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David M. Forsyth, Deborah J. Wilson, Tomás A. Easdale, Georges Kunstler, Charles D. Canham, Wendy A. Ruscoe, Elaine F. Wright, Lora Murphy, Andrew M. Gormley, Aurora Gaxiola, and David A. Coomes. 2014. Century-scale effects of invasive deer and rodents on the dynamics of forests growing on soils of contrasting fertility. *Ecological Monographs* VOL:pp–pp.

APPENDIX H. Tables and figures describing the results of our field study investigating rodent predation on seeds of five tree species as a function of the relative basal area of trees in alluvial and marine terrace forests.

The tables and figures below show the rodent seed predation rates estimated in our field study and how they were used in SORTIE/NZ. Table H1 summarizes model selection information for the logistic regression models of rodent predation on seeds as a function of tree basal area in mast and non-mast years. Tables H2 and H3 provide the parameter estimates for logistic regression models of rodent predation tree species included in the alluvial (Table H2) and marine (Table H3) terrace forest models in mast and non-mast years, including the surrogate species used for those species for which field data were unavailable. Figs. H1 and H2 show the probability of rodent seed predation as a function of tree basal area for species in mast years (left panels) and non-mast years (right panels) in the alluvial and marine terrace forest models, respectively, using the parameters in Tables H2 and H3.

TABLE H1. Model selection summary for logistic regression models of rodent predation on seeds of five species (*Dacrydium cupressinum*, *Nothofagus solandri* var. *cliffortioides*, *Griselinia littoralis*, *Prumnopitys ferruginea* and *Pseudopanax colensoi*) as a function of the relative basal area of trees within a 15-m radius, in mast (2003) and non-mast (2004) years. Independent variables are S (Site, up to three sites on each terrace) and relative basal area of *Dc* (*Dacrydium cupressinum*), *Nm* (*Nothofagus menziesii*), *Nc* (*N. solandri* var. *cliffortioides*), *Ph* (*Podocarpus hallii*) and *Pf* (*Prumnopitys ferruginea*). A dash indicates that there were too few data to fit a model. *K* is the number of parameters in the model. The best model is shown in bold. Seed predation on *Griselinia littoralis* and *Pseudopanax colensoi* was not modeled for the marine terrace forest.

Forest / Seedfall	*Dacrydium cupressinum*			*Nothofagus solandri* var. *cliffortioides*			*Griselinia littoralis*			*Prumnopitys ferruginea*			*Pseudopanax colensoi*		
	Model	***K***	**ΔAIC_c**	**Model**	***K***	**ΔAIC_c**	**Model**	***K***	**ΔAIC_c**	**Model**	***K***	**ΔAIC_c**	**Model**	***K***	**ΔAIC_c**
Alluvial terrace forest															
Mast	S+*Dc*+*Nm*	5	0.56	S+*Dc*+*Nm*	5	2.24	S+*Dc*+*Nm*	5	3.34	S+*Dc*+*Nm*	5	7.15			
	S+*Nm*	**4**	**0.00**	S+*Nm*	4	0.99	S+*Nm*	4	1.94	S+*Nm*	4	4.87			
	S+*Dc*	4	9.52	S+*Dc*	4	0.94	S+*Dc*	4	1.41	S+*Dc*	4	4.80			
	S	3	8.18	**S**	**3**	**0.00**	**S**	**3**	**0.00**	S	3	2.76			
	Intercept	1	20.21	Intercept	1	14.81	Intercept	1	12.62	**Intercept**	**1**	**0.00**			
	Intercept+*Nm*	2	7.11												
Non-mast	**S+*Dc*+*Nm***	5	**0.00**	S+*Dc*+*Nm*	5	0.65	*Dc*+*Nm*	3	—	S+*Dc*+*Nm*	4	2.96	*Dc*+*Nm*	3	2.10
	S+*Nm*	**4**	1.74	S+*Nm*	4	0.90	*Nm*	2	1.39	S+*Nm*	3	2.31	*Nm*	2	3.17
	S+**Dc**	4	0.16	S+*Dc*	4	0.27	*Dc*	2	—	S+*Dc*	3	—	***Dc***	**2**	**0.00**
	S	3	2.96	**S**	**3**	**0.00**	—		—	S	2	0.43	—		—
	Intercept	1	18.39	Intercept	1	16.21	**Intercept**	**1**	**0.00**	**Intercept**	**1**	**0.00**	Intercept	1	1.95
	Intercept+*Dc*+*Nm*	3	5.45												
Marine terrace forest															
Mast	S+*Dc*+*Nm*+*Nc*+*Ph*+*Pf*	8	8.59	S+*Dc*+*Nm*+*Nc*+*Ph*+*Pf*	8	6.00				S+*Dc*+*Nm*+*Nc*+*Ph*+*Pf*	7	8.99			
	S+*Dc*+*Nc*+*Ph*+*Pf*	7	6.46	S+*Dc*+*Nm*+*Nc*+*Ph*	7	4.08				S+*Nm*+*Nc*+*Ph*+*Pf*	6	7.54			
	S+*Dc*+*Nc*+*Ph*	6	4.03	S+*Dc*+*Nc*+*Ph*	6	2.38				S+*Nm*+*Ph*+*Pf*	5	6.05			
	S+*Dc*+*Ph*	5	2.11	**S+*Nc*+*Ph***	**5**	**0.00**				S+*Nm*+*Ph*	4	3.81			
	S+*Ph*	**4**	**0.00**	*Ph*	4	1.05				S+*Nm*	3	2.14			
	S	3	4.40	S	3	5.11				**S**	**2**	**0.00**			
	Intercept	1	35.20	Intercept	1	36.19				Intercept	1	49.78			

