The influence of balanced and imbalanced resource supply on biodiversity–functioning relationship across ecosystems

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published in
Philosophical Transactions of the Royal Society B: Biological Sciences
2016

DOI (link to publisher)
10.1098/rstb.2015.0283

document version
Peer reviewed version

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Aleksandra M. Lewandowska et al.

Supplementary material

Table S1. Studies included in the meta-analysis. Coefficient of determination (**r^2**) indicates how well our SEM explains the variability of richness, evenness and realized productivity. Studies being a part of the Nutrient Network (see Borer et al. 2014 for details) are marked with the asterisk. N, P, K etc. are total availabilities of the elements in water or soil; PAR is photosynthetic active radiation.

Study ID	Study type	Ecosystem type	Habitat	Resources	Biomass measure	Sampling size	r^2 (richness)	r^2 (evenness)	r^2 (productivity)
HILL01	field study	freshwater	lake	N, P	chlorophyll a (mg l-1)	100	0.25	0.04	0.52
HILL02	field study	freshwater	lake	N, P	NPP (g C m-2 yr-1)	23	0.08	NA	0.39
DECL01	experiment	freshwater	mesocosm	N, P (manipulated)	chlorophyll a (mg l-1)	77	0.09	0.02	0.42
STRIE01	experiment	freshwater	mesocosm	N, P (manipulated)	chlorophyll a (mg l-1)	41	0.12	NA	0.60
URABE01	field study	freshwater	lake	N, P	chlorophyll a (mg l-1)	77	0.25	0.01	0.55
EPA01	field study	freshwater	lake	N, P	chlorophyll a (mg l-1)	540	0.14	NA	0.34
LEWA01	experiment	marine	mesocosm	N, P (manipulated)	biomass (mg C l-1)	12	0.49	0.34	0.70
VENTE01	field study	terrestrial	grassland	K, N, P, Ca, Mg, Fe	biomass (g m2-1)	53	0.28	NA	0.52
HILL03	experiment	freshwater	microcosm	N, P (manipulated)	biovolume (mm3 l-1)	90	0.20	0.02	0.40
HILL04	field study	freshwater	lake	N, P	biovolume (mm3 l-1)	226	0.03	0.02	0.52
STRIE02	experiment	freshwater	mesocosm	N, P (manipulated)	biovolume (mm3 l-1)	60	0.49	NA	0.78
LEWA02	experiment	marine	mesocosm	N, P	biovolume (mm3 l-1)	24	0.02	0.01	0.08
LEWA03	experiment	marine	mesocosm	N, P	biomass (mg C l-1)	12	0.67	0.06	0.11
LEWA04	experiment	marine	mesocosm	N, P	biomass (mg C l-1)	12	0.05	0.07	0.84
HILL05	experiment	marine	microcosm	N, P (manipulated)	biovolume (mm3 l-1)	59	0.02	0.03	0.31
LEMMENS	field study	freshwater	pond	N, P	biovolume (mm3 l-1)	35	0.06	NA	0.10
PONDSCAPE	field study	freshwater	pond	N, P	biovolume (mm3 l-1)	117	0.03	NA	0.26
HILL06	field study	freshwater	lake	N, P, PAR	biomass (mg C l-1)	131	0.12	0.04	0.47
AMCAMP*	field study	terrestrial	grassland	K, N, P	biomass (g m2-1)	30	0.05	0.15	0.23
AZI*	field study	terrestrial	grassland	K, N, P	biomass (g m2-1)	29	0.02	0.06	0.18
BARTA*	field study	terrestrial	grassland	K, N, P	biomass (g m2-1)	30	0.09	0.09	0.06

BLDR*	field study	terrestrial	grassland	K, N, P	biomass (g m2-1)	20	0.23	0.16	0.08
BNCH*	field study	terrestrial	grassland	K, N, P	biomass (g m2-1)	30	0.25	0.30	0.13
BOGONG*	field study	terrestrial	grassland	K, N, P	biomass (g m2-1)	30	0.17	0.22	0.03
BTTR*	field study	terrestrial	grassland	K, N, P	biomass (g m2-1)	30	0.11	0.01	0.09
BURRAWAN*	field study	terrestrial	grassland	K, N, P	biomass (g m2-1)	30	0.10	0.17	0.18
CDPT*	field study	terrestrial	grassland	K, N, P	biomass (g m2-1)	60	0.25	0.11	0.29
CDCR*	field study	terrestrial	grassland	K, N, P	biomass (g m2-1)	47	0.30	0.01	0.28
COWI*	field study	terrestrial	grassland	K, N, P	biomass (g m2-1)	30	0.13	0.01	0.38
FNLY*	field study	terrestrial	grassland	K, N, P	biomass (g m2-1)	17	0.67	0.11	0.35
FRUE*	field study	terrestrial	grassland	K, N, P	biomass (g m2-1)	30	0.05	0.05	0.01
GILB*	field study	terrestrial	grassland	K, N, P	biomass (g m2-1)	30	0.04	0.18	0.13
CBGB*	field study	terrestrial	grassland	K, N, P	biomass (g m2-1)	54	0.01	0.01	0.01
HILL07	field study	freshwater	lake	N, P	biovolume (mm3 l-1)	80	0.05	0.02	0.31
HILL08	field study	freshwater	lake	N, P	biovolume (mm3 l-1)	78	0.08	0.01	0.55
COMTESS	field study	terrestrial	grassland, saltmarsh	K, P	biomass (g m2-1)	177	0.08	NA	0.04
TREIBSEL	field study	terrestrial	saltmarsh	K, P	biomass (g m2-1)	111	0.07	NA	0.28
HANS	field study	marine	brackish	N, P	chlorophyll a (mg l-1)	260	0.13	0.01	0.33
NOORD	field study	marine	coastal	N, P	chlorophyll a (mg l-1)	154	0.08	0.05	0.22
ROTT	field study	marine	coastal	N, P	chlorophyll a (mg l-1)	88	0.03	0.01	0.12
TER	field study	marine	coastal	N, P	chlorophyll a (mg l-1)	35	0.11	0.08	0.35
VLISS	field study	marine	brackish	N, P	chlorophyll a (mg l-1)	256	0.25	0.01	0.22
WAL01	field study	marine	coastal	N, P	chlorophyll a (mg l-1)	157	0.06	0.03	0.27
WAL02	field study	marine	coastal	N, P	chlorophyll a (mg l-1)	159	0.01	0.07	0.07
LOD	field study	marine	brackish	N, P	chlorophyll a (mg l-1)	272	0.13	0.01	0.25
HOD01	field study	marine	coastal	N, P, PAR	biovolume (mm3 l-1)	17	0.21	0.01	0.69
HOD02	field study	marine	coastal	N, P, PAR	biovolume (mm3 l-1)	10	0.31	0.18	0.91
HOD03	field study	marine	coastal	N, P, PAR	biovolume (mm3 l-1)	14	0.03	0.22	0.61
GAM01	field study	terrestrial	forest	N, C	biomass (kg m2-1)	1627	0.02	0.01	0.10
L4	field study	marine	coastal	N, PAR	biomass (mg C l-1)	174	0.09	0.05	0.45
DONK01	field study	freshwater	lake	N, P	biovolume (mm3 l-1)	36	0.04	0.01	0.58

DONK02	field study	freshwater	lake	N, P	chlorophyll a (mg l-1)	55	0.05	0.05	0.08
GLAC*	field study	terrestrial	grassland	K, N, P	biomass (g m2-1)	29	0.18	0.15	0.01
HALL*	field study	terrestrial	grassland	K, N, P	biomass (g m2-1)	30	0.10	0.12	0.08
HART*	field study	terrestrial	grassland	K, N, P	biomass (g m2-1)	30	0.30	0.03	0.08
HNVR*	field study	terrestrial	grassland	K, N, P	biomass (g m2-1)	30	0.09	0.16	0.26
KINY*	field study	terrestrial	grassland	K, N, P	biomass (g m2-1)	30	0.12	0.10	0.06
LANCASTER*	field study	terrestrial	grassland	K, N, P	biomass (g m2-1)	26	0.06	0.09	0.24
LEAD*	field study	terrestrial	grassland	K, N, P	biomass (g m2-1)	30	0.04	0.13	0.23
LOOK*	field study	terrestrial	grassland	K, N, P	biomass (g m2-1)	30	0.08	0.01	0.31
MTCA*	field study	terrestrial	grassland	K, N, P	biomass (g m2-1)	8	0.50	0.03	0.70
PAPE*	field study	terrestrial	grassland	K, N, P	biomass (g m2-1)	10	0.03	0.07	0.33
SAGE*	field study	terrestrial	grassland	K, N, P	biomass (g m2-1)	30	0.29	0.04	0.41
SAVA*	field study	terrestrial	grassland	K, N, P	biomass (g m2-1)	20	0.07	0.01	0.50
SEDG*	field study	terrestrial	grassland	K, N, P	biomass (g m2-1)	29	0.07	0.09	0.16
SERENG*	field study	terrestrial	grassland	K, N, P	biomass (g m2-1)	29	0.22	0.11	0.17
SEVI*	field study	terrestrial	grassland	K, N, P	biomass (g m2-1)	40	0.05	0.01	0.07
SHPS*	field study	terrestrial	grassland	K, N, P	biomass (g m2-1)	38	0.02	0.05	0.25
SIER*	field study	terrestrial	grassland	K, N, P	biomass (g m2-1)	30	0.26	0.04	0.15
SMITH*	field study	terrestrial	grassland	K, N, P	biomass (g m2-1)	30	0.06	0.07	0.27
SPIN*	field study	terrestrial	grassland	K, N, P	biomass (g m2-1)	30	0.04	0.02	0.11
SUMM*	field study	terrestrial	grassland	K, N, P	biomass (g m2-1)	30	0.03	0.01	0.10
TEMPLE*	field study	terrestrial	grassland	K, N, P	biomass (g m2-1)	25	0.05	0.04	0.17
TYSO*	field study	terrestrial	grassland	K, N, P	biomass (g m2-1)	40	0.04	0.01	0.24
UKUL*	field study	terrestrial	grassland	K, N, P	biomass (g m2-1)	30	0.06	0.05	0.14
UNC*	field study	terrestrial	grassland	K, N, P	biomass (g m2-1)	30	0.15	0.08	0.22
VALM*	field study	terrestrial	grassland	K, N, P	biomass (g m2-1)	30	0.07	0.01	0.11
MEIER00	field study	freshwater	rock pools	N, P	biovolume (mm3 l-1)	30	0.26	0.07	0.56

† Borer et al. 2014 Finding generality in ecology: a model for globally distributed experiments. *Methods Ecol. Evol.* **5**: 65-73.

Table S2. Summary of results from meta-analysis of model paths with richness, including overall effect size (estimate), its significance (*p*) and 95% confidence intervals (CI).

	estimate	*p*	95% CI
Grasslands and saltmarshes (n=43)			
resource availability -> richness	-0.03	0.24	-0.08, 0.02
resource availability -> realized productivity	0.11	< 0.001	0.06, 0.16
resource imbalance -> richness	0.03	0.21	-0.02, 0.08
resource imbalance -> realized productivity	-0.02	0.38	-0.08, 0.03
richness -> realized productivity	-0.04	0.14	-0.09, 0.01
Freshwater field studies (n=13)			
resource availability -> richness	0.16	< 0.001	0.11, 0.21
resource availability -> realized productivity	0.44	< 0.001	0.39, 0.49
resource imbalance -> richness	-0.05	0.047	-0.10, -0.001
resource imbalance -> realized productivity	-0.03	0.35	-0.07, 0.03
richness -> realized productivity	0.16	< 0.001	0.11, 0.21
Freshwater experimental studies (n=4)			
resource availability -> richness	-0.03	0.66	-0.15, 0.09
resource availability -> realized productivity	0.61	< 0.001	0.49, 0.74
resource imbalance -> richness	-0.01	0.84	-0.13, 0.11
resource imbalance -> realized productivity	-0.09	0.17	-0.21, 0.04
richness -> realized productivity	-0.03	0.63	-0.15, 0.09
Marine field studies (n=12)			
resource availability -> richness	-0.14	< 0.001	-0.19, -0.09
resource availability -> realized productivity	-0.06	< 0.001	-0.11, -0.01
resource imbalance -> richness	0.05	0.04	0.00, 0.10
resource imbalance -> realized productivity	0.13	< 0.001	0.08, 0.18
richness -> realized productivity	0.31	< 0.001	0.26, 0.36
Marine experimental studies (n=5)			
resource availability -> richness	0.04	0.69	-0.15, 0.23
resource availability -> realized productivity	0.05	0.63	-0.14, 0.24
resource imbalance -> richness	0.09	0.34	-0.10, 0.29
resource imbalance -> realized productivity	-0.13	0.19	-0.32, 0.06
richness -> realized productivity	0.01	0.88	-0.18, 0.21

