Supplemental Section S1

Accompanying supplemental figures and tables for

Young, A. M., Millimam, T., Hufkens, K., Ballou, K. L., Coffey, C., Begay, K., Fell, M., Javadian, M., Post, A. K., Schädel, C., Vladich, Z., Zimmerman, O., Browning, D. M., Florian, C. R., Moon, M., SanClements, M. D., Seyednasrollah, B., Friedl, M. A., and Richardson, A. D.: Tracking vegetation phenology across diverse biomes using Version 3.0 of the PhenoCam Dataset, Earth System Science Data, *In Review*, 2025.

Table S1: AmeriFlux site information, including dataset DOIs, for National Ecological Observatory Network (NEON) locations used to calculate *broadbandNDVI*.

Site ID	Site Name	Lat (deg)	Long (deg)	Elev (m)	IGBP Veg	Dataset DOI
PR-xGU	Guanica Forest (GUAN)	17.97	-66.869	143	EBF	https://doi.org/10.17190/AMF/1773393
PR-xLA	Lajas Experimental Station (LAJA)	18.021	-67.077	24	GRA	https://doi.org/10.17190/AMF/1773394
US-xAB	Abby Road (ABBY)	45.762	-122.33	363	ENF	https://doi.org/10.17190/AMF/1617726
US-xAE	Klemme Range Research Station (OAES)	35.411	-99.059	516	GRA	https://doi.org/10.17190/AMF/1671891
US-xBA	Barrow Environmental Observatory (BARR)	71.282	-156.619	6	WET	https://doi.org/10.17190/AMF/1671892
US-xBL	Blandy Experimental Farm (BLAN)	39.06	-78.072	183	DBF	https://doi.org/10.17190/AMF/1671893
US-xBN	Caribou Creek - Poker Flats Watershed (BONA)	65.154	-147.503	263	ENF	https://doi.org/10.17190/AMF/1617727
US-xBR	Bartlett Experimental Forest (BART)	44.064	-71.287	232	DBF	https://doi.org/10.17190/AMF/1579542
US-xCL	LBJ National Grassland (CLBJ)	33.401	-97.57	259	GRA	https://doi.org/10.17190/AMF/1671894
US-xCP	Central Plains Experimental Range (CPER)	40.816	-104.746	1654	GRA	https://doi.org/10.17190/AMF/1579720
US-xDC	Dakota Coteau Field School (DCFS)	47.162	-99.107	559	GRA	https://doi.org/10.17190/AMF/1617728
US-xDJ	Delta Junction (DEJU)	63.881	-145.751	529	ENF	https://doi.org/10.17190/AMF/1634884
US-xDL	Dead Lake (DELA)	32.542	-87.804	22	MF	https://doi.org/10.17190/AMF/1579721
US-xDS	Disney Wilderness Preserve (DSNY)	28.125	-81.436	15	CVM	https://doi.org/10.17190/AMF/1671895
US-xGR	Great Smoky Mountains National Park, Twin Creeks (GRSM)	35.689	-83.502	579	DBF	https://doi.org/10.17190/AMF/1634885

Site ID	Site Name	Lat (deg)	Long (deg)	Elev (m)	IGBP Veg	Dataset DOI
US-xHA	Harvard Forest (HARV)	42.537	-72.173	351	DBF	https://doi.org/10.17190/AMF/1562391
US-xHE	Healy (HEAL)	63.876	-149.213	705	OSH	https://doi.org/10.17190/AMF/1617729
US-xJE	Jones Ecological Research Center (JERC)	31.195	-84.469	44	ENF	https://doi.org/10.17190/AMF/1617730
US-xJR	Jornada LTER (JORN)	32.591	-106.843	1329	OSH	https://doi.org/10.17190/AMF/1617731
US-xKA	Konza Prairie Biological Station - Relocatable (KONA)	39.11	-96.613	1329	GRA	https://doi.org/10.17190/AMF/1579722
US-xKZ	Konza Prairie Biological Station (KONZ)	39.101	-96.563	381	GRA	https://doi.org/10.17190/AMF/1562392
US-xLE	Lenoir Landing (LENO)	31.854	-88.161	20	DBF	https://doi.org/10.17190/AMF/1773398
US-xMB	Moab (MOAB)	38.248	-109.388	1767	OSH	https://doi.org/10.17190/AMF/1671896
US-xML	Mountain Lake Biological Station (MLBS)	37.378	-80.525	1126	DBF	https://doi.org/10.17190/AMF/1671897
US-xNG	Northern Great Plains Research Laboratory (NOGP)	46.77	-100.915	578	GRA	https://doi.org/10.17190/AMF/1617732
US-xNQ	Onaqui-Ault (ONAQ)	40.178	-112.452	1685	OSH	https://doi.org/10.17190/AMF/1617733
US-xNW	Niwot Ridge Mountain Research Station (NIWO)	40.054	-105.582	3513	ENF	https://doi.org/10.17190/AMF/1671898
US-xPU	Pu'u Maka'ala Natural Area Reserve (PUUM)	19.553	-155.317	1685	EBF	https://doi.org/10.17190/AMF/1773399
US-xRM	Rocky Mountain National Park, CASTNET (RMNP)	40.276	-105.546	2743	ENF	https://doi.org/10.17190/AMF/1579723
US-xRN	Oak Ridge National Lab (ORNL)	35.964	-84.283	334	DBF	https://doi.org/10.17190/AMF/1773400

