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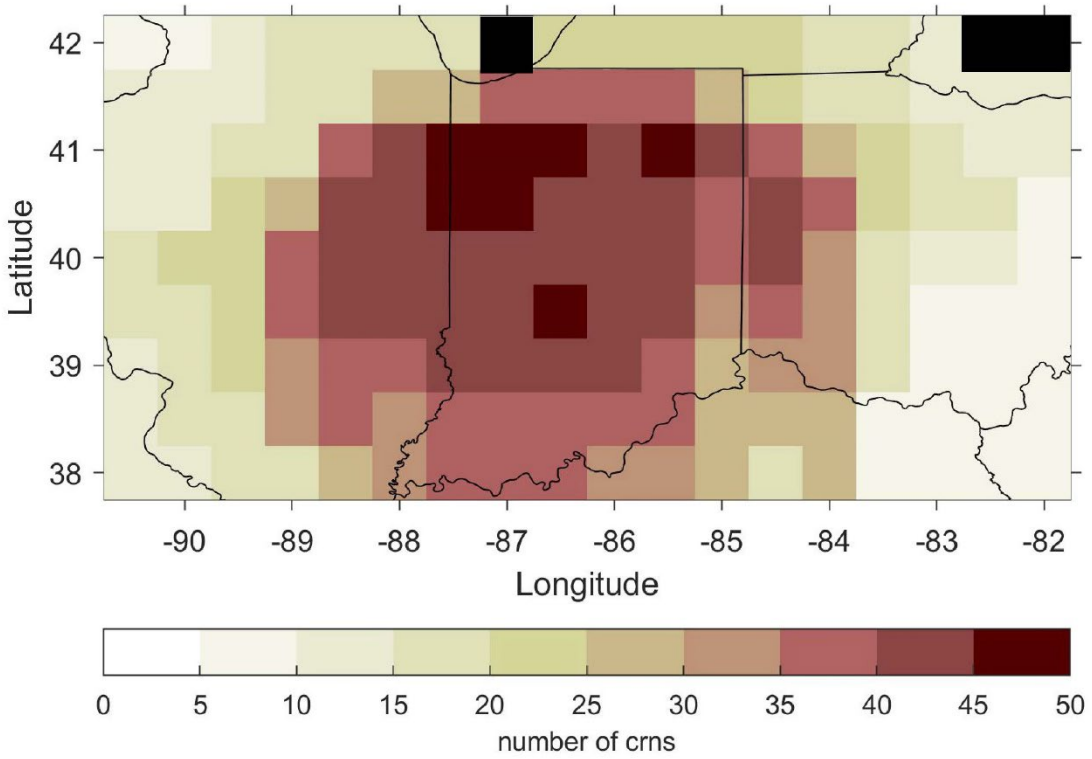
*Supplement of*

## **Sampling density and date along with species selection influence spatial representation of tree-ring reconstructions**