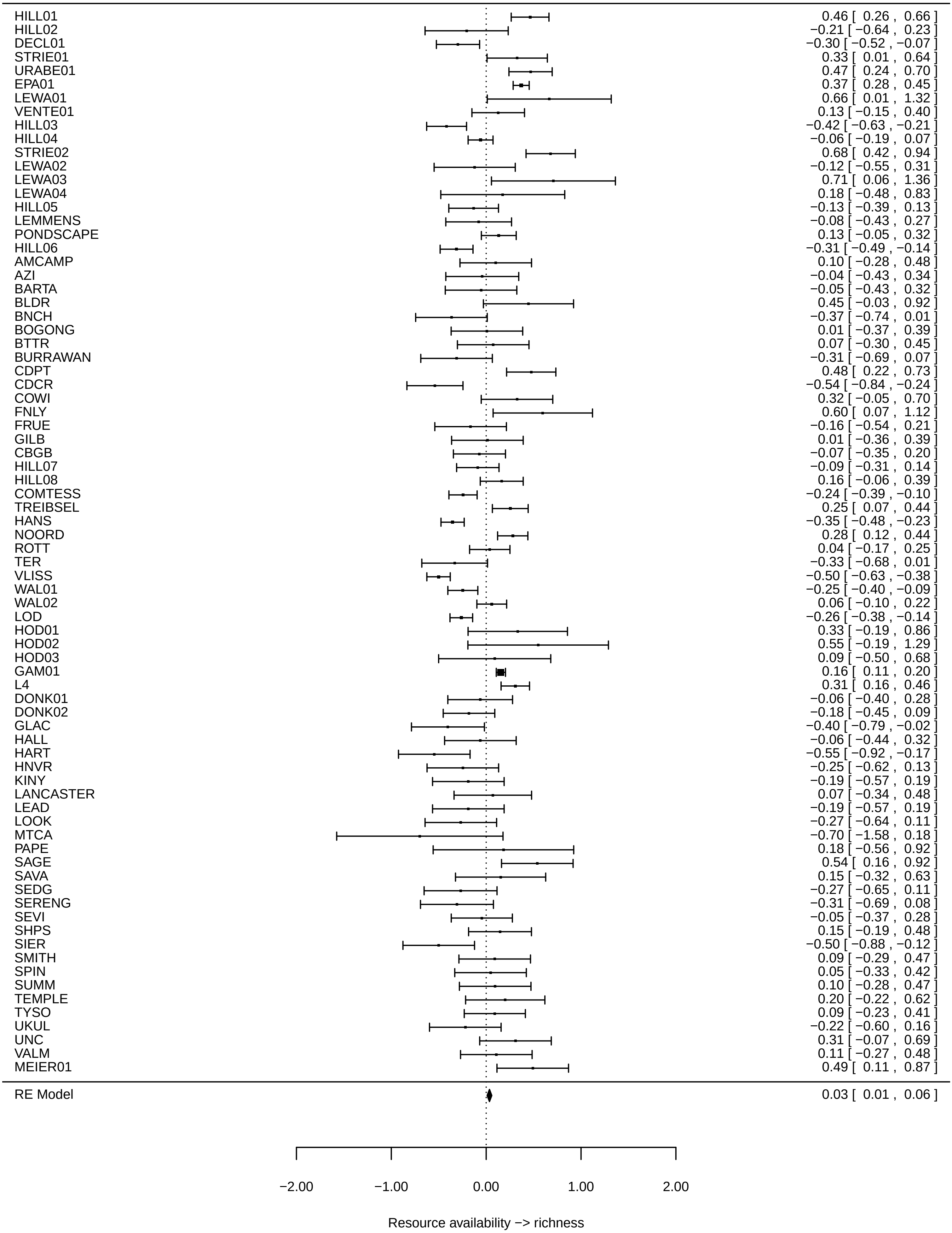
Table S3. Summary of results from meta-analysis of model paths with evenness, including overall effect size (estimate), its significance (*p*) and 95% confidence intervals (CI).

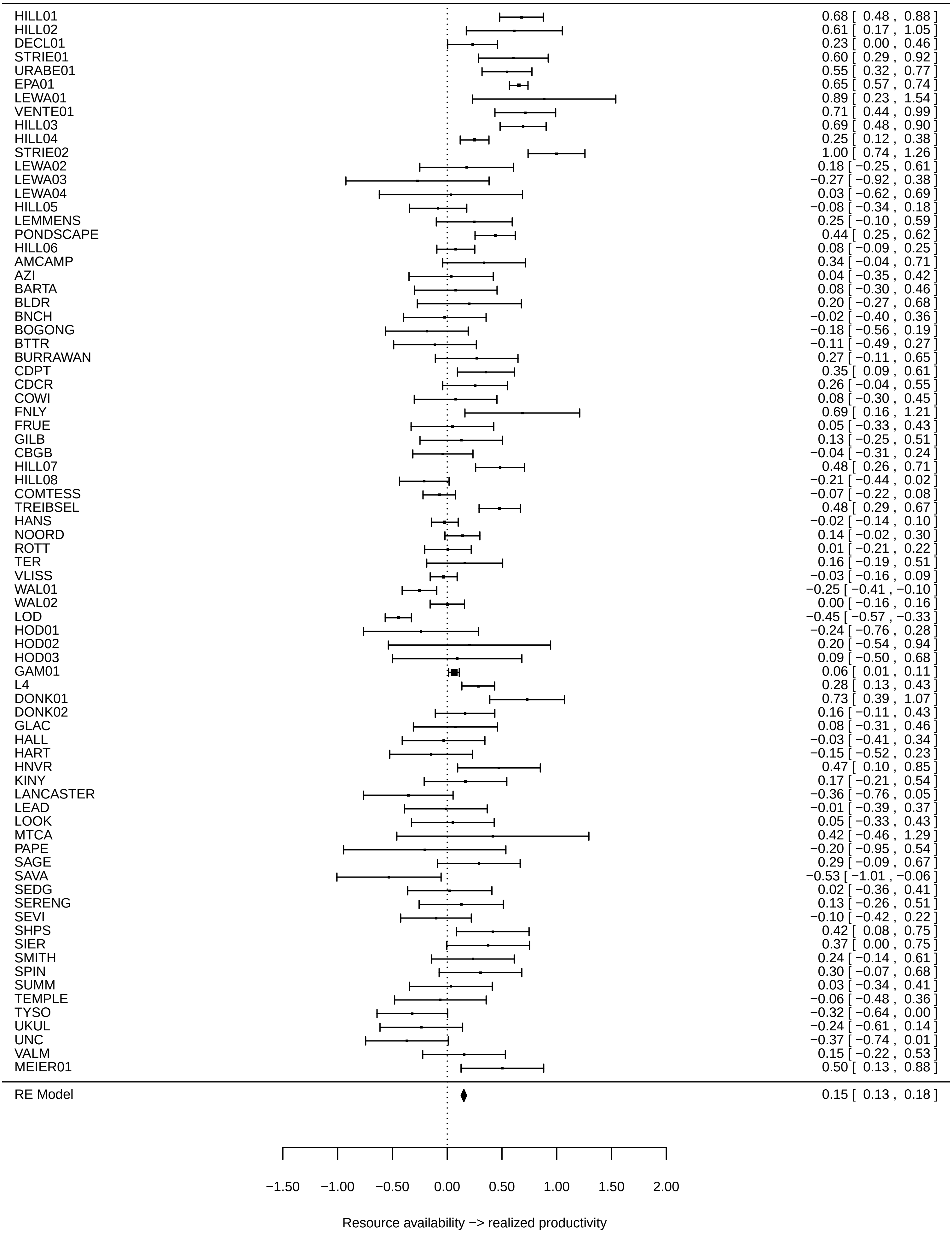
	estimate	***p***	**95% CI**
Grasslands and saltmarshes (n=40)			
resource availability -> evenness	0.01	0.74	-0.05, 0.07
resource availability -> realized productivity	0.08	0.01	0.02, 0.14
resource imbalance -> evenness	-0.02	0.44	-0.08, 0.04
resource imbalance -> realized productivity	-0.03	0.32	-0.09, 0.03
evenness -> realized productivity	-0.07	0.02	-0.13, -0.01
Freshwater field studies (n=9)			
resource availability -> evenness	-0.001	0.98	-0.07, 0.07
resource availability -> realized productivity	0.32	< 0.001	0.25, 0.39
resource imbalance -> evenness	-0.001	0.83	-0.08, 0.06
resource imbalance -> realized productivity	0.02	0.66	-0.05, 0.09
evenness -> realized productivity	-0.42	< 0.001	-0.49, -0.35
Freshwater experimental studies (n=2)			
resource availability -> evenness	-0.09	0.24	-0.25, 0.06
resource availability -> realized productivity	0.39	< 0.001	0.23, 0.54
resource imbalance -> evenness	0.10	0.21	-0.06, 0.25
resource imbalance -> realized productivity	-0.01	0.91	-0.16, 0.15
evenness -> realized productivity	-0.38	< 0.001	-0.53, -0.22
Marine field studies (n=12)			
resource availability -> evenness	0.05	0.07	-0.00, 0.10
resource availability -> realized productivity	-0.11	< 0.001	-0.16, -0.06
resource imbalance -> evenness	-0.05	0.06	-0.10, 0.00
resource imbalance -> realized productivity	0.13	< 0.001	0.08, 0.18
evenness -> realized productivity	-0.17	< 0.001	-0.22, -0.12
Marine experimental studies (n=5)			
resource availability -> evenness	0.13	0.18	-0.06, 0.32
resource availability -> realized productivity	0.07	0.48	-0.12, 0.26
resource imbalance -> evenness	0.03	0.78	-0.17, 0.22
resource imbalance -> realized productivity	-0.11	0.25	-0.30, 0.08
evenness -> realized productivity	-0.42	< 0.001	-0.61, -0.23

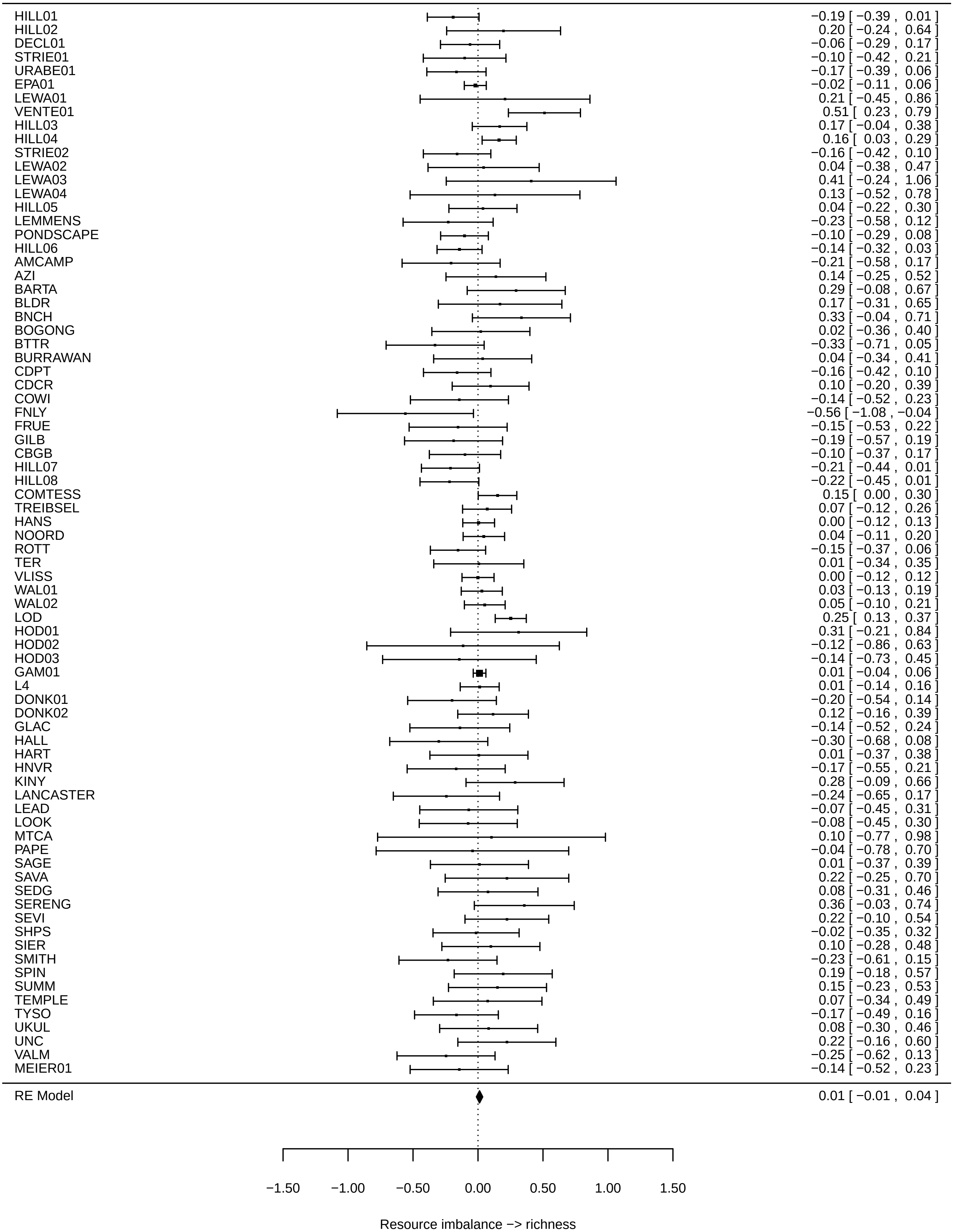
Table S4. Researchers not included as the coauthors, who significantly contributed to the data collection. The Nutrient Network site PIs are marked with asterisks.