Site ID	Site Name	Lat (deg)	Long (deg)	Elev (m)	IGBP Veg	Dataset DOI
US-xSB	Ordway-Swisher Biological Station (OSBS)	29.689	-81.993	45	ENF	https://doi.org/10.17190/AMF/1671899
US-xSC	Smithsonian Conservation Biology Institute (SCBI)	38.893	-78.14	361	DBF	https://doi.org/10.17190/AMF/1671900
US-xSE	Smithsonian Environmental Research Center (SERC)	38.89	-76.56	15	DBF	https://doi.org/10.17190/AMF/1617734
US-xSJ	San Joaquin Experimental Range (SJER)	37.109	-119.732	368	SAV	https://doi.org/10.17190/AMF/1671901
US-xSL	North Sterling, CO (STER)	40.462	-103.029	1364	CRO	https://doi.org/10.17190/AMF/1617735
US-xSP	Soaproot Saddle (SOAP)	37.033	-119.262	1160	ENF	https://doi.org/10.17190/AMF/1617736
US-xSR	Santa Rita Experimental Range (SRER)	31.911	-110.836	983	OSH	https://doi.org/10.17190/AMF/1579543
US-xST	Steigerwaldt Land Services (STEI)	45.509	-89.586	481	DBF	https://doi.org/10.17190/AMF/1617737
US-xTA	Talladega National Forest (TALL)	32.951	-87.393	135	ENF	https://doi.org/10.17190/AMF/1671902
US-xTE	Lower Teakettle (TEAK)	37.006	-119.006	2147	ENF	https://doi.org/10.17190/AMF/1617738
US-xTL	Toolik (TOOL)	68.661	-149.371	843	WET	https://doi.org/10.17190/AMF/1617739
US-xTR	Treehaven (TREE)	45.494	-89.586	472	DBF	https://doi.org/10.17190/AMF/1634886
US-xUK	The University of Kansas Field Station (UKFS)	39.04	-95.192	335	DBF	https://doi.org/10.17190/AMF/1617740
US-xUN	University of Notre Dame Environmental Research Center (UNDE)	46.234	-89.537	518	MF	https://doi.org/10.17190/AMF/1617741
US-xWD	Woodworth (WOOD)	47.128	-99.241	579	GRA	https://doi.org/10.17190/AMF/1579724

Site ID	Site Name	Lat (deg)	Long (deg)	Elev (m)	IGBP Veg	Dataset DOI
US-xWR	Wind River Experimental Forest (WREF)	45.821	-121.952	407	ENF	https://doi.org/10.17190/AMF/1617742
US-xYE	Yellowstone Northern Range (Frog Rock) (YELL)	44.954	-110.539	2116	ENF	https://doi.org/10.17190/AMF/1617743