	Intercept+*Ph*	2	26.67	Intercept+*Nc*+*Ph*	3	26.82									
Non-mast	S+*Dc*+*Nm*+*Nc*+*Ph*+*Pf*	8	9.28	S+*Dc*+*Nm*+*Nc*+*Ph*+*Pf*	8	9.89				—		—			
	S+*Dc*+*Nm*+*Ph*+*Pf*	7	6.27	S+*Dc*+*Nm*+*Nc*+*Ph*	7	7.75				—		—			
	S+*Nm*+*Ph*+*Pf*	6	3.97	S+*Nm*+*Nc*+*Ph*	6	5.08				—		—			
	S+*Ph*+*Pf*	5	3.34	S+*Nc*+*Ph*	5	2.90				—		—			
	S+*Ph*	4	1.97	S+*Ph*	4	0.70				—		—			
	S	3	0.36	**S**	**3**	**0.00**				—		—			
	Intercept	**1**	**0.00**	Intercept	1	3.41				—		—			

TABLE H2. Parameter estimates for logistic regression models of rodent predation on seeds of the 13 alluvial terrace forest tree species modeled in SORTIE/NZ, in mast (M) and non-mast (NM) years, as a function of the relative basal area of trees within a 15-m radius. p_0 is the intercept, *p*SPECIES is the effect of the relative basal area of a tree species on seed predation. For species acronyms see Table 1.

Seed species	Annual seedfall	Parameter estimates						Surrogate
		p_0	*p*NOTMEN	*p*NOTCLI	*p*DACCUP	*p*PODHAL	*p*PRUFER	
Conifers (canopy)								
DACCUP	M	−0.01	2.80	0	0	0	0	–
DACCUP	NM	−3.11	2.93	0	−33.00	0	0	–
PODHAL	M	−0.01	2.80	0	0	0	0	DACCUP
PODHAL	NM	−3.11	2.93	0	−33.00	0	0	DACCUP
PRUFER	M	−1.95	0	0	0	0	0	–
PRUFER†	NM	−3.60	0	0	0	0	0	–
Angiosperms (canopy)								
METUMB‡	M	−99.00	0	0	0	0	0	–
METUMB‡	NM	−99.00	0	0	0	0	0	–
NOTMEN	M	0.88	0	0	0	0	0	NOTCLI
NOTMEN	NM	−1.20	0	0	0	0	0	NOTCLI
NOTCLI	M	0.88	0	0	0	0	0	–
NOTCLI	NM	−1.20	0	0	0	0	0	–
WEIRAC‡	M	−99.00	0	0	0	0	0	–
WEIRAC ‡	NM	−99.00	0	0	0	0	0	–
Angiosperms (sub-canopy)								
CARSER‡	M	−99.00	0	0	0	0	0	–
CARSER‡	NM	−99.00	0	0	0	0	0	–
FUCEXC‡	M	−99.00	0	0	0	0	0	–