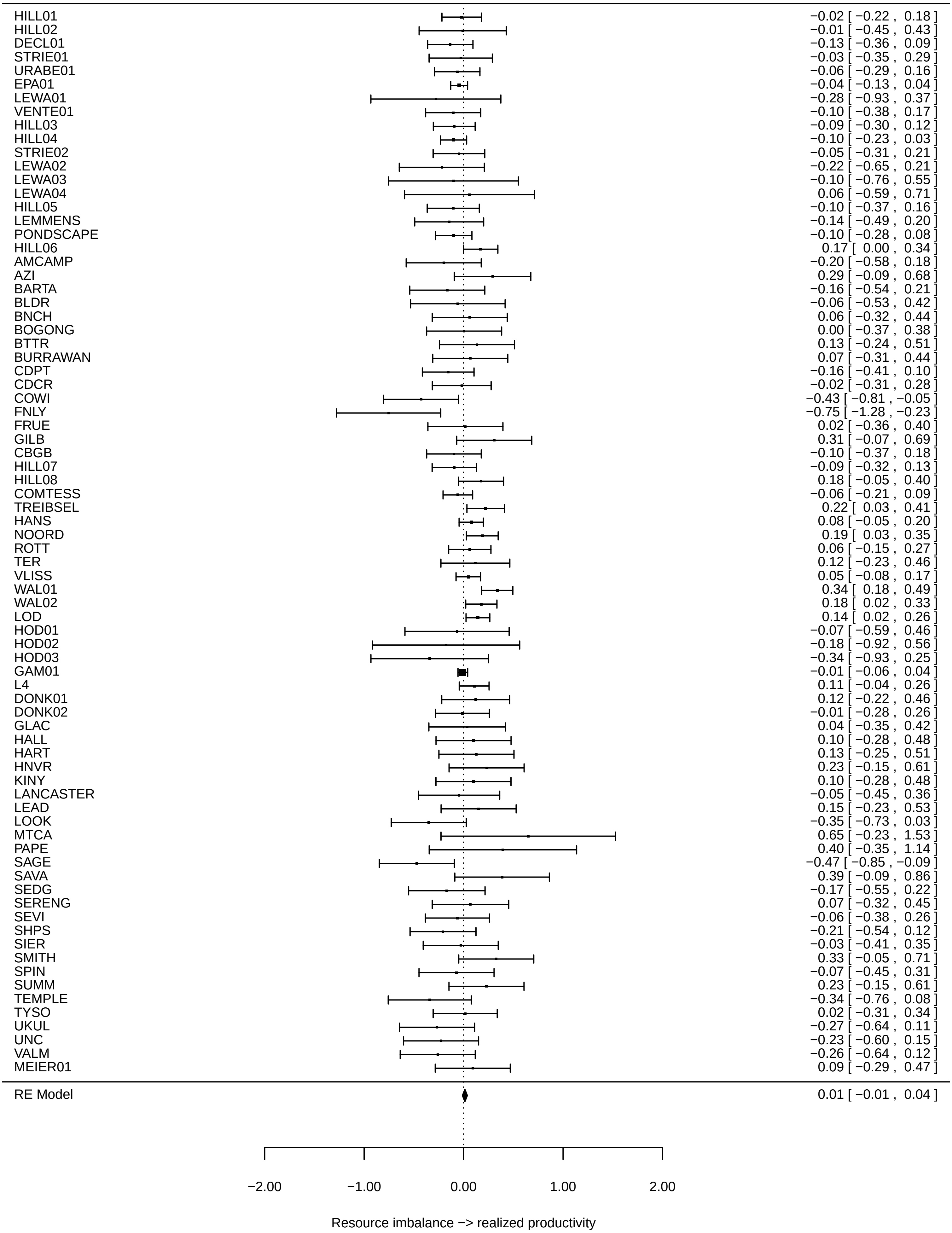
Name	Affiliation
Lena Eggers	WasserCluster Lunz, Austria
Thomas Hansen	GEOMAR Helmholtz Centre for Ocean Research Kiel, Germany
Carolyn Harris	Plymouth Marine Laboratory, UK
Dorothee Hodapp	ICBM, University of Oldenburg, Germany
Birte Matthiessen	GEOMAR Helmholtz Centre for Ocean Research Kiel, Germany
Timothy Smyth	Plymouth Marine Laboratory, UK
Jane Soininen	University of Helsinki, Finland
Martin Wassen	Utrecht University, The Netherlands
E. Malcolm S. Woodward	Plymouth Marine Laboratory, UK
Jeroen Van Wichelen	Ghent University, Belgium
María José Villena Alvarez	Laboratorios Technologicos de Levante, Spain
Andrew MacDougall*	Univeristy of Guelph, Canada
Anita C. Risch*	Swiss Federal Institute for Forest, Snow and Landscape Research, Switzerland
Brett Melbourne*	University of Colorado, USA
Carla M D'Antonio*	University of California, Santa Barbara, USA
Carly Stevens*	Lancaster University, UK
Chengjin Chu*	Lanzhou University, China
David Pyke*	USGS Forest and Rangeland Ecosystem Science Center, USA
David Wedin*	University of Nebraska, Lincoln, USA
Ellen I. Damschen*	University of Wisconsin, USA
Janneke Hille Ris Lambers*	University of Washington, USA
Jennifer Firn*	Queensland University of Technology, Australia
John G. Lambrinos*	Oregon State University, USA
John L. Orrock*	University of Wisconsin, USA
John Morgan*	La Trobe University, Australia
Jonathan D. Bakker*	University of Washington, USA
Justin Wright*	Duke University, USA
Kathryn L. Cottingham*	Dartmouth College, USA
Kendi Davies*	University of Colorado, USA
Kirsten S. Hofmockel*	Iowa State University, USA
Louie Yang*	University of California, Davis, USA
Martin Schuetz*	Swiss Federal Institute for Forest, Snow and Landscape Research, Switzerland
Nicole M. DeCrappeo*	USGS Forest and Rangeland Ecosystem Science Center, USA
Peter Adler*	Utah State University, USA
Peter D. Wragg*	University of Minnesota, USA
Philip A Fay*	USDA-ARS Grassland Soil and Water Research Lab, USA
Rebecca L. McCulley*	University of Kentucky, USA
Scott Collins*	University of New Mexico, USA
Suzanne M Prober*	CSIRO, Australia
T. Michael Anderson*	Wake Forest University, USA
Yann Hautier*	University of Oxford, UK
Yvonne Buckley*	The University of Queensland, Australia
Lars Brudvig*	Michigan State University, USA

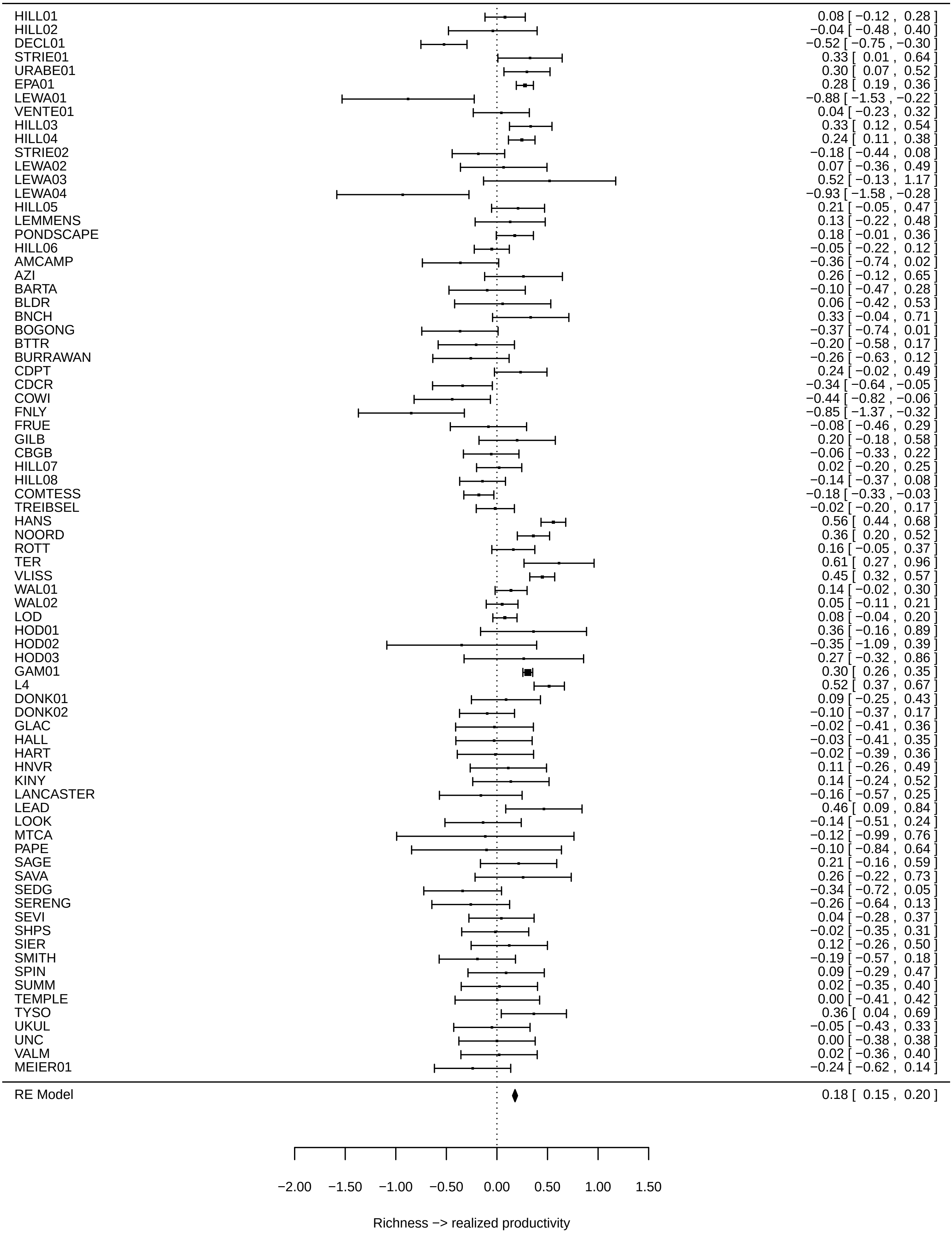
Figure S1-10. Effect sizes as standardized path coefficients (± 95% CI) for each model path and each study. Different size of the points corresponds to the sample size.