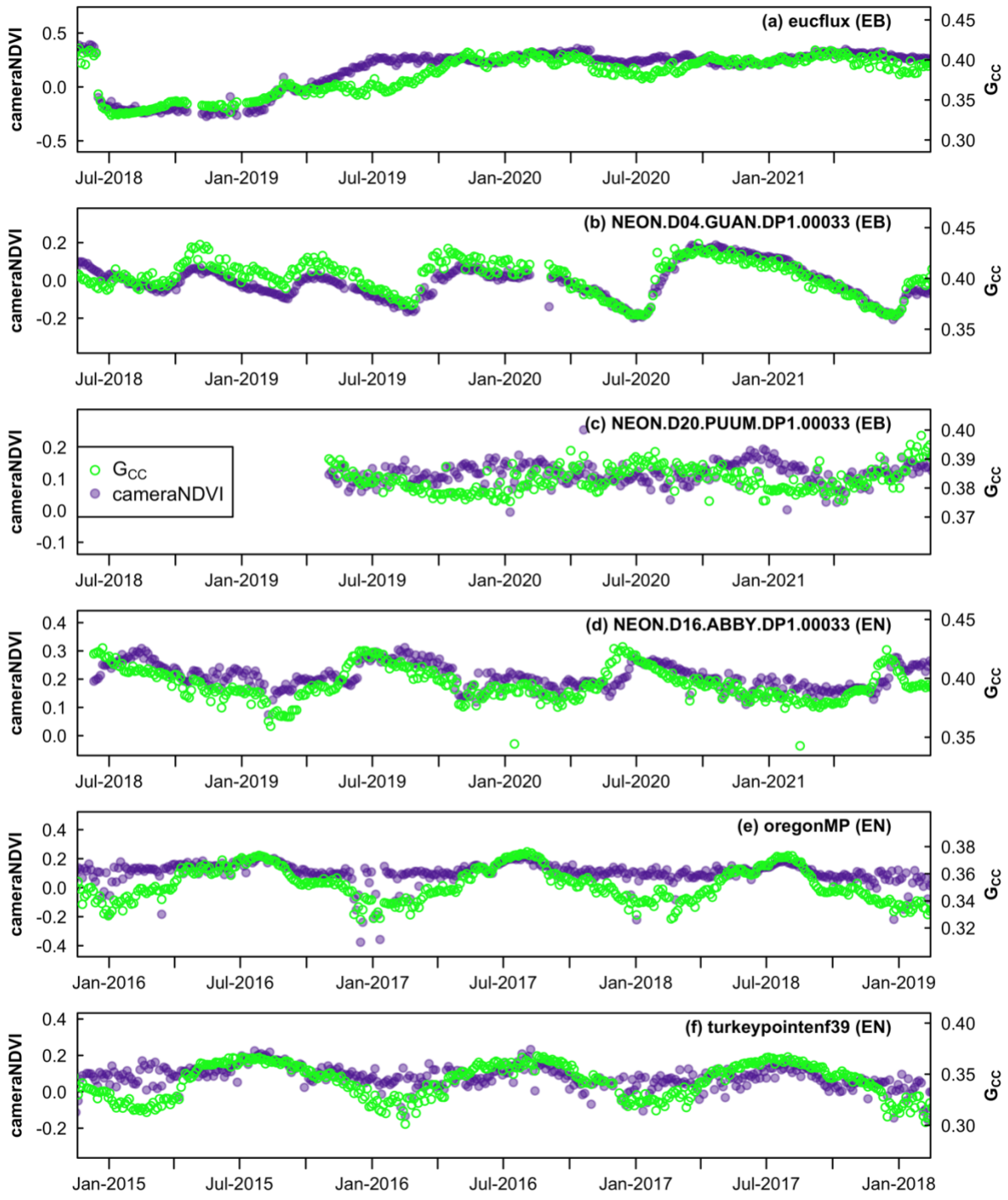

Figure S1. Comparison between GCC and cameraNDVI among (a-c) evergreen broadleaf sites and (d-f) evergreen needleleaf sites.