FUCEXC ‡	NM	−99.00	0	0	0	0	0	–
GRILIT	M	−2.26	0	0	0	0	0	–
GRILIT*	NM	−1.46	0	0	0	0	0	–
PSECOL	M	−1.45	0	0	−41.00	0	0	RAUSIM NM
PSECOL	NM	−1.45	0	0	−41.00	0	0	RAUSIM NM
RAUSIM	M	−1.45	0	0	−41.00	0	0	RAUSIM NM
RAUSIM*	NM	−1.45	0	0	−41.00	0	0	*Pseudopanax colensoi**
SCHDIG	M	−1.45	0	0	−41.00	0	0	RAUSIM NM
SCHDIG	NM	−1.45	0	0	−41.00	0	0	RAUSIM NM

† Very low predation observed.

‡ Predation on these small-seeded species (Appendix F) was assumed to be zero.

* Predation, likely by New Zealand robin (*Petroica australis*), was observed at only one alluvial terrace forest site. The surrogate species used in field trials for RAUSIM was *Pseudopanax colensoi* (cf. PSECOL *Pseudowintera colorata*).

TABLE H3. Parameter estimates for logistic regression models of rodent predation on seeds of the seven marine terrace forest tree species modeled in SORTIE/NZ, in mast (M) and non-mast (NM) years, as a function of the relative basal area of trees within a 15-m radius. *p*0 is the intercept, *p*SPECIES is the effect of the relative basal area of a tree species on seed predation. For species acronyms see Table 1.

Seed species	Seedfall	Parameter estimates						Surrogate
		***p*0**	***p*NOTMEN**	***p*NOTCLI**	***p*DACCUP**	***p*PODHAL**	***p*PRUFER**	
Conifers (canopy)								
DACCUP	M	1.37	0	0	0	−5.80	0	–
DACCUP	NM	−2.40	0	0	0	0	0	–
PODHAL	M	1.37	0	0	0	−5.80	0	DACCUP
PODHAL	NM	−2.40	0	0	0	0	0	DACCUP
PRUFER	M	−1.16	0	0	0	0	0	–
PRUFER†	NM	−99.00	0	0	0	0	0	–
Angiosperms (canopy)								
METUMB‡	M	−99.00	0	0	0	0	0	–
METUMB‡	NM	−99.00	0	0	0	0	0	–
NOTMEN	M	1.87	0	−4.74	0	−5.94	0	NOTCLI
NOTMEN	NM	−2.59	0	0	0	0	0	NOTCLI
NOTCLI	M	1.87	0	−4.74	0	−5.94	0	–
NOTCLI	NM	−2.59	0	0	0	0	0	–
WEIRAC‡	M	−99.00	0	0	0	0	0	–
WEIRAC‡	NM	−99.00	0	0	0	0	0	–

† No predation observed.

‡ Predation on these small-seeded species (Appendix F) was assumed to be zero.