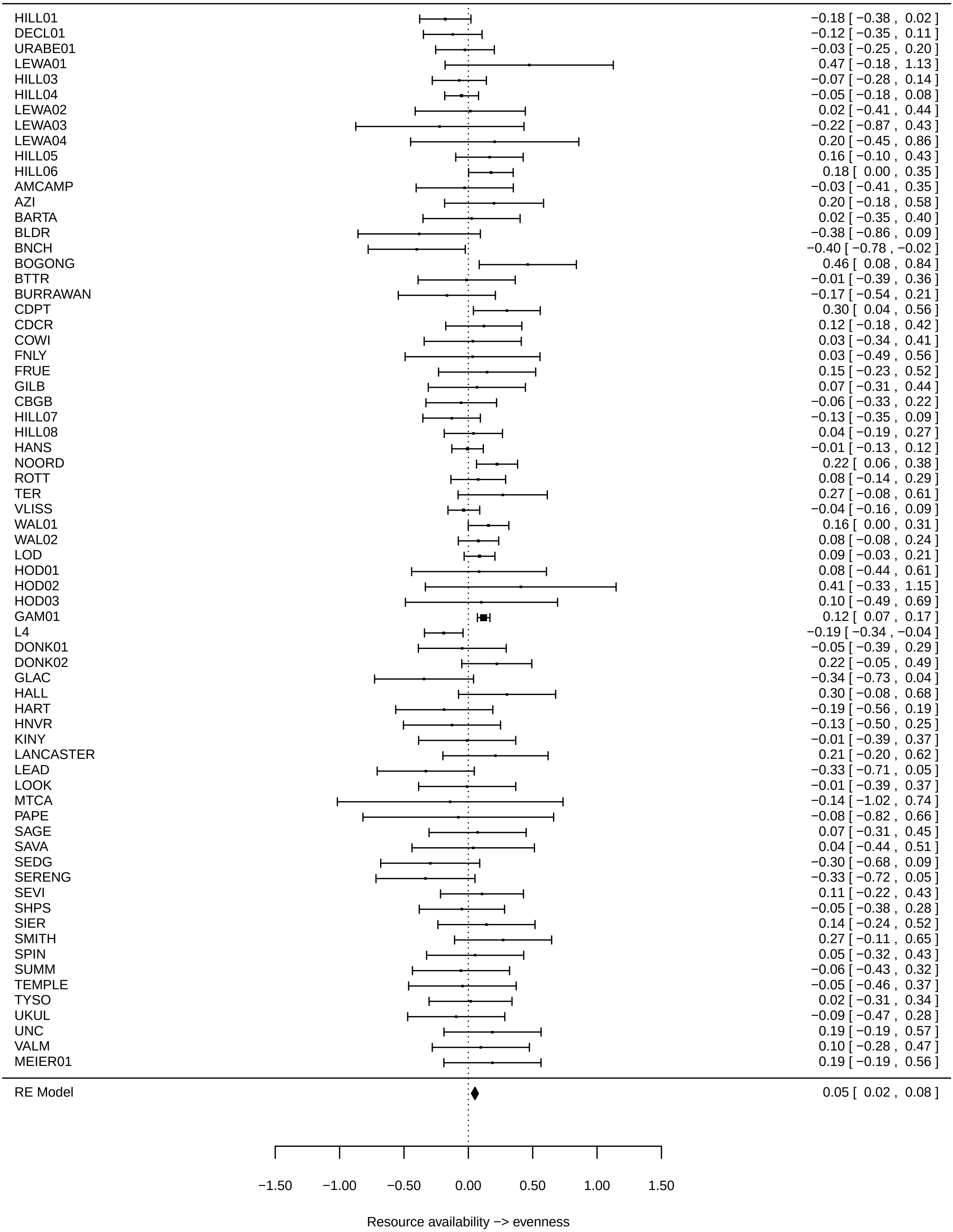

HILL01 0.46 [0.26 , 0.66]
HILL02 −0.21 [−0.64 , 0.23]
DECL01 −0.30 [−0.52 , −0.07]
STRIE01 0.33 [0.01 , 0.64]
URABE01 0.47 [0.24 , 0.70]
EPA01 0.37 [0.28 , 0.45]
LEWA01 0.66 [0.01 , 1.32]
VENTE01 0.13 [−0.15 , 0.40]
HILL03 −0.42 [−0.63 , −0.21]
HILL04 −0.06 [−0.19 , 0.07]
STRIE02 0.68 [0.42 , 0.94]
LEWA02 −0.12 [−0.55 , 0.31]
LEWA03 0.71 [0.06 , 1.36]
LEWA04 0.18 [−0.48 , 0.83]
HILL05 −0.13 [−0.39 , 0.13]
LEMMENS −0.08 [−0.43 , 0.27]
PONDSCAPE 0.13 [−0.05 , 0.32]
HILL06 −0.31 [−0.49 , −0.14]
AMCAMP 0.10 [−0.28 , 0.48]
AZI −0.04 [−0.43 , 0.34]
BARTA −0.05 [−0.43 , 0.32]
BLDR 0.45 [−0.03 , 0.92]
BNCH −0.37 [−0.74 , 0.01]
BOGONG 0.01 [−0.37 , 0.39]
BTTR 0.07 [−0.30 , 0.45]
BURRAWAN −0.31 [−0.69 , 0.07]
CDPT 0.48 [0.22 , 0.73]
CDCR −0.54 [−0.84 , −0.24]
COWI 0.32 [−0.05 , 0.70]
FNLY 0.60 [0.07 , 1.12]
FRUE −0.16 [−0.54 , 0.21]
GILB 0.01 [−0.36 , 0.39]
CBGB −0.07 [−0.35 , 0.20]
HILL07 −0.09 [−0.31 , 0.14]
HILL08 0.16 [−0.06 , 0.39]
COMTESS −0.24 [−0.39 , −0.10]
TREIBSEL 0.25 [0.07 , 0.44]
HANS −0.35 [−0.48 , −0.23]
NOORD 0.28 [0.12 , 0.44]
ROTT 0.04 [−0.17 , 0.25]
TER −0.33 [−0.68 , 0.01]
VLISS −0.50 [−0.63 , −0.38]
WAL01 −0.25 [−0.40 , −0.09]
WAL02 0.06 [−0.10 , 0.22]
LOD −0.26 [−0.38 , −0.14]
HOD01 0.33 [−0.19 , 0.86]
HOD02 0.55 [−0.19 , 1.29]
HOD03 0.09 [−0.50 , 0.68]
GAM01 0.16 [0.11 , 0.20]
L4 0.31 [0.16 , 0.46]
DONK01 −0.06 [−0.40 , 0.28]
DONK02 −0.18 [−0.45 , 0.09]
GLAC −0.40 [−0.79 , −0.02]
HALL −0.06 [−0.44 , 0.32]
HART −0.55 [−0.92 , −0.17]
HNVR −0.25 [−0.62 , 0.13]
KINY −0.19 [−0.57 , 0.19]
LANCASTER 0.07 [−0.34 , 0.48]
LEAD −0.19 [−0.57 , 0.19]
LOOK −0.27 [−0.64 , 0.11]
MTCA −0.70 [−1.58 , 0.18]
PAPE 0.18 [−0.56 , 0.92]
SAGE 0.54 [0.16 , 0.92]
SAVA 0.15 [−0.32 , 0.63]
SEDG −0.27 [−0.65 , 0.11]
SERENG −0.31 [−0.69 , 0.08]
SEVI −0.05 [−0.37 , 0.28]
SHPS 0.15 [−0.19 , 0.48]
SIER −0.50 [−0.88 , −0.12]
SMITH 0.09 [−0.29 , 0.47]
SPIN 0.05 [−0.33 , 0.42]
SUMM 0.10 [−0.28 , 0.47]
TEMPLE 0.20 [−0.22 , 0.62]
TYSO 0.09 [−0.23 , 0.41]
UKUL −0.22 [−0.60 , 0.16]
UNC 0.31 [−0.07 , 0.69]
VALM 0.11 [−0.27 , 0.48]
MEIER01 0.49 [0.11 , 0.87]
RE Model 0.03 [0.01 , 0.06]
−2.00
−1.00
0.00
1.00
2.00
Resource availability −> richness


HILL01 0.68 [0.48 , 0.88]
HILL02 0.61 [0.17 , 1.05]
DECL01 0.23 [0.00 , 0.46]
STRIE01 0.60 [0.29 , 0.92]
URABE01 0.55 [0.32 , 0.77]
EPA01 0.65 [0.57 , 0.74]
LEWA01 0.89 [0.23 , 1.54]
VENTE01 0.71 [0.44 , 0.99]
HILL03 0.69 [0.48 , 0.90]
HILL04 0.25 [0.12 , 0.38]
STRIE02 1.00 [0.74 , 1.26]
LEWA02 0.18 [−0.25 , 0.61]
LEWA03 −0.27 [−0.92 , 0.38]
LEWA04 0.03 [−0.62 , 0.69]
HILL05 −0.08 [−0.34 , 0.18]
LEMMENS 0.25 [−0.10 , 0.59]
PONDSCAPE 0.44 [0.25 , 0.62]
HILL06 0.08 [−0.09 , 0.25]
AMCAMP 0.34 [−0.04 , 0.71]
AZI 0.04 [−0.35 , 0.42]
BARTA 0.08 [−0.30 , 0.46]
BLDR 0.20 [−0.27 , 0.68]
BNCH −0.02 [−0.40 , 0.36]
BOGONG −0.18 [−0.56 , 0.19]
BTTR −0.11 [−0.49 , 0.27]
BURRAWAN 0.27 [−0.11 , 0.65]
CDPT 0.35 [0.09 , 0.61]
CDCR 0.26 [−0.04 , 0.55]
COWI 0.08 [−0.30 , 0.45]
FNLY 0.69 [0.16 , 1.21]
FRUE 0.05 [−0.33 , 0.43]
GILB 0.13 [−0.25 , 0.51]
CBGB −0.04 [−0.31 , 0.24]
HILL07 0.48 [0.26 , 0.71]
HILL08 −0.21 [−0.44 , 0.02]
COMTESS −0.07 [−0.22 , 0.08]
TREIBSEL 0.48 [0.29 , 0.67]
HANS −0.02 [−0.14 , 0.10]
NOORD 0.14 [−0.02 , 0.30]
ROTT 0.01 [−0.21 , 0.22]
TER 0.16 [−0.19 , 0.51]
VLISS −0.03 [−0.16 , 0.09]
WAL01 −0.25 [−0.41 , −0.10]
WAL02 0.00 [−0.16 , 0.16]
LOD −0.45 [−0.57 , −0.33]
HOD01 −0.24 [−0.76 , 0.28]
HOD02 0.20 [−0.54 , 0.94]
HOD03 0.09 [−0.50 , 0.68]
GAM01 0.06 [0.01 , 0.11]
L4 0.28 [0.13 , 0.43]
DONK01 0.73 [0.39 , 1.07]
DONK02 0.16 [−0.11 , 0.43]
GLAC 0.08 [−0.31 , 0.46]
HALL −0.03 [−0.41 , 0.34]
HART −0.15 [−0.52 , 0.23]
HNVR 0.47 [0.10 , 0.85]
KINY 0.17 [−0.21 , 0.54]
LANCASTER −0.36 [−0.76 , 0.05]
LEAD −0.01 [−0.39 , 0.37]
LOOK 0.05 [−0.33 , 0.43]
MTCA 0.42 [−0.46 , 1.29]
PAPE −0.20 [−0.95 , 0.54]
SAGE 0.29 [−0.09 , 0.67]
SAVA −0.53 [−1.01 , −0.06]
SEDG 0.02 [−0.36 , 0.41]
SERENG 0.13 [−0.26 , 0.51]
SEVI −0.10 [−0.42 , 0.22]
SHPS 0.42 [0.08 , 0.75]
SIER 0.37 [0.00 , 0.75]
SMITH 0.24 [−0.14 , 0.61]
SPIN 0.30 [−0.07 , 0.68]
SUMM 0.03 [−0.34 , 0.41]
TEMPLE −0.06 [−0.48 , 0.36]
TYSO −0.32 [−0.64 , 0.00]
UKUL −0.24 [−0.61 , 0.14]
UNC −0.37 [−0.74 , 0.01]
VALM 0.15 [−0.22 , 0.53]
MEIER01 0.50 [0.13 , 0.88]
RE Model 0.15 [0.13 , 0.18]
−1.50
−1.00
−0.50
0.00
0.50
1.00
1.50
2.00
Resource availability −> realized productivity