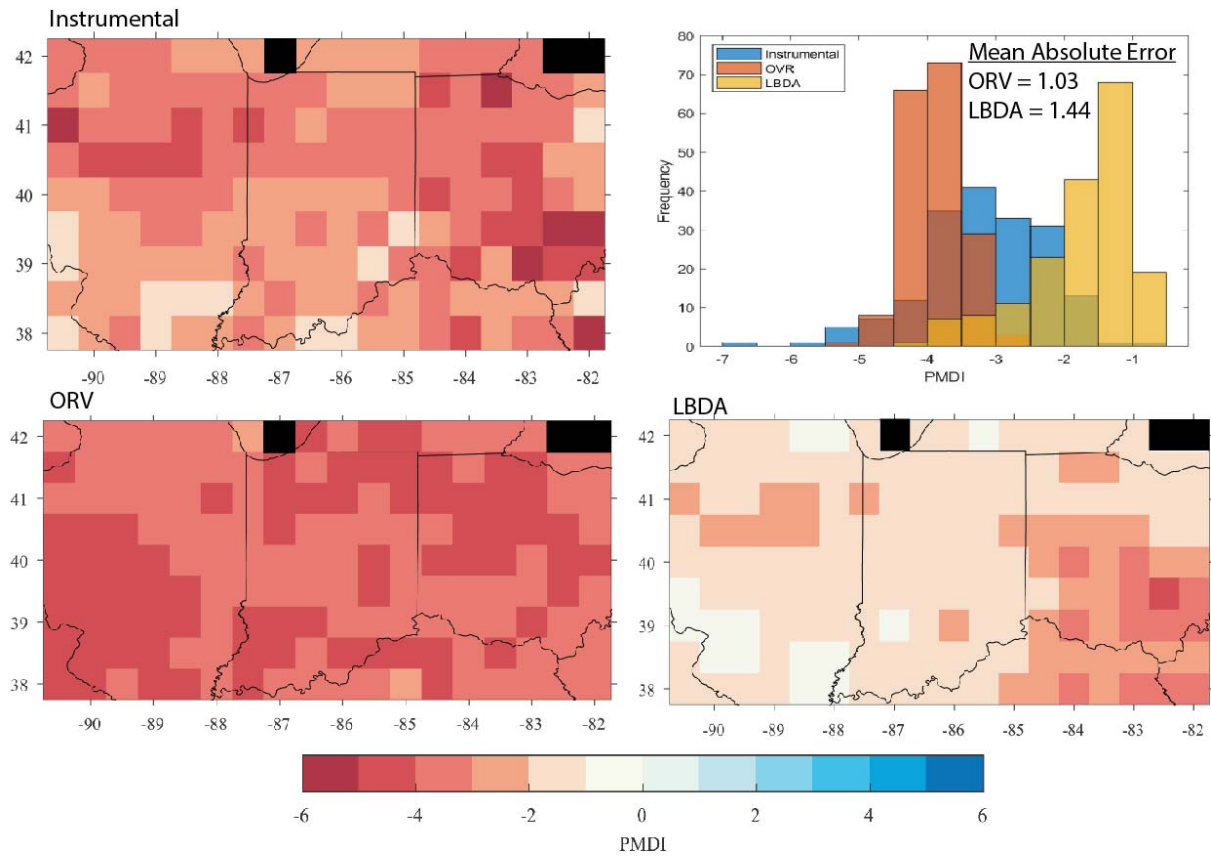
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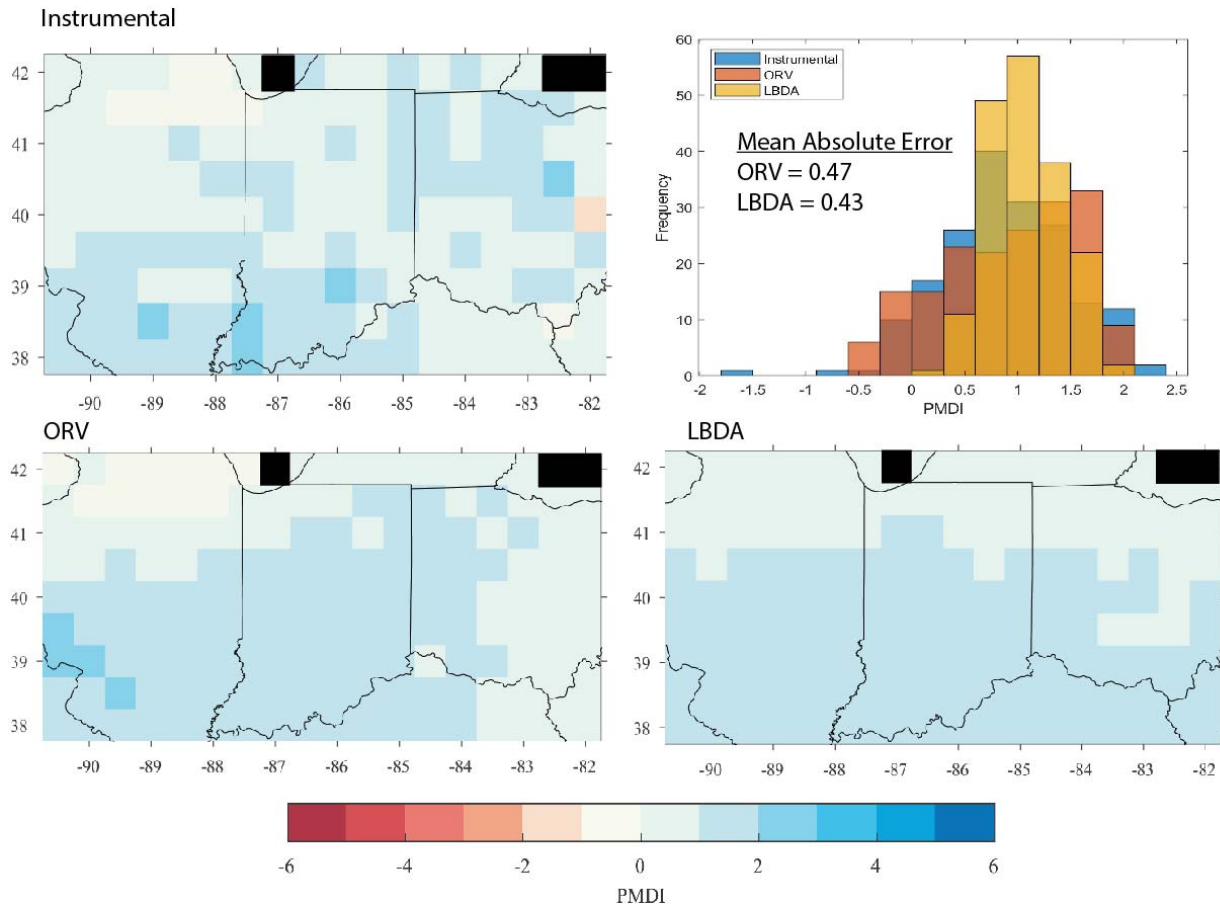
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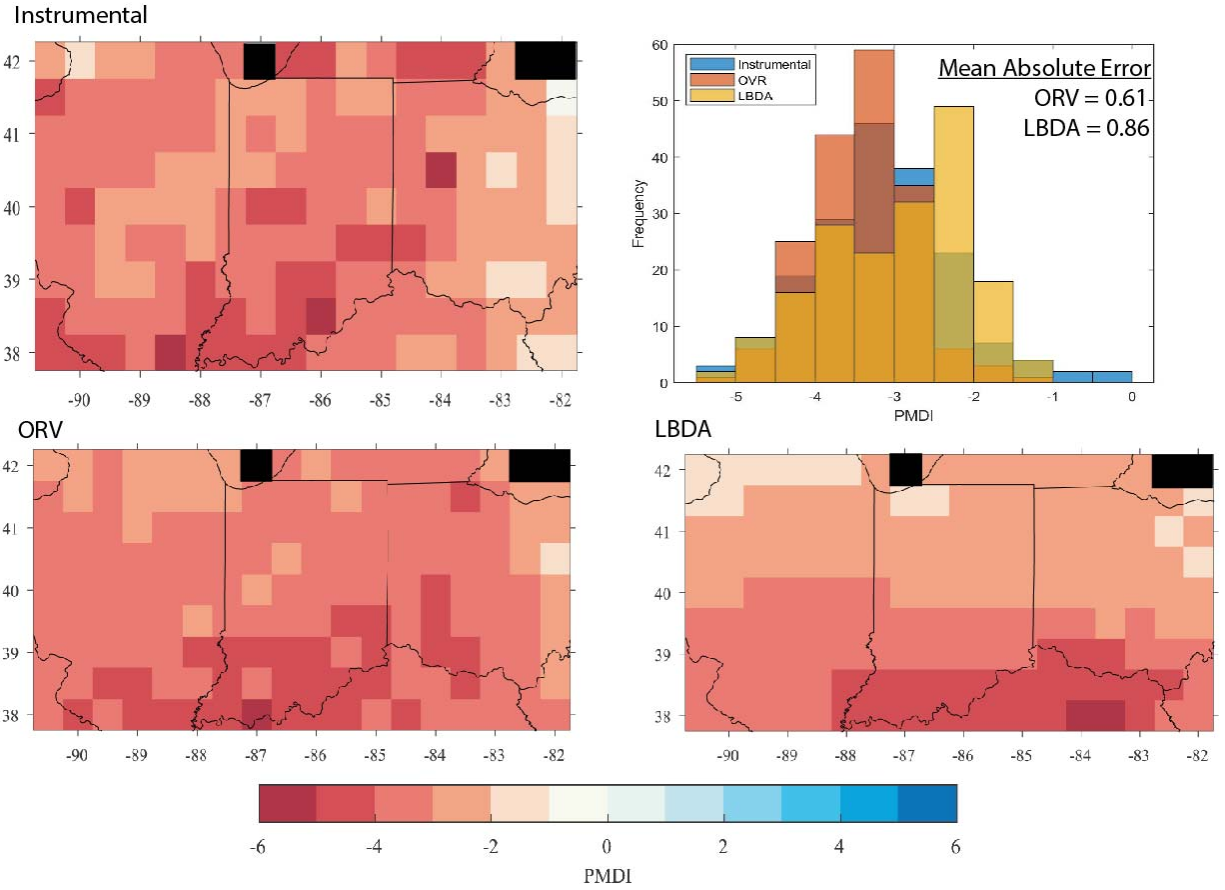
Supplemental Figure 1: Map showing the number of chronologies used in the ORV PC-regression reconstruction models for each grid. Black cells represent areas over water and therefore, no data.