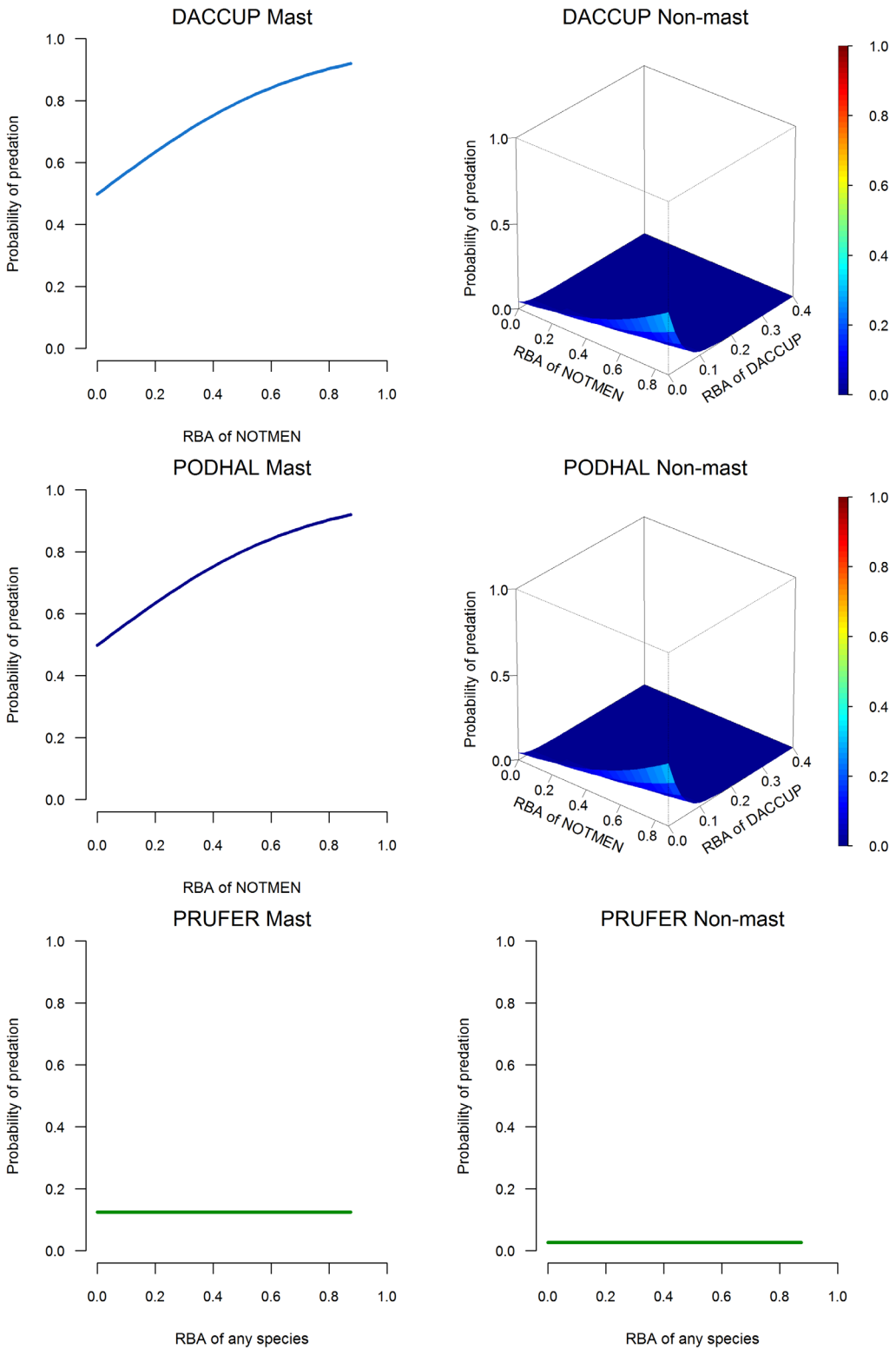

FIG. H1 (continued overleaf). Modeled probability of predation by rodents on seeds of nine tree species in mast and non-mast years in the alluvial terrace forest as a function of the relative basal area (RBA) of five tree species. Seed predation was assumed to be zero for METUMB, WEIRAC, CARSER and FUCEXC (not shown). For species acronyms see Table 1.