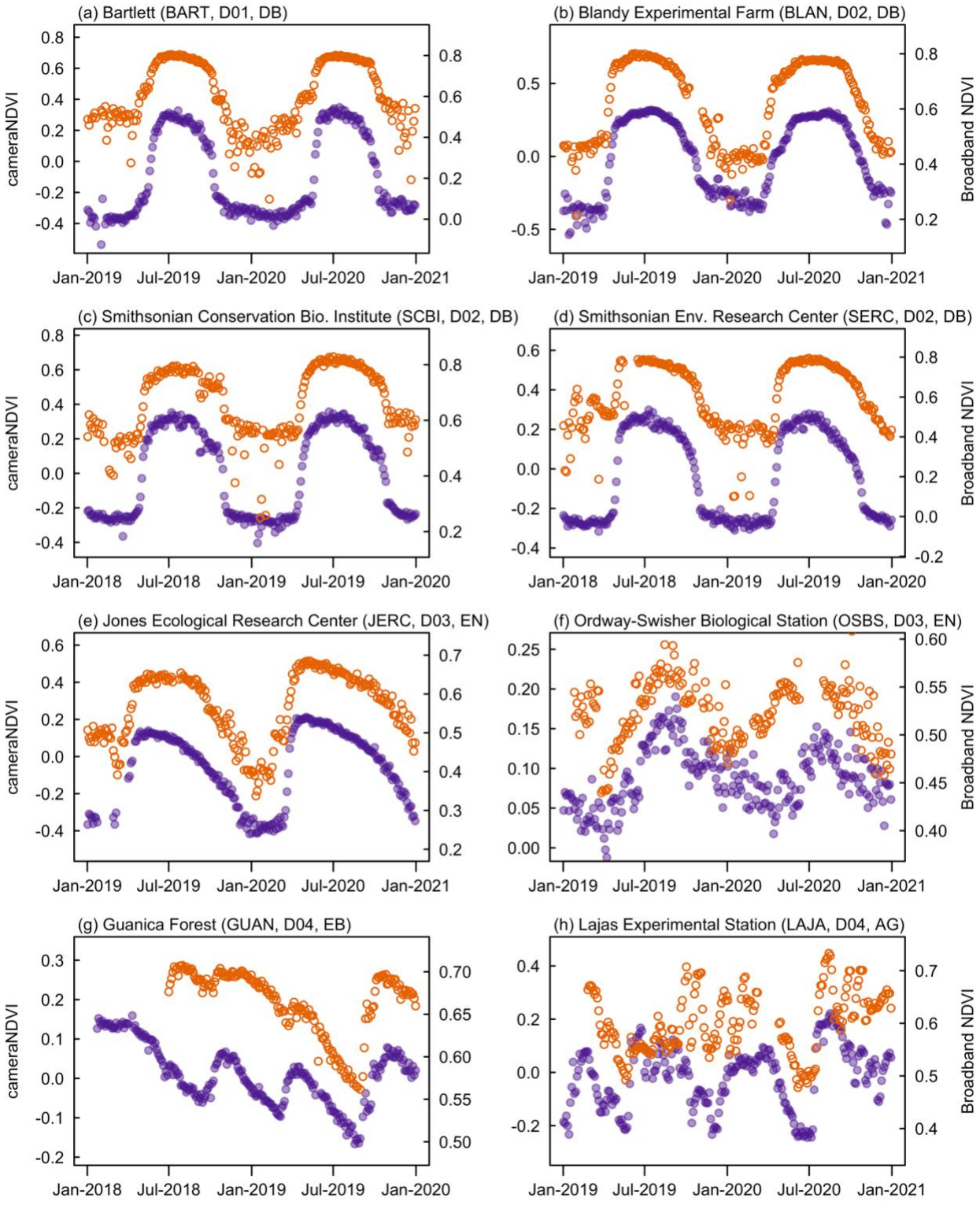

Figure S2. Comparison between cameraNDVI (closed circles) and broadbandNDVI (open circles) at Terrestrial Sites in NEON Domains D01-D04.

