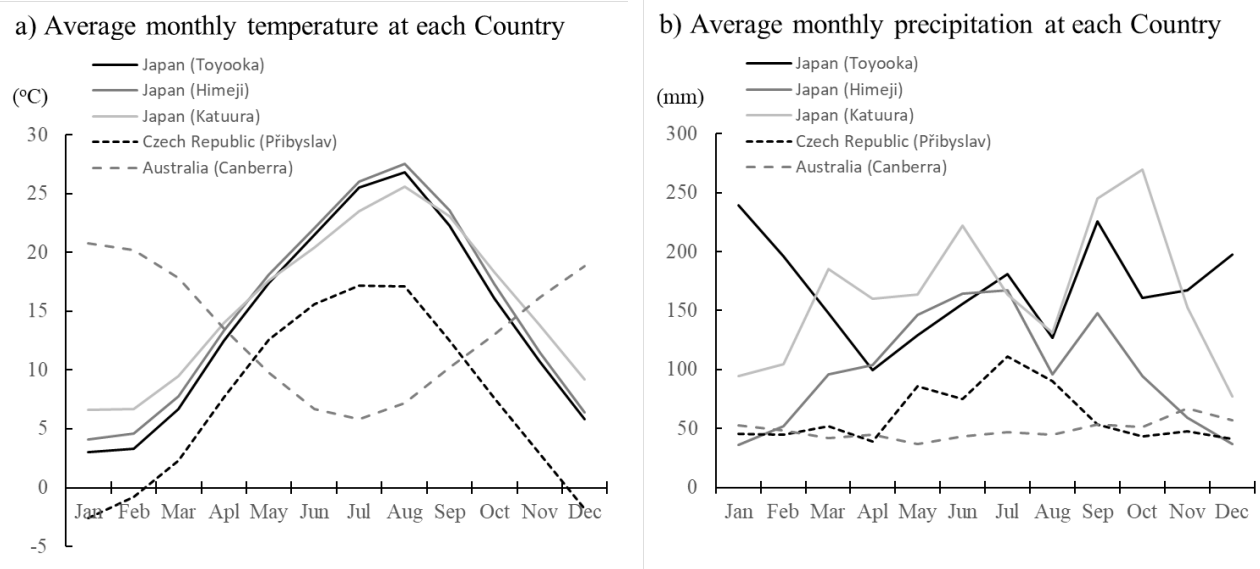

Figure A4. Average monthly a) temperature and b) precipitation in 1981 to 2010 at Toyooka (3.4 m a.s.l.), Himeji (38.2 m a.s.l.), Katsuura, Japan (11.9 m a.s.l.), Přibyslav, Czech Republic (near the study site of Plhal et al. 2014; 532 m a.s.l.) and Canberra, Australia (near the study site of Hone and Martin 1998; 575 m a.s.l.) meteorological stations by ClimatView developed by Japan Meteorological Agency <www.data.jma.go.jp/gmd/cpd/monitor/climatview/frame.php>.