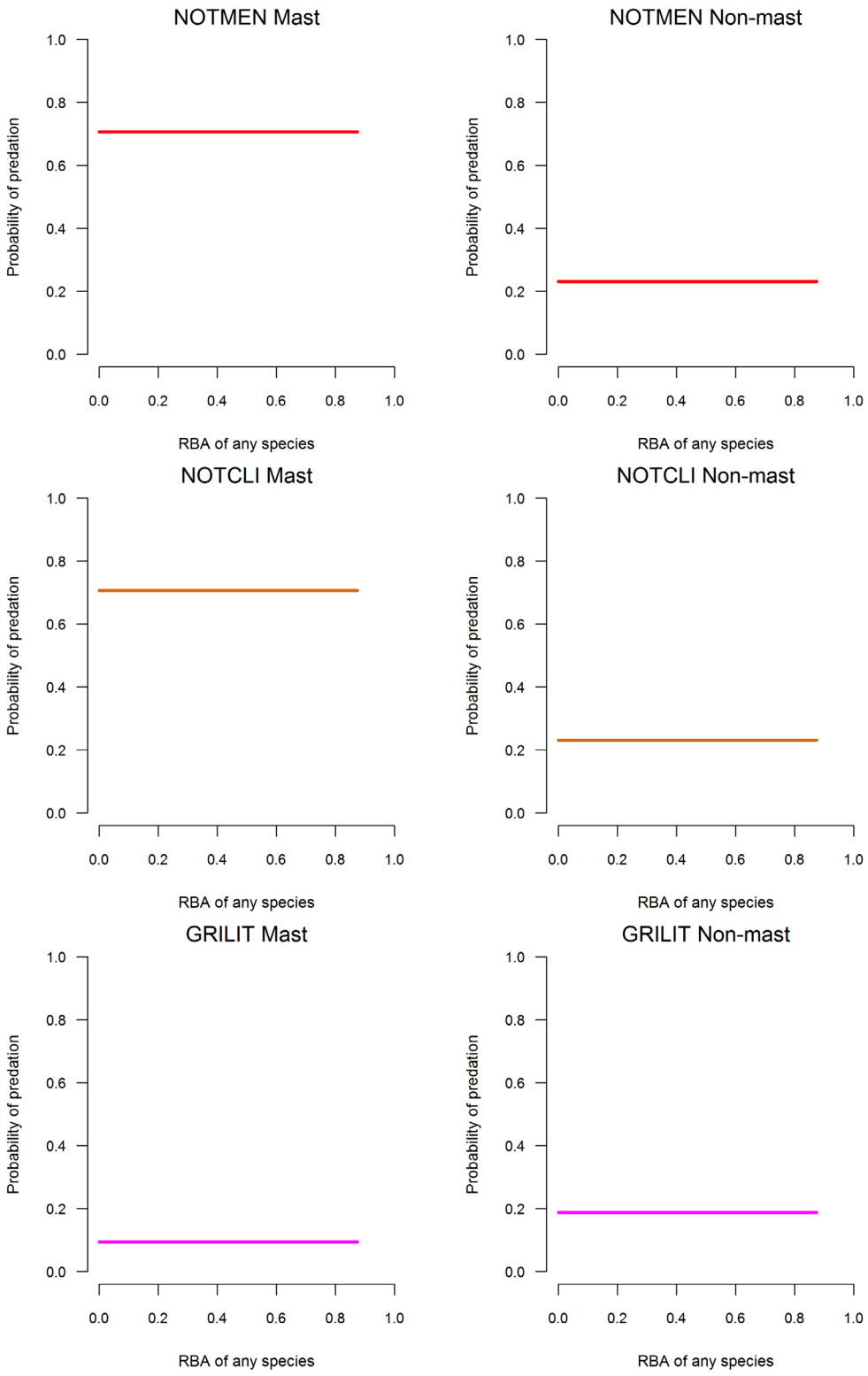

FIG. H1 (continued; continued overleaf). Modeled probability of predation by rodents on seeds of nine tree species in mast and non-mast years in the alluvial terrace forest as a function of the relative basal area (RBA) of five tree species. Seed predation was assumed to be zero for METUMB, WEIRAC, CARSER and FUCEXC (not shown). For species acronyms see Table 1.