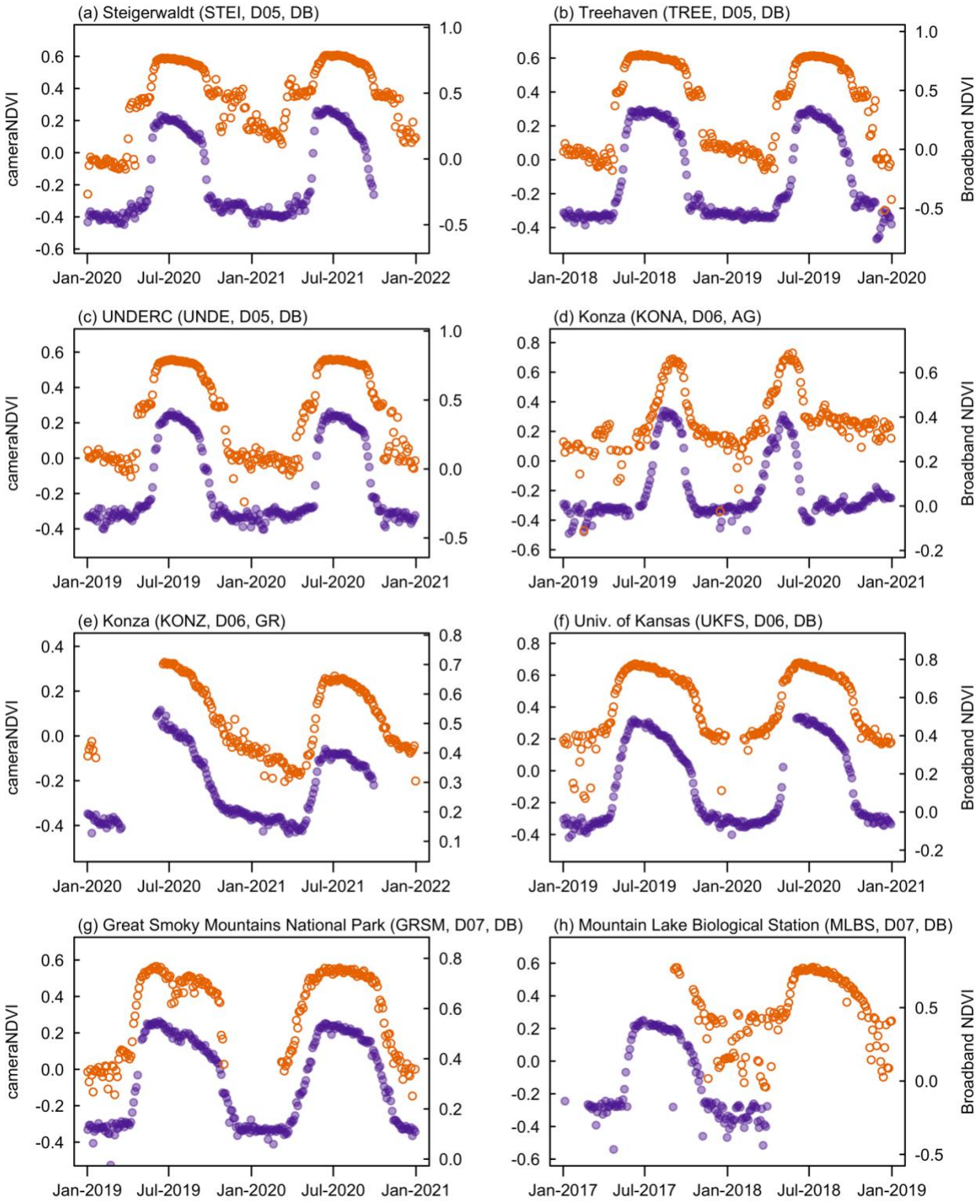

Figure S3. Comparison between cameraNDVI (closed circles) and broadbandNDVI (open circles) at Terrestrial Sites in NEON Domains D05-D07.