Supplemental Figure 2: A map of PMDI values for the instrumental data, ORV, and LBDA reconstructions for the year 1988. The histogram represents the frequency of PMDI values for the instrumental, ORV, and LBDA PMDI values. The mean absolute error values show that the ORV reconstruction better matches the instrumental data compared to the LBDA reconstruction. Black cells represent areas over water and therefore, no data.



Supplemental Figure 3: A map of PMDI values for the instrumental data, ORV, and LBDA reconstructions for the years 1945-1951. The histogram represents the frequency of PMDI values for the instrumental, ORV, and LBDA PMDI values. The mean absolute error values show that the ORV reconstruction better matches the instrumental data compared to the LBDA reconstruction. Black cells represent areas over water and therefore, no data.



Supplemental Figure 4: A map of PMDI values for the instrumental data, ORV, and LBDA reconstructions for the year 1936. The histogram represents the frequency of PMDI values for the instrumental, ORV, and LBDA PMDI values. The mean absolute error values show that the ORV reconstruction better matches the instrumental data compared to the LBDA reconstruction. Black cells represent areas over water and therefore, no data.

Supplemental Table 1: List of tree-ring chronologies included in the ORV network.

Site	Species	Lat (N)	Lon (W)	Earliest Year	Citation	Drought Atlas
Babler State Park	ACSA	38.61	-90.69	1855	Au et al. 2020	ORV
Babler State Park	CAOV	38.61	-90.69	1837	Unpublished	ORV
Babler State Park	QUAL	38.61	-90.69	1641	Strange et al. 2019	Both
Beall Woods	LITU	38.35	-87.82	1815	LeBlanc et al. 2020	ORV
Beall Woods	QUAL	38.35	-87.82	1792	Strange et al. 2019	ORV
Bendix Woods	ACSA	41.66	-86.50	1842	Unpublished	ORV
Canterbury Woods	LITU	41.12	-85.1	1893	Strange et al. 2019	ORV
Clear Fork Ridge	PIST	40.60	-82.28	1854	Unpublished	ORV
Riddle State Nature Preserve	LITU	39.34	-82.07	1773	LeBlanc et al. 2020	ORV
Riddle State Nature Preserve	QUAL	39.34	-82.07	1825	Unpublished	ORV
Riddle State Nature Preserve	QUMO	39.34	-82.07	1854	Unpublished	ORV
Davey Woods	LITU	40.13	-83.90	1875	LeBlanc et al. 2020	ORV
Donaldson Woods	ACSA	38.73	-86.41	1885	Au et al. 2020	ORV
Donaldson Woods	COAV	38.73	-86.41	1676	Maxwell and Harley 2017	ORV
Donaldson Woods	LITU	38.73	-86.41	1708	Maxwell and Harley 2017	ORV
Donaldson Woods	QUAL	38.73	-86.41	1725	Maxwell and Harley 2017	ORV
Donaldson Woods	QURU	38.73	-86.41	1827	Maxwell and Harley 2017	ORV
Donaldson Woods	QUVE	38.73	-86.41	1731	Maxwell and Harley 2017	ORV
Douglas	QUAL	41.51	-84.86	1853	Unpublished	ORV
Feryne Cliffe Nature Preserve	LITU	37.52	-88.98	1888	LeBlanc et al. 2020	ORV
Feryne Cliffe Nature Preserve	QUAL	37.52	-88.98	1655	Unpublished	Both
Fox Ridge	ACSA	39.39	-88.16	1845	Au et al. 2020	ORV
Fox Ridge	QUAL	39.39	-88.16	1674	Strange et al. 2019	Both
Giant City State Park	QUAL	37.60	-89.20	1652	Matheus and Maxwell 2018	Both
Ginn Woods	LITU	40.34	-85.43	1879	LeBlanc et al. 2020	ORV
Goll Woods	CAOV	41.55	-84.36	1739	Unpublished	ORV
Goll Woods	QUAL	41.55	-84.36	1760	Unpublished	ORV