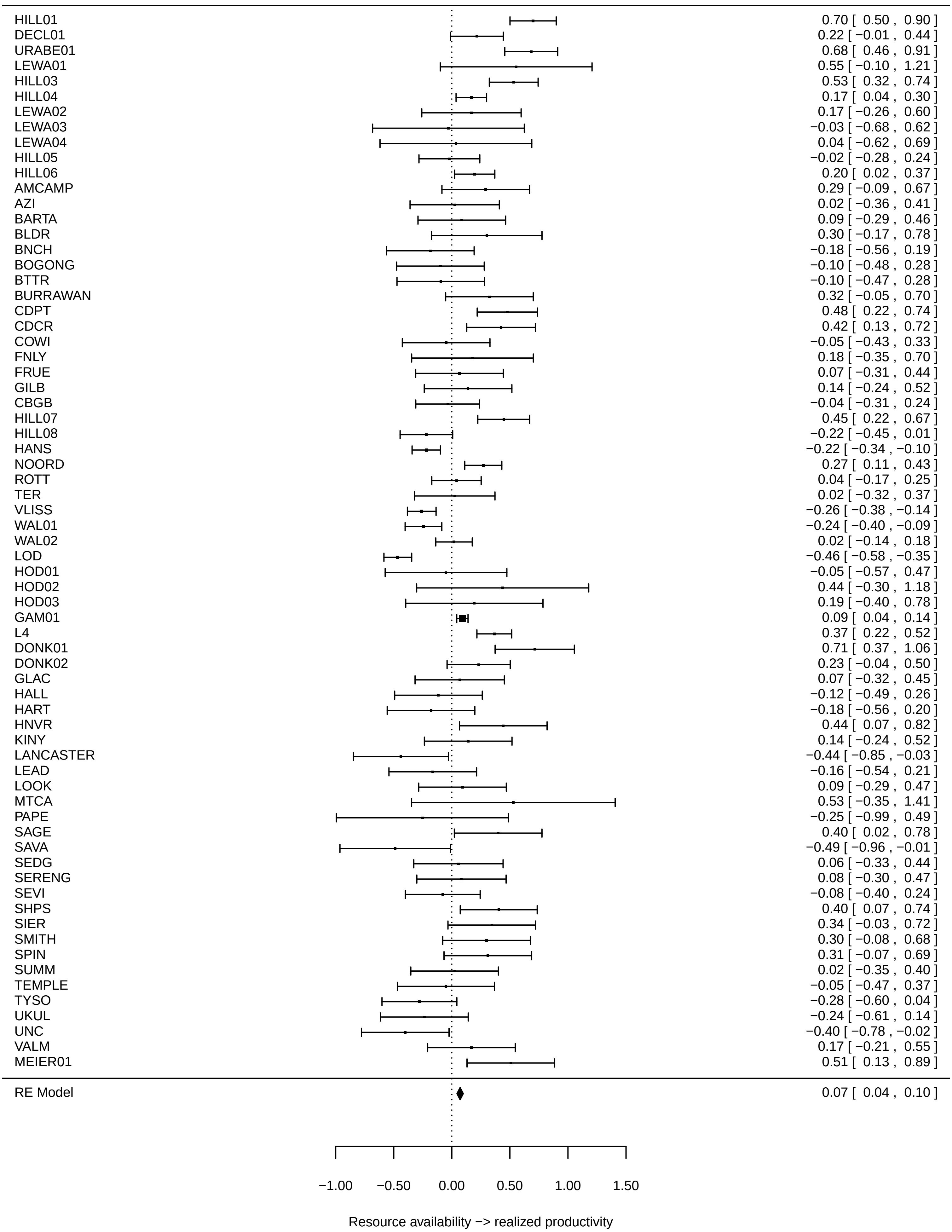

HILL01 −0.19 [−0.39 , 0.01]
HILL02 0.20 [−0.24 , 0.64]
DECL01 −0.06 [−0.29 , 0.17]
STRIE01 −0.10 [−0.42 , 0.21]
URABE01 −0.17 [−0.39 , 0.06]
EPA01 −0.02 [−0.11 , 0.06]
LEWA01 0.21 [−0.45 , 0.86]
VENTE01 0.51 [0.23 , 0.79]
HILL03 0.17 [−0.04 , 0.38]
HILL04 0.16 [0.03 , 0.29]
STRIE02 −0.16 [−0.42 , 0.10]
LEWA02 0.04 [−0.38 , 0.47]
LEWA03 0.41 [−0.24 , 1.06]
LEWA04 0.13 [−0.52 , 0.78]
HILL05 0.04 [−0.22 , 0.30]
LEMMENS −0.23 [−0.58 , 0.12]
PONDSCAPE −0.10 [−0.29 , 0.08]
HILL06 −0.14 [−0.32 , 0.03]
AMCAMP −0.21 [−0.58 , 0.17]
AZI 0.14 [−0.25 , 0.52]
BARTA 0.29 [−0.08 , 0.67]
BLDR 0.17 [−0.31 , 0.65]
BNCH 0.33 [−0.04 , 0.71]
BOGONG 0.02 [−0.36 , 0.40]
BTTR −0.33 [−0.71 , 0.05]
BURRAWAN 0.04 [−0.34 , 0.41]
CDPT −0.16 [−0.42 , 0.10]
CDCR 0.10 [−0.20 , 0.39]
COWI −0.14 [−0.52 , 0.23]
FNLY −0.56 [−1.08 , −0.04]
FRUE −0.15 [−0.53 , 0.22]
GILB −0.19 [−0.57 , 0.19]
CBGB −0.10 [−0.37 , 0.17]
HILL07 −0.21 [−0.44 , 0.01]
HILL08 −0.22 [−0.45 , 0.01]
COMTESS 0.15 [0.00 , 0.30]
TREIBSEL 0.07 [−0.12 , 0.26]
HANS 0.00 [−0.12 , 0.13]
NOORD 0.04 [−0.11 , 0.20]
ROTT −0.15 [−0.37 , 0.06]
TER 0.01 [−0.34 , 0.35]
VLISS 0.00 [−0.12 , 0.12]
WAL01 0.03 [−0.13 , 0.19]
WAL02 0.05 [−0.10 , 0.21]
LOD 0.25 [0.13 , 0.37]
HOD01 0.31 [−0.21 , 0.84]
HOD02 −0.12 [−0.86 , 0.63]
HOD03 −0.14 [−0.73 , 0.45]
GAM01 0.01 [−0.04 , 0.06]
L4 0.01 [−0.14 , 0.16]
DONK01 −0.20 [−0.54 , 0.14]
DONK02 0.12 [−0.16 , 0.39]
GLAC −0.14 [−0.52 , 0.24]
HALL −0.30 [−0.68 , 0.08]
HART 0.01 [−0.37 , 0.38]
HNVR −0.17 [−0.55 , 0.21]
KINY 0.28 [−0.09 , 0.66]
LANCASTER −0.24 [−0.65 , 0.17]
LEAD −0.07 [−0.45 , 0.31]
LOOK −0.08 [−0.45 , 0.30]
MTCA 0.10 [−0.77 , 0.98]
PAPE −0.04 [−0.78 , 0.70]
SAGE 0.01 [−0.37 , 0.39]
SAVA 0.22 [−0.25 , 0.70]
SEDG 0.08 [−0.31 , 0.46]
SERENG 0.36 [−0.03 , 0.74]
SEVI 0.22 [−0.10 , 0.54]
SHPS −0.02 [−0.35 , 0.32]
SIER 0.10 [−0.28 , 0.48]
SMITH −0.23 [−0.61 , 0.15]
SPIN 0.19 [−0.18 , 0.57]
SUMM 0.15 [−0.23 , 0.53]
TEMPLE 0.07 [−0.34 , 0.49]
TYSO −0.17 [−0.49 , 0.16]
UKUL 0.08 [−0.30 , 0.46]
UNC 0.22 [−0.16 , 0.60]
VALM −0.25 [−0.62 , 0.13]
MEIER01 −0.14 [−0.52 , 0.23]
RE Model 0.01 [−0.01 , 0.04]
−1.50
−1.00
−0.50
0.00
0.50
1.00
1.50
Resource imbalance −> richness