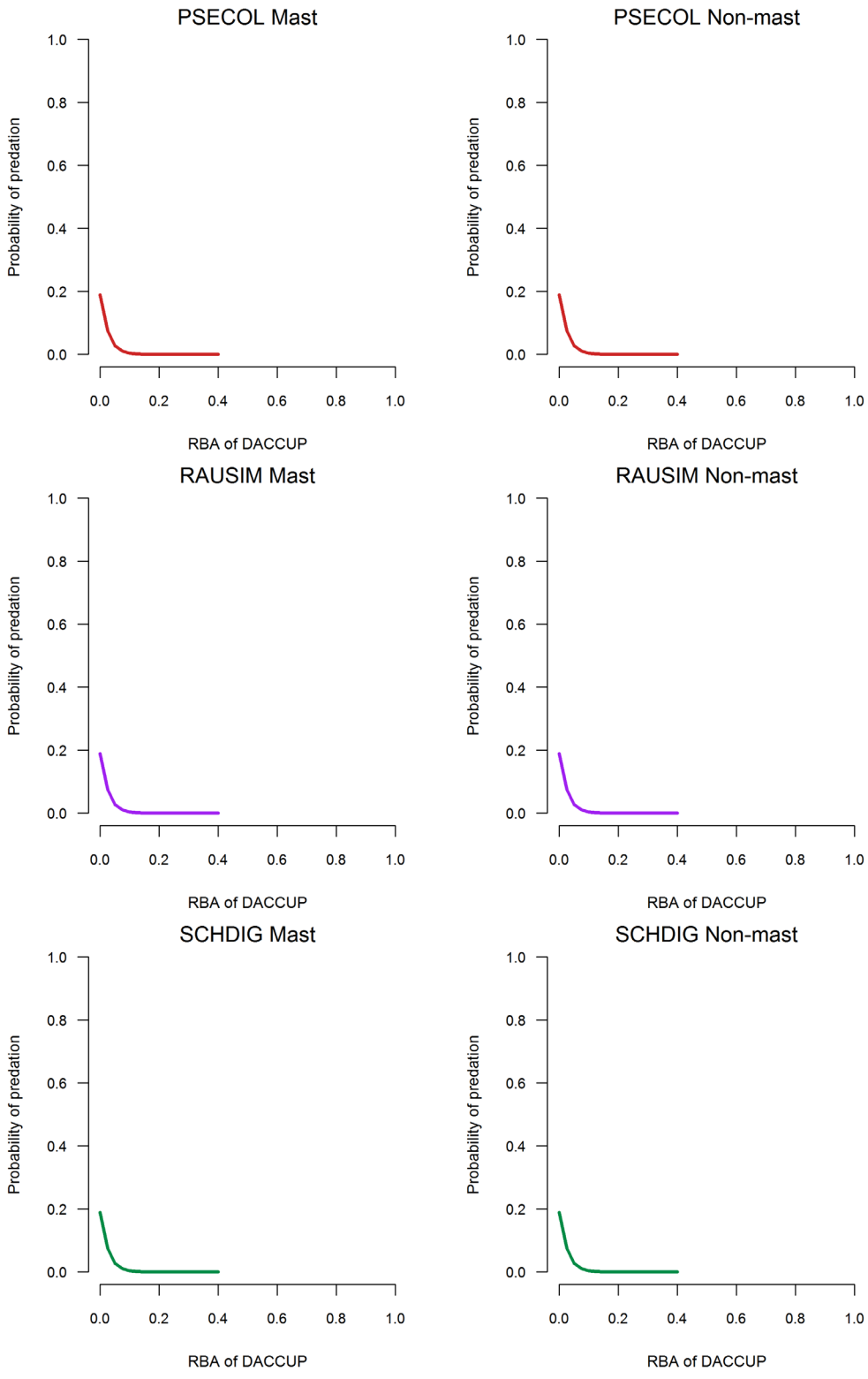

FIG. H1 (continued). Modeled probability of predation by rodents on seeds of nine tree species in mast and non-mast years in the alluvial terrace forest as a function of the relative basal area (RBA) of five tree species. Seed predation was assumed to be zero for METUMB, WEIRAC, CARSER and FUCEXC (not shown). For species acronyms see Table 1.