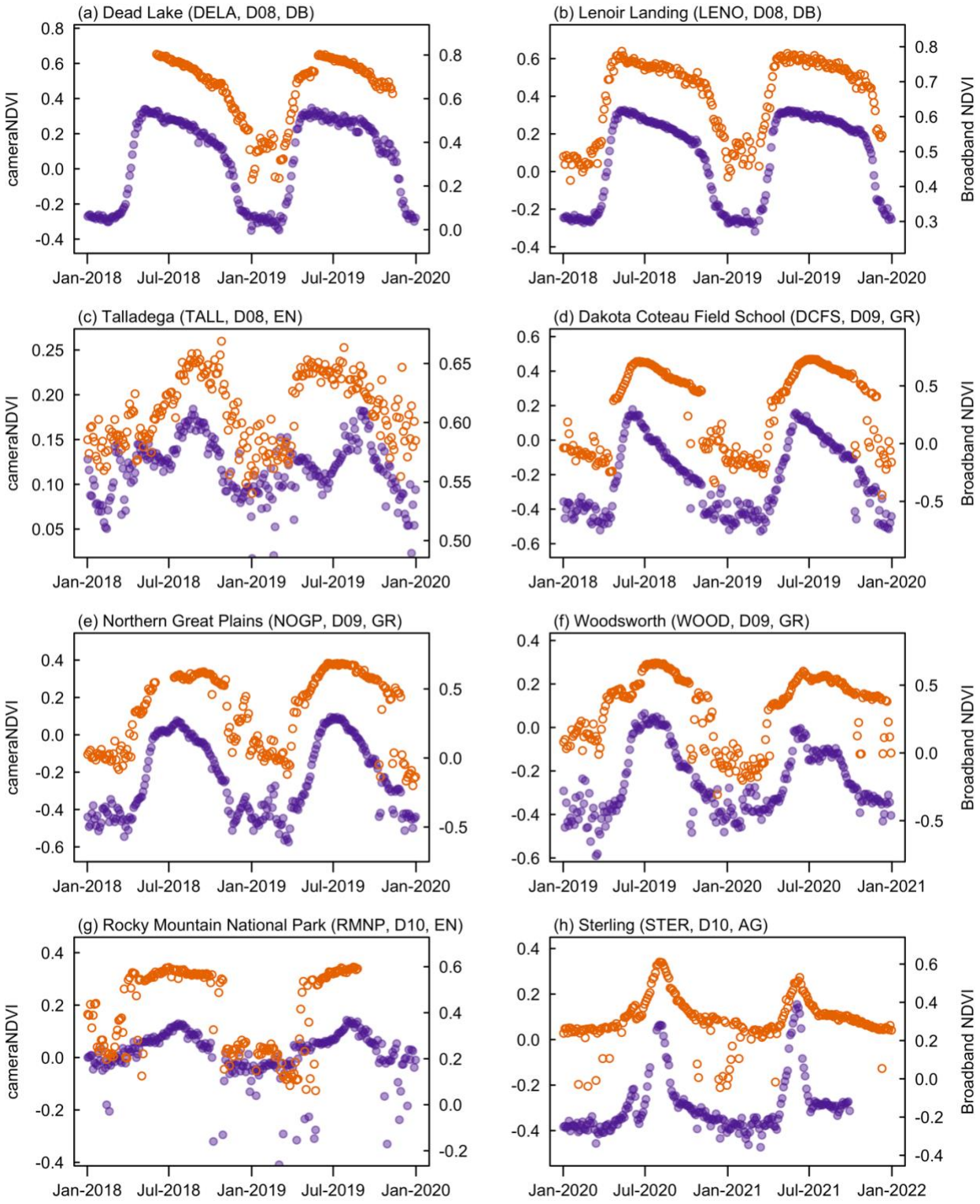

Figure S4. Comparison between cameraNDVI (closed circles) and broadbandNDVI (open circles) at Terrestrial Sites in NEON Domains D08-D10.