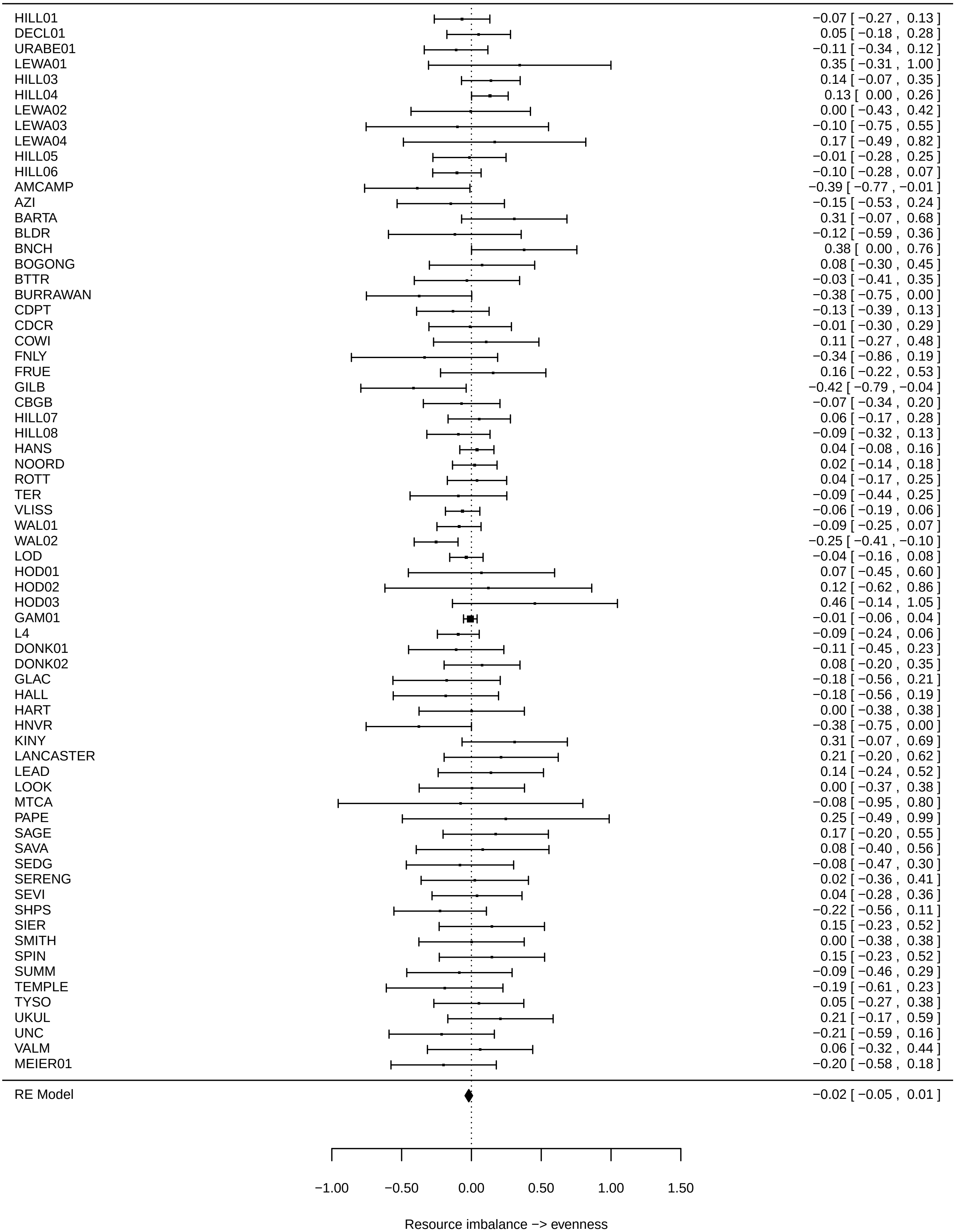

HILL01 −0.02 [−0.22 , 0.18]
HILL02 −0.01 [−0.45 , 0.43]
DECL01 −0.13 [−0.36 , 0.09]
STRIE01 −0.03 [−0.35 , 0.29]
URABE01 −0.06 [−0.29 , 0.16]
EPA01 −0.04 [−0.13 , 0.04]
LEWA01 −0.28 [−0.93 , 0.37]
VENTE01 −0.10 [−0.38 , 0.17]
HILL03 −0.09 [−0.30 , 0.12]
HILL04 −0.10 [−0.23 , 0.03]
STRIE02 −0.05 [−0.31 , 0.21]
LEWA02 −0.22 [−0.65 , 0.21]
LEWA03 −0.10 [−0.76 , 0.55]
LEWA04 0.06 [−0.59 , 0.71]
HILL05 −0.10 [−0.37 , 0.16]
LEMMENS −0.14 [−0.49 , 0.20]
PONDSCAPE −0.10 [−0.28 , 0.08]
HILL06 0.17 [0.00 , 0.34]
AMCAMP −0.20 [−0.58 , 0.18]
AZI 0.29 [−0.09 , 0.68]
BARTA −0.16 [−0.54 , 0.21]
BLDR −0.06 [−0.53 , 0.42]
BNCH 0.06 [−0.32 , 0.44]
BOGONG 0.00 [−0.37 , 0.38]
BTTR 0.13 [−0.24 , 0.51]
BURRAWAN 0.07 [−0.31 , 0.44]
CDPT −0.16 [−0.41 , 0.10]
CDCR −0.02 [−0.31 , 0.28]
COWI −0.43 [−0.81 , −0.05]
FNLY −0.75 [−1.28 , −0.23]
FRUE 0.02 [−0.36 , 0.40]
GILB 0.31 [−0.07 , 0.69]
CBGB −0.10 [−0.37 , 0.18]
HILL07 −0.09 [−0.32 , 0.13]
HILL08 0.18 [−0.05 , 0.40]
COMTESS −0.06 [−0.21 , 0.09]
TREIBSEL 0.22 [0.03 , 0.41]
HANS 0.08 [−0.05 , 0.20]
NOORD 0.19 [0.03 , 0.35]
ROTT 0.06 [−0.15 , 0.27]
TER 0.12 [−0.23 , 0.46]
VLISS 0.05 [−0.08 , 0.17]
WAL01 0.34 [0.18 , 0.49]
WAL02 0.18 [0.02 , 0.33]
LOD 0.14 [0.02 , 0.26]
HOD01 −0.07 [−0.59 , 0.46]
HOD02 −0.18 [−0.92 , 0.56]
HOD03 −0.34 [−0.93 , 0.25]
GAM01 −0.01 [−0.06 , 0.04]
L4 0.11 [−0.04 , 0.26]
DONK01 0.12 [−0.22 , 0.46]
DONK02 −0.01 [−0.28 , 0.26]
GLAC 0.04 [−0.35 , 0.42]
HALL 0.10 [−0.28 , 0.48]
HART 0.13 [−0.25 , 0.51]
HNVR 0.23 [−0.15 , 0.61]
KINY 0.10 [−0.28 , 0.48]
LANCASTER −0.05 [−0.45 , 0.36]
LEAD 0.15 [−0.23 , 0.53]
LOOK −0.35 [−0.73 , 0.03]
MTCA 0.65 [−0.23 , 1.53]
PAPE 0.40 [−0.35 , 1.14]
SAGE −0.47 [−0.85 , −0.09]
SAVA 0.39 [−0.09 , 0.86]
SEDG −0.17 [−0.55 , 0.22]
SERENG 0.07 [−0.32 , 0.45]
SEVI −0.06 [−0.38 , 0.26]
SHPS −0.21 [−0.54 , 0.12]
SIER −0.03 [−0.41 , 0.35]
SMITH 0.33 [−0.05 , 0.71]
SPIN −0.07 [−0.45 , 0.31]
SUMM 0.23 [−0.15 , 0.61]
TEMPLE −0.34 [−0.76 , 0.08]
TYSO 0.02 [−0.31 , 0.34]
UKUL −0.27 [−0.64 , 0.11]
UNC −0.23 [−0.60 , 0.15]
VALM −0.26 [−0.64 , 0.12]
MEIER01 0.09 [−0.29 , 0.47]
RE Model 0.01 [−0.01 , 0.04]
−2.00
−1.00
0.00
1.00
2.00
Resource imbalance −> realized productivity

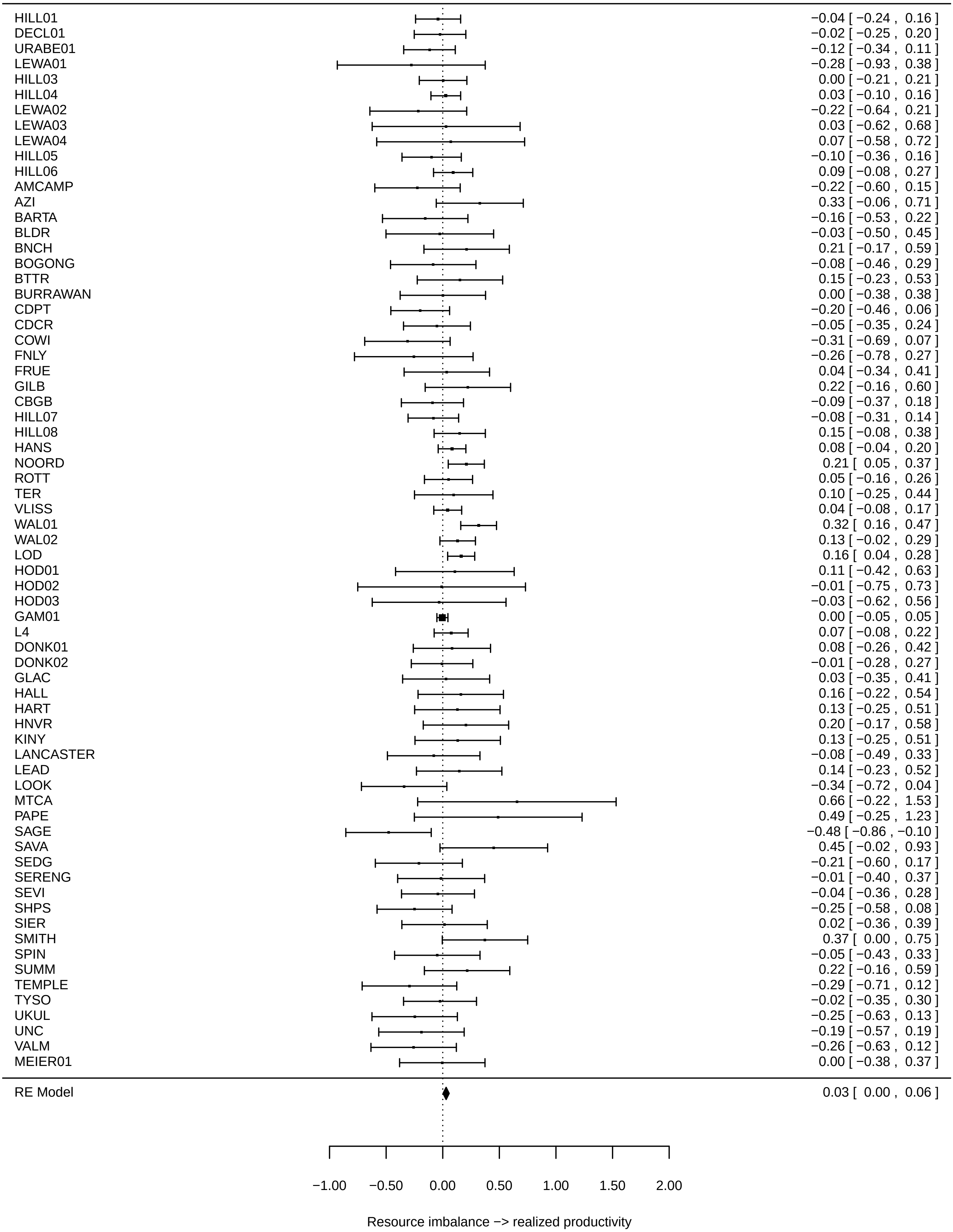

HILL01 0.08 [−0.12 , 0.28]
HILL02 −0.04 [−0.48 , 0.40]
DECL01 −0.52 [−0.75 , −0.30]
STRIE01 0.33 [0.01 , 0.64]
URABE01 0.30 [0.07 , 0.52]
EPA01 0.28 [0.19 , 0.36]
LEWA01 −0.88 [−1.53 , −0.22]
VENTE01 0.04 [−0.23 , 0.32]
HILL03 0.33 [0.12 , 0.54]
HILL04 0.24 [0.11 , 0.38]
STRIE02 −0.18 [−0.44 , 0.08]
LEWA02 0.07 [−0.36 , 0.49]
LEWA03 0.52 [−0.13 , 1.17]
LEWA04 −0.93 [−1.58 , −0.28]
HILL05 0.21 [−0.05 , 0.47]
LEMMENS 0.13 [−0.22 , 0.48]
PONDSCAPE 0.18 [−0.01 , 0.36]
HILL06 −0.05 [−0.22 , 0.12]
AMCAMP −0.36 [−0.74 , 0.02]
AZI 0.26 [−0.12 , 0.65]
BARTA −0.10 [−0.47 , 0.28]
BLDR 0.06 [−0.42 , 0.53]
BNCH 0.33 [−0.04 , 0.71]
BOGONG −0.37 [−0.74 , 0.01]
BTTR −0.20 [−0.58 , 0.17]
BURRAWAN −0.26 [−0.63 , 0.12]
CDPT 0.24 [−0.02 , 0.49]
CDCR −0.34 [−0.64 , −0.05]
COWI −0.44 [−0.82 , −0.06]
FNLY −0.85 [−1.37 , −0.32]
FRUE −0.08 [−0.46 , 0.29]
GILB 0.20 [−0.18 , 0.58]
CBGB −0.06 [−0.33 , 0.22]
HILL07 0.02 [−0.20 , 0.25]
HILL08 −0.14 [−0.37 , 0.08]
COMTESS −0.18 [−0.33 , −0.03]
TREIBSEL −0.02 [−0.20 , 0.17]
HANS 0.56 [0.44 , 0.68]
NOORD 0.36 [0.20 , 0.52]
ROTT 0.16 [−0.05 , 0.37]
TER 0.61 [0.27 , 0.96]
VLISS 0.45 [0.32 , 0.57]
WAL01 0.14 [−0.02 , 0.30]
WAL02 0.05 [−0.11 , 0.21]
LOD 0.08 [−0.04 , 0.20]
HOD01 0.36 [−0.16 , 0.89]
HOD02 −0.35 [−1.09 , 0.39]
HOD03 0.27 [−0.32 , 0.86]
GAM01 0.30 [0.26 , 0.35]
L4 0.52 [0.37 , 0.67]
DONK01 0.09 [−0.25 , 0.43]
DONK02 −0.10 [−0.37 , 0.17]
GLAC −0.02 [−0.41 , 0.36]
HALL −0.03 [−0.41 , 0.35]
HART −0.02 [−0.39 , 0.36]
HNVR 0.11 [−0.26 , 0.49]
KINY 0.14 [−0.24 , 0.52]
LANCASTER −0.16 [−0.57 , 0.25]
LEAD 0.46 [0.09 , 0.84]
LOOK −0.14 [−0.51 , 0.24]
MTCA −0.12 [−0.99 , 0.76]
PAPE −0.10 [−0.84 , 0.64]
SAGE 0.21 [−0.16 , 0.59]
SAVA 0.26 [−0.22 , 0.73]
SEDG −0.34 [−0.72 , 0.05]
SERENG −0.26 [−0.64 , 0.13]
SEVI 0.04 [−0.28 , 0.37]
SHPS −0.02 [−0.35 , 0.31]
SIER 0.12 [−0.26 , 0.50]
SMITH −0.19 [−0.57 , 0.18]
SPIN 0.09 [−0.29 , 0.47]
SUMM 0.02 [−0.35 , 0.40]
TEMPLE 0.00 [−0.41 , 0.42]
TYSO 0.36 [0.04 , 0.69]
UKUL −0.05 [−0.43 , 0.33]
UNC 0.00 [−0.38 , 0.38]
VALM 0.02 [−0.36 , 0.40]
MEIER01 −0.24 [−0.62 , 0.14]
RE Model 0.18 [0.15 , 0.20]
−2.00
−1.50
−1.00
−0.50
0.00
0.50
1.00
1.50
Richness −> realized productivity