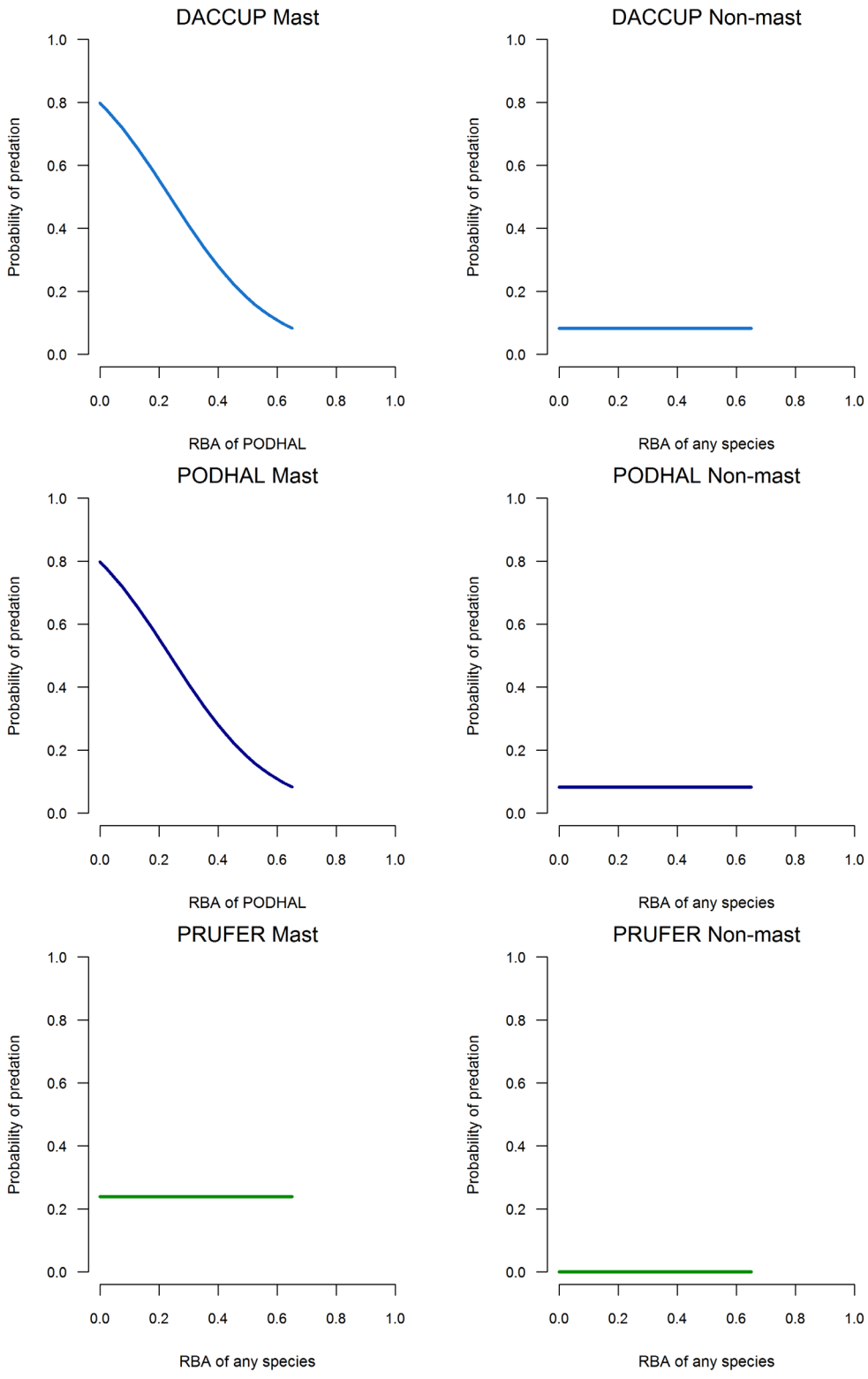

FIG. H2 (continued overleaf). Modeled probability of predation by rodents on seeds of five tree species in mast and non-mast years in marine terrace forest as a function of the relative basal area (RBA) of five tree species. Seed predation was assumed to be zero for METUMB and WEIRAC (not shown). For species acronyms see Table 1.