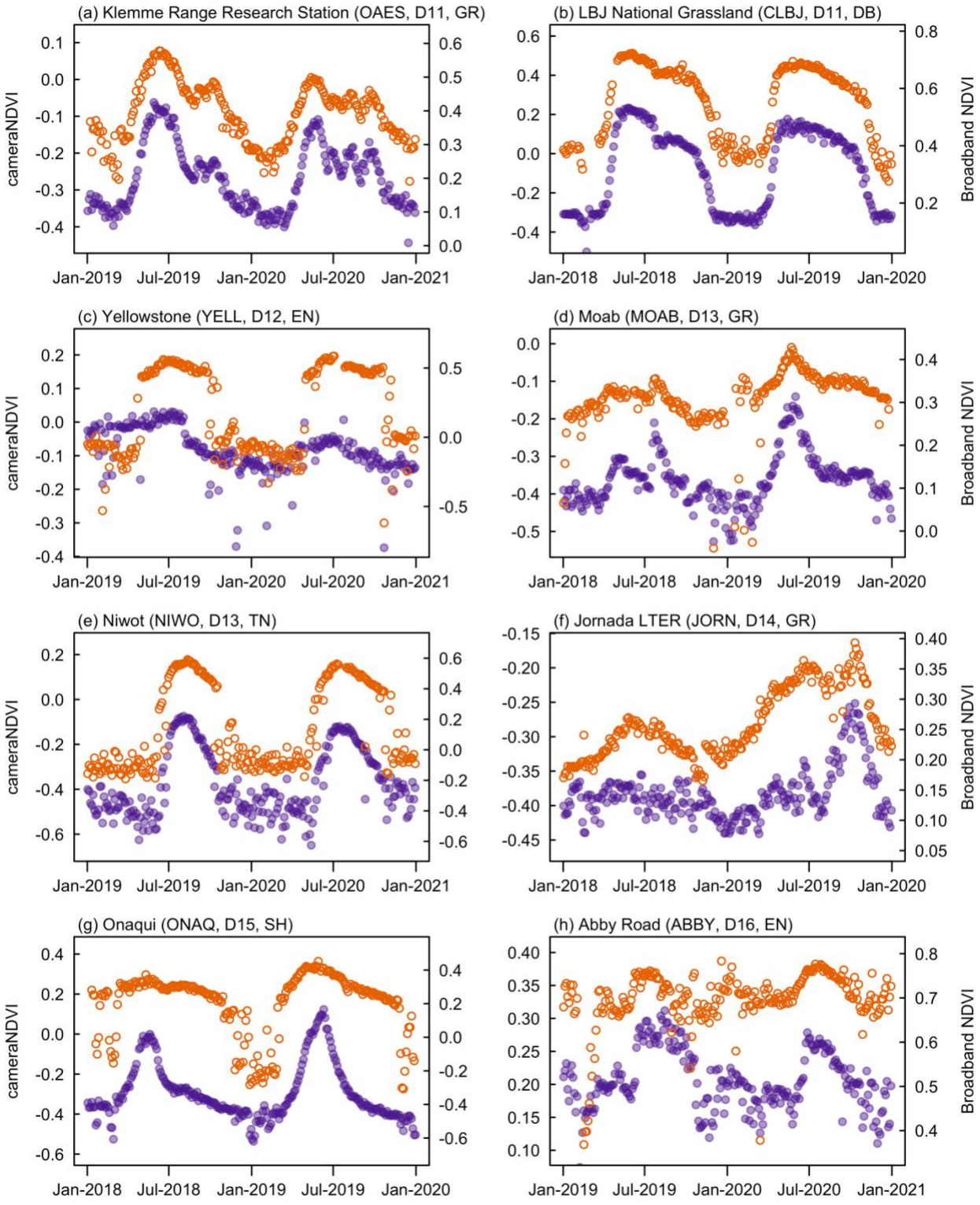

Figure S5. Comparison between cameraNDVI (closed circles) and broadbandNDVI (open circles) at Terrestrial Sites in NEON Domains D11-D16.