HILL01 −0.18 [−0.38 , 0.02]
DECL01 −0.12 [−0.35 , 0.11]
URABE01 −0.03 [−0.25 , 0.20]
LEWA01 0.47 [−0.18 , 1.13]
HILL03 −0.07 [−0.28 , 0.14]
HILL04 −0.05 [−0.18 , 0.08]
LEWA02 0.02 [−0.41 , 0.44]
LEWA03 −0.22 [−0.87 , 0.43]
LEWA04 0.20 [−0.45 , 0.86]
HILL05 0.16 [−0.10 , 0.43]
HILL06 0.18 [0.00 , 0.35]
AMCAMP −0.03 [−0.41 , 0.35]
AZI 0.20 [−0.18 , 0.58]
BARTA 0.02 [−0.35 , 0.40]
BLDR −0.38 [−0.86 , 0.09]
BNCH −0.40 [−0.78 , −0.02]
BOGONG 0.46 [0.08 , 0.84]
BTTR −0.01 [−0.39 , 0.36]
BURRAWAN −0.17 [−0.54 , 0.21]
CDPT 0.30 [0.04 , 0.56]
CDCR 0.12 [−0.18 , 0.42]
COWI 0.03 [−0.34 , 0.41]
FNLY 0.03 [−0.49 , 0.56]
FRUE 0.15 [−0.23 , 0.52]
GILB 0.07 [−0.31 , 0.44]
CBGB −0.06 [−0.33 , 0.22]
HILL07 −0.13 [−0.35 , 0.09]
HILL08 0.04 [−0.19 , 0.27]
HANS −0.01 [−0.13 , 0.12]
NOORD 0.22 [0.06 , 0.38]
ROTT 0.08 [−0.14 , 0.29]
TER 0.27 [−0.08 , 0.61]
VLISS −0.04 [−0.16 , 0.09]
WAL01 0.16 [0.00 , 0.31]
WAL02 0.08 [−0.08 , 0.24]
LOD 0.09 [−0.03 , 0.21]
HOD01 0.08 [−0.44 , 0.61]
HOD02 0.41 [−0.33 , 1.15]
HOD03 0.10 [−0.49 , 0.69]
GAM01 0.12 [0.07 , 0.17]
L4 −0.19 [−0.34 , −0.04]
DONK01 −0.05 [−0.39 , 0.29]
DONK02 0.22 [−0.05 , 0.49]
GLAC −0.34 [−0.73 , 0.04]
HALL 0.30 [−0.08 , 0.68]
HART −0.19 [−0.56 , 0.19]
HNVR −0.13 [−0.50 , 0.25]
KINY −0.01 [−0.39 , 0.37]
LANCASTER 0.21 [−0.20 , 0.62]
LEAD −0.33 [−0.71 , 0.05]
LOOK −0.01 [−0.39 , 0.37]
MTCA −0.14 [−1.02 , 0.74]
PAPE −0.08 [−0.82 , 0.66]
SAGE 0.07 [−0.31 , 0.45]
SAVA 0.04 [−0.44 , 0.51]
SEDG −0.30 [−0.68 , 0.09]
SERENG −0.33 [−0.72 , 0.05]
SEVI 0.11 [−0.22 , 0.43]
SHPS −0.05 [−0.38 , 0.28]
SIER 0.14 [−0.24 , 0.52]
SMITH 0.27 [−0.11 , 0.65]
SPIN 0.05 [−0.32 , 0.43]
SUMM −0.06 [−0.43 , 0.32]
TEMPLE −0.05 [−0.46 , 0.37]
TYSO 0.02 [−0.31 , 0.34]
UKUL −0.09 [−0.47 , 0.28]
UNC 0.19 [−0.19 , 0.57]
VALM 0.10 [−0.28 , 0.47]
MEIER01 0.19 [−0.19 , 0.56]
RE Model 0.05 [0.02 , 0.08]
−1.50 −1.00 −0.50 0.00 0.50 1.00 1.50
Resource availability −> evenness


HILL01 0.70 [0.50 , 0.90]
DECL01 0.22 [−0.01 , 0.44]
URABE01 0.68 [0.46 , 0.91]
LEWA01 0.55 [−0.10 , 1.21]
HILL03 0.53 [0.32 , 0.74]
HILL04 0.17 [0.04 , 0.30]
LEWA02 0.17 [−0.26 , 0.60]
LEWA03 −0.03 [−0.68 , 0.62]
LEWA04 0.04 [−0.62 , 0.69]
HILL05 −0.02 [−0.28 , 0.24]
HILL06 0.20 [0.02 , 0.37]
AMCAMP 0.29 [−0.09 , 0.67]
AZI 0.02 [−0.36 , 0.41]
BARTA 0.09 [−0.29 , 0.46]
BLDR 0.30 [−0.17 , 0.78]
BNCH −0.18 [−0.56 , 0.19]
BOGONG −0.10 [−0.48 , 0.28]
BTTR −0.10 [−0.47 , 0.28]
BURRAWAN 0.32 [−0.05 , 0.70]
CDPT 0.48 [0.22 , 0.74]
CDCR 0.42 [0.13 , 0.72]
COWI −0.05 [−0.43 , 0.33]
FNLY 0.18 [−0.35 , 0.70]
FRUE 0.07 [−0.31 , 0.44]
GILB 0.14 [−0.24 , 0.52]
CBGB −0.04 [−0.31 , 0.24]
HILL07 0.45 [0.22 , 0.67]
HILL08 −0.22 [−0.45 , 0.01]
HANS −0.22 [−0.34 , −0.10]
NOORD 0.27 [0.11 , 0.43]
ROTT 0.04 [−0.17 , 0.25]
TER 0.02 [−0.32 , 0.37]
VLISS −0.26 [−0.38 , −0.14]
WAL01 −0.24 [−0.40 , −0.09]
WAL02 0.02 [−0.14 , 0.18]
LOD −0.46 [−0.58 , −0.35]
HOD01 −0.05 [−0.57 , 0.47]
HOD02 0.44 [−0.30 , 1.18]
HOD03 0.19 [−0.40 , 0.78]
GAM01 0.09 [0.04 , 0.14]
L4 0.37 [0.22 , 0.52]
DONK01 0.71 [0.37 , 1.06]
DONK02 0.23 [−0.04 , 0.50]
GLAC 0.07 [−0.32 , 0.45]
HALL −0.12 [−0.49 , 0.26]
HART −0.18 [−0.56 , 0.20]
HNVR 0.44 [0.07 , 0.82]
KINY 0.14 [−0.24 , 0.52]
LANCASTER −0.44 [−0.85 , −0.03]
LEAD −0.16 [−0.54 , 0.21]
LOOK 0.09 [−0.29 , 0.47]
MTCA 0.53 [−0.35 , 1.41]
PAPE −0.25 [−0.99 , 0.49]
SAGE 0.40 [0.02 , 0.78]
SAVA −0.49 [−0.96 , −0.01]
SEDG 0.06 [−0.33 , 0.44]
SERENG 0.08 [−0.30 , 0.47]
SEVI −0.08 [−0.40 , 0.24]
SHPS 0.40 [0.07 , 0.74]
SIER 0.34 [−0.03 , 0.72]
SMITH 0.30 [−0.08 , 0.68]
SPIN 0.31 [−0.07 , 0.69]
SUMM 0.02 [−0.35 , 0.40]
TEMPLE −0.05 [−0.47 , 0.37]
TYSO −0.28 [−0.60 , 0.04]
UKUL −0.24 [−0.61 , 0.14]
UNC −0.40 [−0.78 , −0.02]
VALM 0.17 [−0.21 , 0.55]
MEIER01 0.51 [0.13 , 0.89]
RE Model 0.07 [0.04 , 0.10]
−1.00 −0.50 0.00 0.50 1.00 1.50
Resource availability −> realized productivity


HILL01 −0.07 [−0.27 , 0.13]
DECL01 0.05 [−0.18 , 0.28]
URABE01 −0.11 [−0.34 , 0.12]
LEWA01 0.35 [−0.31 , 1.00]
HILL03 0.14 [−0.07 , 0.35]
HILL04 0.13 [0.00 , 0.26]
LEWA02 0.00 [−0.43 , 0.42]
LEWA03 −0.10 [−0.75 , 0.55]
LEWA04 0.17 [−0.49 , 0.82]
HILL05 −0.01 [−0.28 , 0.25]
HILL06 −0.10 [−0.28 , 0.07]
AMCAMP −0.39 [−0.77 , −0.01]
AZI −0.15 [−0.53 , 0.24]
BARTA 0.31 [−0.07 , 0.68]
BLDR −0.12 [−0.59 , 0.36]
BNCH 0.38 [0.00 , 0.76]
BOGONG 0.08 [−0.30 , 0.45]
BTTR −0.03 [−0.41 , 0.35]
BURRAWAN −0.38 [−0.75 , 0.00]
CDPT −0.13 [−0.39 , 0.13]
CDCR −0.01 [−0.30 , 0.29]
COWI 0.11 [−0.27 , 0.48]
FNLY −0.34 [−0.86 , 0.19]
FRUE 0.16 [−0.22 , 0.53]
GILB −0.42 [−0.79 , −0.04]
CBGB −0.07 [−0.34 , 0.20]
HILL07 0.06 [−0.17 , 0.28]
HILL08 −0.09 [−0.32 , 0.13]
HANS 0.04 [−0.08 , 0.16]
NOORD 0.02 [−0.14 , 0.18]
ROTT 0.04 [−0.17 , 0.25]
TER −0.09 [−0.44 , 0.25]
VLISS −0.06 [−0.19 , 0.06]
WAL01 −0.09 [−0.25 , 0.07]
WAL02 −0.25 [−0.41 , −0.10]
LOD −0.04 [−0.16 , 0.08]
HOD01 0.07 [−0.45 , 0.60]
HOD02 0.12 [−0.62 , 0.86]
HOD03 0.46 [−0.14 , 1.05]
GAM01 −0.01 [−0.06 , 0.04]
L4 −0.09 [−0.24 , 0.06]
DONK01 −0.11 [−0.45 , 0.23]
DONK02 0.08 [−0.20 , 0.35]
GLAC −0.18 [−0.56 , 0.21]
HALL −0.18 [−0.56 , 0.19]
HART 0.00 [−0.38 , 0.38]
HNVR −0.38 [−0.75 , 0.00]
KINY 0.31 [−0.07 , 0.69]
LANCASTER 0.21 [−0.20 , 0.62]
LEAD 0.14 [−0.24 , 0.52]
LOOK 0.00 [−0.37 , 0.38]
MTCA −0.08 [−0.95 , 0.80]
PAPE 0.25 [−0.49 , 0.99]
SAGE 0.17 [−0.20 , 0.55]
SAVA 0.08 [−0.40 , 0.56]
SEDG −0.08 [−0.47 , 0.30]
SERENG 0.02 [−0.36 , 0.41]
SEVI 0.04 [−0.28 , 0.36]
SHPS −0.22 [−0.56 , 0.11]
SIER 0.15 [−0.23 , 0.52]
SMITH 0.00 [−0.38 , 0.38]
SPIN 0.15 [−0.23 , 0.52]
SUMM −0.09 [−0.46 , 0.29]
TEMPLE −0.19 [−0.61 , 0.23]
TYSO 0.05 [−0.27 , 0.38]
UKUL 0.21 [−0.17 , 0.59]
UNC −0.21 [−0.59 , 0.16]
VALM 0.06 [−0.32 , 0.44]
MEIER01 −0.20 [−0.58 , 0.18]
RE Model −0.02 [−0.05 , 0.01]
−1.00
−0.50
0.00
0.50
1.00
1.50
Resource imbalance −> evenness


HILL01 −0.04 [−0.24 , 0.16]
DECL01 −0.02 [−0.25 , 0.20]
URABE01 −0.12 [−0.34 , 0.11]
LEWA01 −0.28 [−0.93 , 0.38]
HILL03 0.00 [−0.21 , 0.21]
HILL04 0.03 [−0.10 , 0.16]
LEWA02 −0.22 [−0.64 , 0.21]
LEWA03 0.03 [−0.62 , 0.68]
LEWA04 0.07 [−0.58 , 0.72]
HILL05 −0.10 [−0.36 , 0.16]
HILL06 0.09 [−0.08 , 0.27]
AMCAMP −0.22 [−0.60 , 0.15]
AZI 0.33 [−0.06 , 0.71]
BARTA −0.16 [−0.53 , 0.22]
BLDR −0.03 [−0.50 , 0.45]
BNCH 0.21 [−0.17 , 0.59]
BOGONG −0.08 [−0.46 , 0.29]
BTTR 0.15 [−0.23 , 0.53]
BURRAWAN 0.00 [−0.38 , 0.38]
CDPT −0.20 [−0.46 , 0.06]
CDCR −0.05 [−0.35 , 0.24]
COWI −0.31 [−0.69 , 0.07]
FNLY −0.26 [−0.78 , 0.27]
FRUE 0.04 [−0.34 , 0.41]
GILB 0.22 [−0.16 , 0.60]
CBGB −0.09 [−0.37 , 0.18]
HILL07 −0.08 [−0.31 , 0.14]
HILL08 0.15 [−0.08 , 0.38]
HANS 0.08 [−0.04 , 0.20]
NOORD 0.21 [0.05 , 0.37]
ROTT 0.05 [−0.16 , 0.26]
TER 0.10 [−0.25 , 0.44]
VLISS 0.04 [−0.08 , 0.17]
WAL01 0.32 [0.16 , 0.47]
WAL02 0.13 [−0.02 , 0.29]
LOD 0.16 [0.04 , 0.28]
HOD01 0.11 [−0.42 , 0.63]
HOD02 −0.01 [−0.75 , 0.73]
HOD03 −0.03 [−0.62 , 0.56]
GAM01 0.00 [−0.05 , 0.05]
L4 0.07 [−0.08 , 0.22]
DONK01 0.08 [−0.26 , 0.42]
DONK02 −0.01 [−0.28 , 0.27]
GLAC 0.03 [−0.35 , 0.41]
HALL 0.16 [−0.22 , 0.54]
HART 0.13 [−0.25 , 0.51]
HNVR 0.20 [−0.17 , 0.58]
KINY 0.13 [−0.25 , 0.51]
LANCASTER −0.08 [−0.49 , 0.33]
LEAD 0.14 [−0.23 , 0.52]
LOOK −0.34 [−0.72 , 0.04]
MTCA 0.66 [−0.22 , 1.53]
PAPE 0.49 [−0.25 , 1.23]
SAGE −0.48 [−0.86 , −0.10]
SAVA 0.45 [−0.02 , 0.93]
SEDG −0.21 [−0.60 , 0.17]
SERENG −0.01 [−0.40 , 0.37]
SEVI −0.04 [−0.36 , 0.28]
SHPS −0.25 [−0.58 , 0.08]
SIER 0.02 [−0.36 , 0.39]
SMITH 0.37 [0.00 , 0.75]
SPIN −0.05 [−0.43 , 0.33]
SUMM 0.22 [−0.16 , 0.59]
TEMPLE −0.29 [−0.71 , 0.12]
TYSO −0.02 [−0.35 , 0.30]
UKUL −0.25 [−0.63 , 0.13]
UNC −0.19 [−0.57 , 0.19]
VALM −0.26 [−0.63 , 0.12]
MEIER01 0.00 [−0.38 , 0.37]
RE Model 0.03 [0.00 , 0.06]
−1.00
−0.50
0.00
0.50
1.00
1.50
2.00
Resource imbalance −> realized productivity