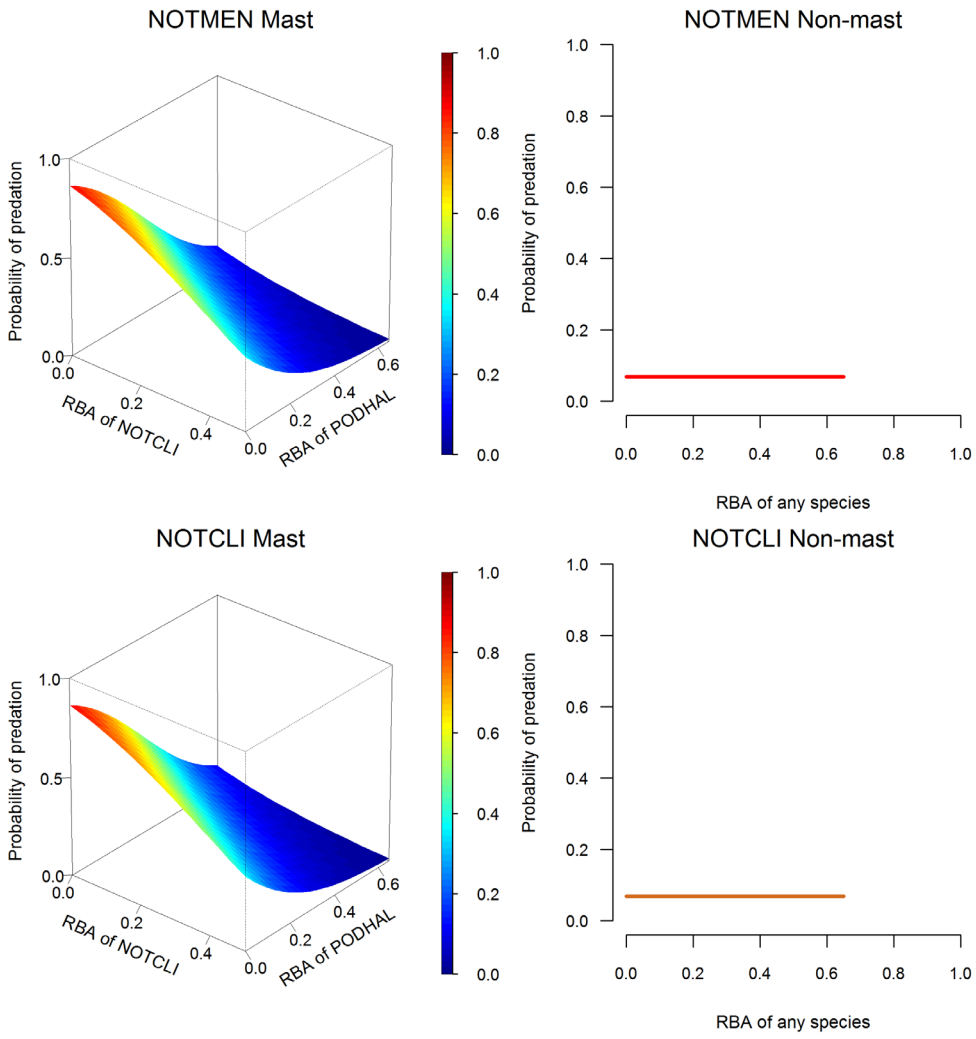

FIG. H2 (continued). Modeled probability of predation by rodents on seeds of five tree species in mast and non-mast years in marine terrace forest as a function of the relative basal area (RBA) of five tree species. Seed predation was assumed to be zero for METUMB and WEIRAC (not shown). For species acronyms see Table 1.