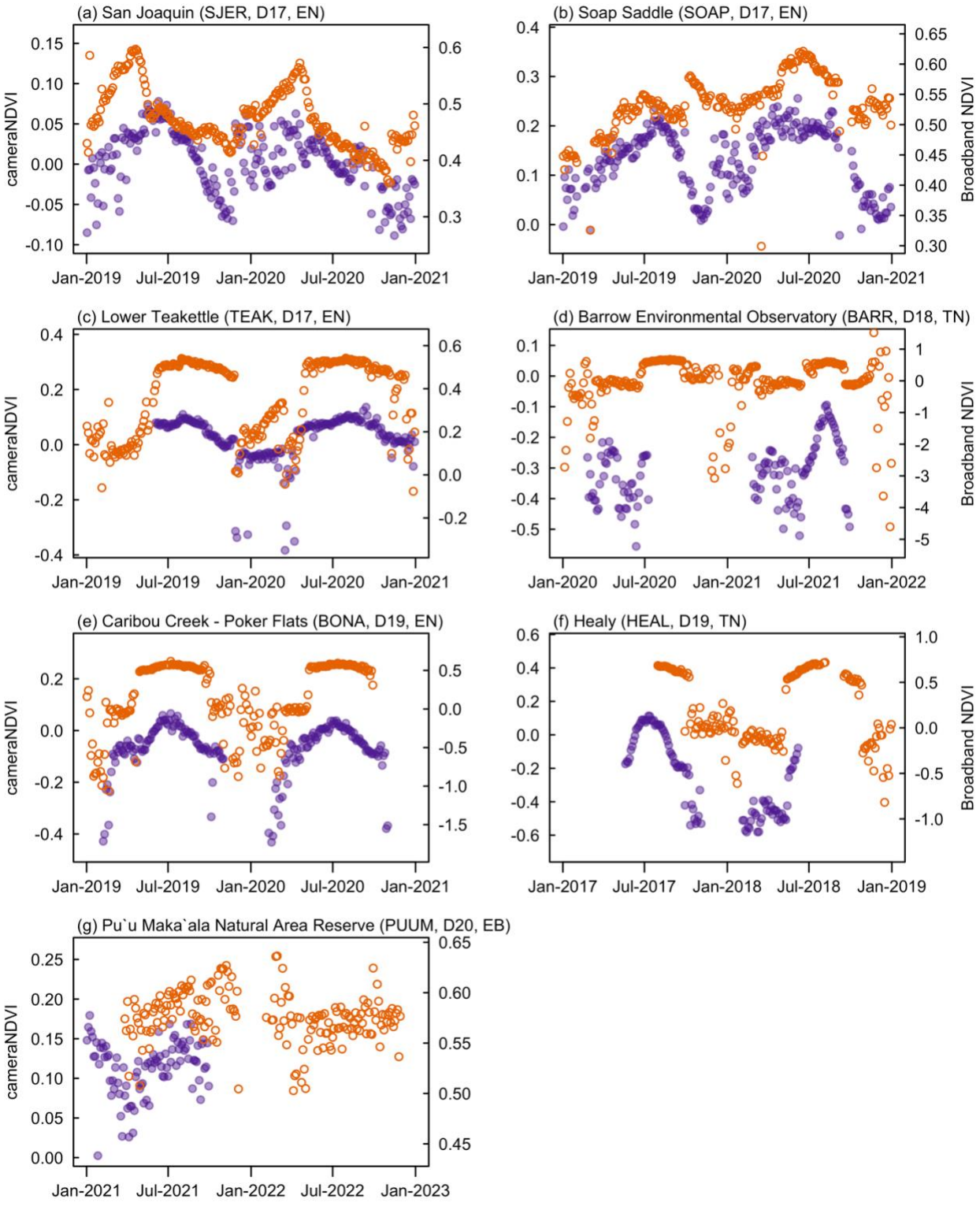

Figure S6. Comparison between cameraNDVI (closed circles) and broadbandNDVI (open circles) at Terrestrial Sites in NEON Domains D17-D20.

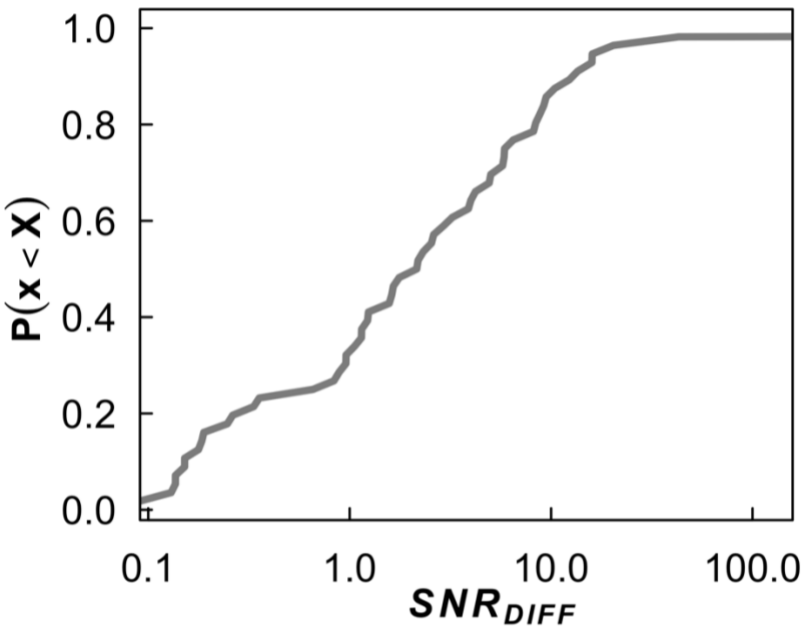

Figure S7. Summary for signal-to-noise ratio (SNR) analysis comparing cameraNDVI to broadbandNDVI. $SNR_{DIFF} < 1$ indicates that cameraNDVI produces a noiser signal, while $SNR_{DIFF} > 1$ indicates that cameraNDVI produces a less noisy signal relative to broadbandNDVI. Here, when evaluating all NEON Terrestrial Sites, we found that cameraNDVI produces a smoother or less-noisy phenological signal ~75% of the time.