Goll Woods	QUMA	41.55	-84.36	1692	Unpublished	ORV
Green-Sullivan State Forest	QUVE	39.03	-87.25	1907	Speer et al. 2010	ORV
Hemmer Woods	QUAL	38.22	-87.36	1700	Strange et al. 2019	ORV
Hoot Woods Site Easement	CAOV	39.25	-86.89	1798	Maxwell and Harley 2017	ORV
Hoot Woods Site Easement	FRAM	39.25	-86.89	1854	Maxwell and Harley 2017	ORV
Hoot Woods Site Easement	LITU	39.25	-86.89	1790	Maxwell and Harley 2017	ORV
Hoot Woods Site Easement	QURU	39.25	-86.89	1892	Maxwell and Harley 2017	ORV
Hueston Woods	FAGR	39.57	-84.73	1724	Unpublished	ORV
Hueston Woods	LITU	39.57	-84.73	1891	LeBlanc et al. 2020	ORV
Johnson Nature Preserve	QUAL	40.88	-81.75	1626	Matheus and Maxwell 2018	Both
Johnson Nature Preserve	QURU	40.88	-81.75	1872	Unpublished	ORV
Kankakee River State Park	QUAL	41.20	-87.97	1686	Updated	Both
Kickapoo Recreation Area	ACSA	40.13	-87.74	1870	Au et al. 2020	ORV
Kickapoo Recreation Area	QUAL	40.13	-87.74	1670	Strange et al. 2019	Both
Latimer Woods	LITU	39.15	-86.49	1770	Wilde and Maxwell 2018	ORV
Lilly Dickey Woods	ACSA	39.23	-86.22	1882	Au et al. 2020	ORV
Lilly Dickey Woods	CAOV	39.23	-86.22	1876	Maxwell and Harley 2017	ORV
Lilly Dickey Woods	LITU	39.23	-86.22	1869	Maxwell and Harley 2017	ORV
Lilly Dickey Woods	QUAL	39.23	-86.22	1863	Maxwell and Harley 2017	ORV
Lilly Dickey Woods	QUMO	39.23	-86.22	1867	Maxwell and Harley 2017	ORV
Lilly Dickey Woods	QUVE	39.23	-86.22	1869	Maxwell and Harley 2017	ORV
Lincoln's New Salem	QUAL	39.98	-89.85	1671	Strange et al. 2019	Both
Meltzer Woods	CAOV	39.50	-85.66	1670	Strange et al. 2019	ORV
Meltzer Woods	FRNI	39.50	-85.66	1819	Strange et al. 2019	ORV
Meltzer Woods	LITU	39.50	-85.61	1902	Strange et al. 2019	ORV
Meltzer Woods	QUMA	39.50	-85.66	1827	Strange et al. 2019	ORV
Oppenheim Woods	COAV	41.33	-85.75	1830	Unpublished	ORV
Oppenheim Woods	LITU	41.33	-85.76	1888	LeBlanc et al. 2020	ORV
Oppenheim Woods	QURU	41.33	-85.76	1854	Unpublished	ORV
Pine Hills	TSCA	39.93	-87.05	1808	Maxwell and Harley 2017	ORV
Pionner Mothers RNA	ACSA	38.54	-86.45	1884	Au et al. 2020	ORV

Pionner Mothers RNA	CAOV	38.54	-86.45	1886	Unpublished	ORV
Pionner Mothers RNA	JUNI	38.54	-86.45	1781	Maxwell et al. 2015	ORV
Pionner Mothers RNA	LITU	38.54	-86.45	1717	Maxwell et al. 2015	ORV
Pionner Mothers RNA	QUAL	38.54	-86.45	1811	Maxwell et al. 2015	ORV
Pionner Mothers RNA	QURU	38.54	-86.45	1861	Maxwell et al. 2015	ORV
Saunders Woods	CAOV	38.37	-87.71	1758	Strange et al. 2019	ORV
Saunders Woods	QUPA	38.37	-87.71	1909	Strange et al. 2019	ORV
Starved Rock	QUAL	41.30	-88.99	1633	Updated	Both
Starved Rock	QURU	41.30	-88.99	1823	Updated	Both
Warren Woods	FAGR	41.82	-86.62	1771	Unpublished	ORV
Wesselman Woods	LITU	37.98	-87.51	1891	Strange et al. 2019	ORV