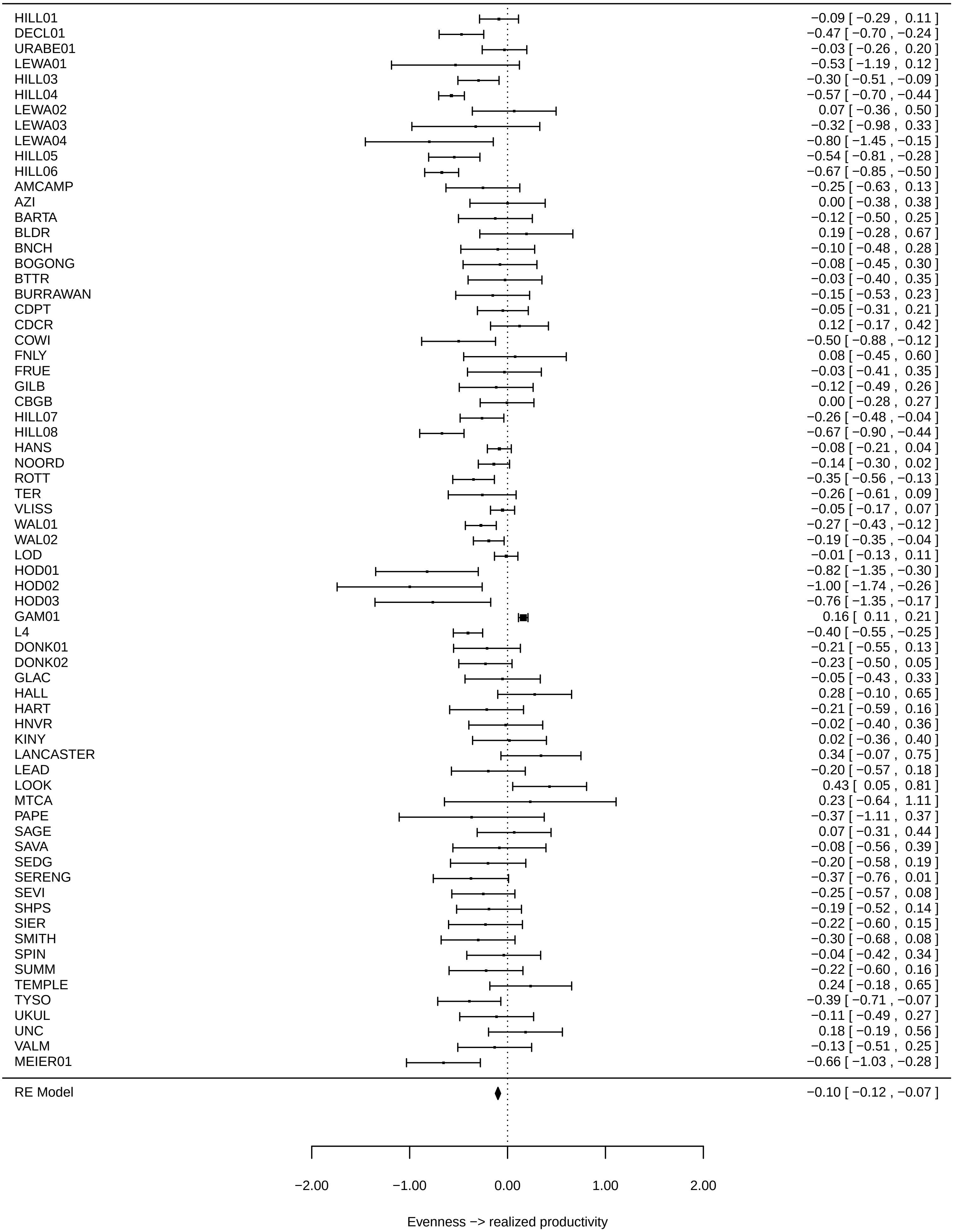

HILL01 −0.09 [−0.29 , 0.11]
DECL01 −0.47 [−0.70 , −0.24]
URABE01 −0.03 [−0.26 , 0.20]
LEWA01 −0.53 [−1.19 , 0.12]
HILL03 −0.30 [−0.51 , −0.09]
HILL04 −0.57 [−0.70 , −0.44]
LEWA02 0.07 [−0.36 , 0.50]
LEWA03 −0.32 [−0.98 , 0.33]
LEWA04 −0.80 [−1.45 , −0.15]
HILL05 −0.54 [−0.81 , −0.28]
HILL06 −0.67 [−0.85 , −0.50]
AMCAMP −0.25 [−0.63 , 0.13]
AZI 0.00 [−0.38 , 0.38]
BARTA −0.12 [−0.50 , 0.25]
BLDR 0.19 [−0.28 , 0.67]
BNCH −0.10 [−0.48 , 0.28]
BOGONG −0.08 [−0.45 , 0.30]
BTTR −0.03 [−0.40 , 0.35]
BURRAWAN −0.15 [−0.53 , 0.23]
CDPT −0.05 [−0.31 , 0.21]
CDCR 0.12 [−0.17 , 0.42]
COWI −0.50 [−0.88 , −0.12]
FNLY 0.08 [−0.45 , 0.60]
FRUE −0.03 [−0.41 , 0.35]
GILB −0.12 [−0.49 , 0.26]
CBGB 0.00 [−0.28 , 0.27]
HILL07 −0.26 [−0.48 , −0.04]
HILL08 −0.67 [−0.90 , −0.44]
HANS −0.08 [−0.21 , 0.04]
NOORD −0.14 [−0.30 , 0.02]
ROTT −0.35 [−0.56 , −0.13]
TER −0.26 [−0.61 , 0.09]
VLISS −0.05 [−0.17 , 0.07]
WAL01 −0.27 [−0.43 , −0.12]
WAL02 −0.19 [−0.35 , −0.04]
LOD −0.01 [−0.13 , 0.11]
HOD01 −0.82 [−1.35 , −0.30]
HOD02 −1.00 [−1.74 , −0.26]
HOD03 −0.76 [−1.35 , −0.17]
GAM01 0.16 [0.11 , 0.21]
L4 −0.40 [−0.55 , −0.25]
DONK01 −0.21 [−0.55 , 0.13]
DONK02 −0.23 [−0.50 , 0.05]
GLAC −0.05 [−0.43 , 0.33]
HALL 0.28 [−0.10 , 0.65]
HART −0.21 [−0.59 , 0.16]
HNVR −0.02 [−0.40 , 0.36]
KINY 0.02 [−0.36 , 0.40]
LANCASTER 0.34 [−0.07 , 0.75]
LEAD −0.20 [−0.57 , 0.18]
LOOK 0.43 [0.05 , 0.81]
MTCA 0.23 [−0.64 , 1.11]
PAPE −0.37 [−1.11 , 0.37]
SAGE 0.07 [−0.31 , 0.44]
SAVA −0.08 [−0.56 , 0.39]
SEDG −0.20 [−0.58 , 0.19]
SERENG −0.37 [−0.76 , 0.01]
SEVI −0.25 [−0.57 , 0.08]
SHPS −0.19 [−0.52 , 0.14]
SIER −0.22 [−0.60 , 0.15]
SMITH −0.30 [−0.68 , 0.08]
SPIN −0.04 [−0.42 , 0.34]
SUMM −0.22 [−0.60 , 0.16]
TEMPLE 0.24 [−0.18 , 0.65]
TYSO −0.39 [−0.71 , −0.07]
UKUL −0.11 [−0.49 , 0.27]
UNC 0.18 [−0.19 , 0.56]
VALM −0.13 [−0.51 , 0.25]
MEIER01 −0.66 [−1.03 , −0.28]
RE Model −0.10 [−0.12 , −0.07]
−2.00
−1.00
0.00
1.00
2.00
Evenness −> realized productivity

Figure S11. Correlations between effect sizes and diversity range for 78 studies included in the meta-analysis. Srange is richness range; bSstand is effect size of resource imbalance (b) on species richness (S); aSstand is effect size of resource availability (a) on S; SBstand is effect size of S on producer biomass (B).

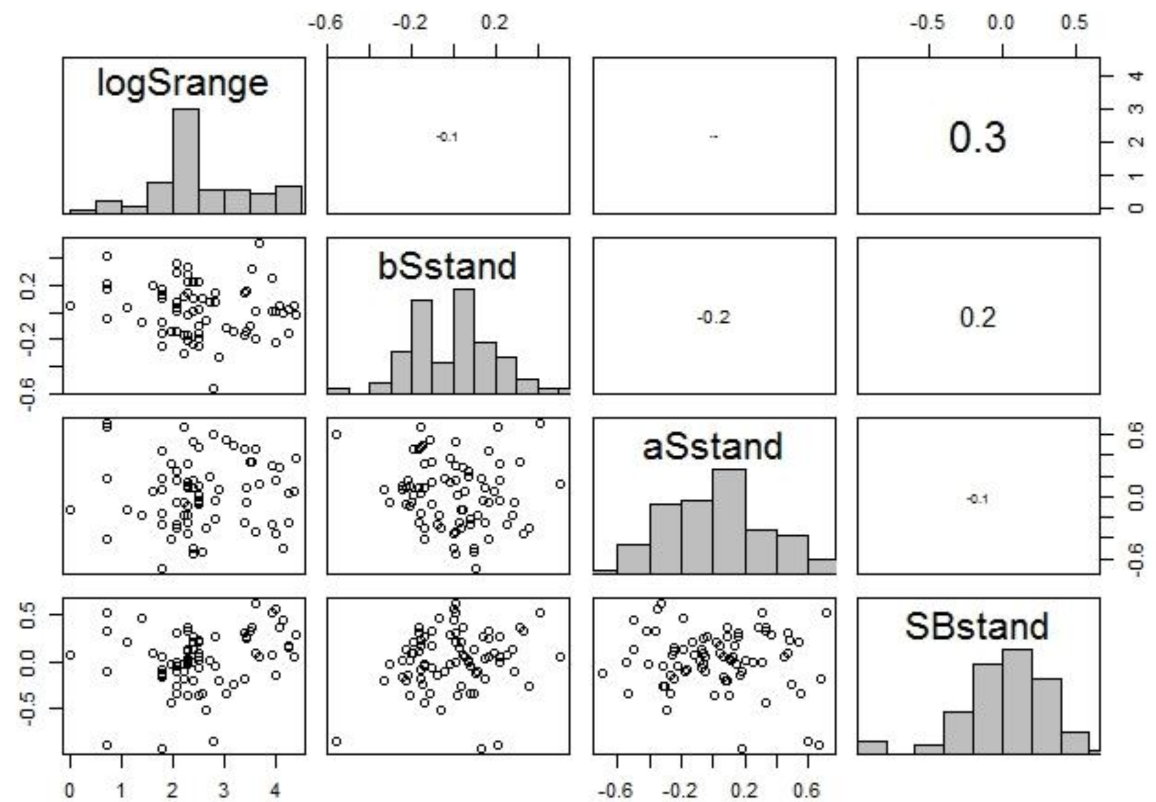


Figure S12. Correlations between effect sizes and resource range for 78 studies included in the meta-analysis. bSstand is effect size of resource imbalance (b) on species richness (S); aSstand is effect size of resource availability (a) on S; SBstand is effect size of S on producer biomass (B); brange is a range of b.