Supporting Information

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a) Coniferous

b) Deciduous

Carbon (MgC/ha)

<5   5 - 25   25 - 50   50 - 100   > 100   Missing Data   Water
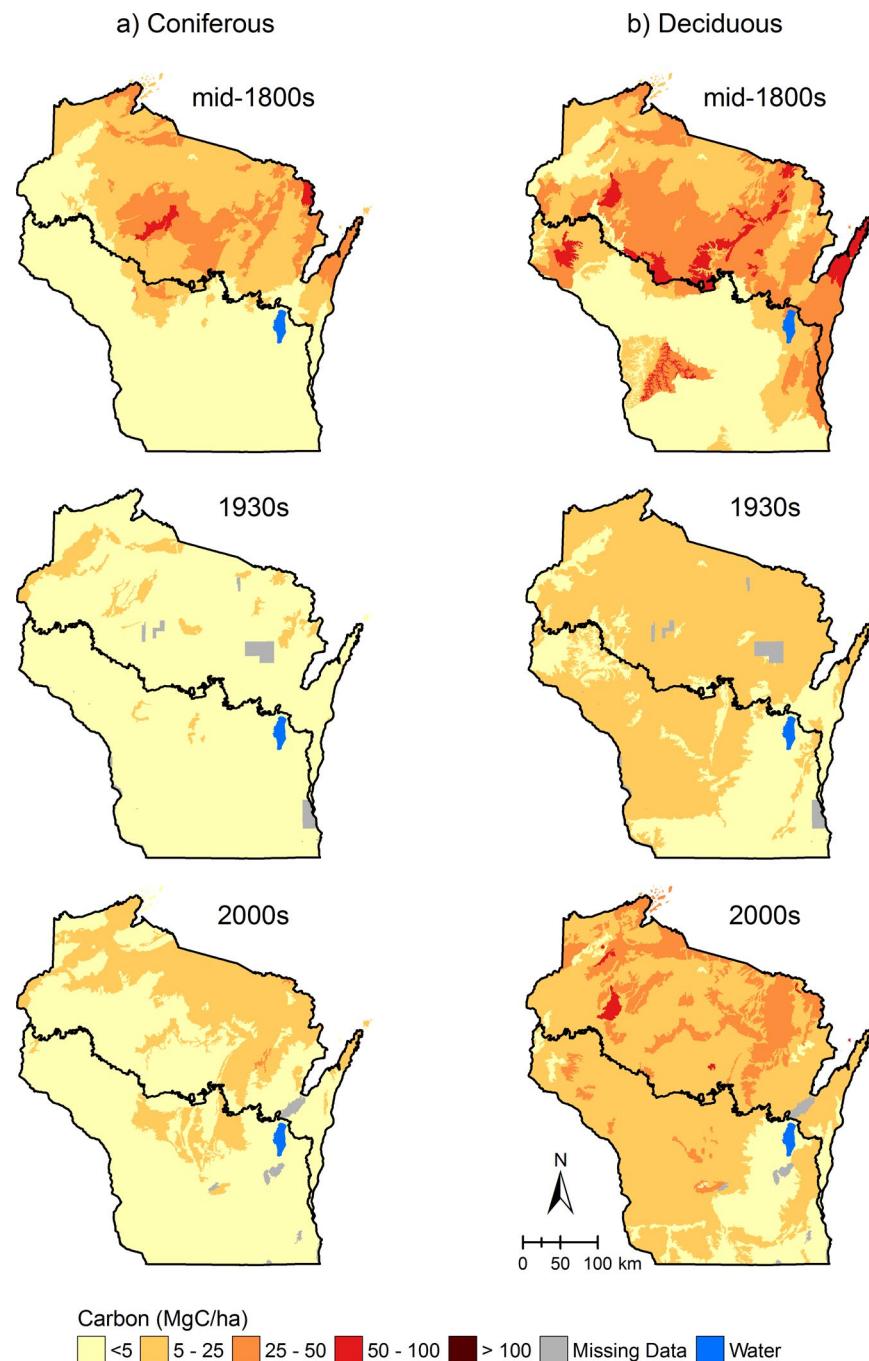
Fig. S1. Above-ground live forest carbon (MgC/ha) by forest type for coniferous (*a*), and deciduous (*b*) forest in the mid-1800s, 1930s, and 2000s. Data are medians calculated from Monte Carlo simulation results.

Table S1. Scenarios used in Monte Carlo simulation runs to estimate uncertainty because of biases in Public Land Survey (mid-1800s) dataset

| | Stand Variables | Allometric Equations | | | | |
	Shape	Volume	Height	Lower bound, TgC	Median, TgC	Upper bound, TgC
Baseline	weibull/exp*	V	V	434	435	435
Other Scenarios						
Weibull diameter distribution	all weibull	V	V	364	365	365
Exponential diameter distribution	all exponential	V	V	460	460	461
Volume constant (no SE)	weibull/exp*	C	V	419	420	420
Height constant (no SE)	weibull/exp*	V	C	434	434	435

Table shows above-ground live forest carbon estimate for each scenario. Baseline scenario shows the most reasonable values for each model parameter. Lower bound is the 2.5th percentile and upper bound is the 97.5th percentile of all simulation runs within a scenario. V, variable (i.e. coefficients of the allometric equations were modeled as a probability distribution function based on the standard error of the coefficient estimate); C, constant.

*Tree diameter distributions are modeled as a weibull distribution in survey sections dominated by shade-intolerant species (pines, aspen, paper birch, oak, and hickory) and as an exponential distribution elsewhere.

Table S2. Scenarios used in Monte Carlo simulation runs to estimate uncertainty because of biases in Wisconsin Land Economic Inventory (1930s) dataset

	Stand Variables				Allometric Equations				
	Mean DBH	SD, %	Shape	Stocking	Volume	Height	Lower bound, TgC	Median, TgC	Upper bound, TgC
Baseline	V	80	E/U	V	V	V	120	120	120
Other Scenarios									
Midpoint of size class	C	80	E/U	V	V	V	136	136	137
SD ≥ 99%	V	99	E/U	V	V	V	109	109	109
SD ≥ 66%	V	66	E/U	V	V	V	131	131	132
Midpoint of stocking class	V	80	E/U	C	V	V	120	120	120
Volume constant (no SE)	V	80	E/U	V	C	V	117	118	118
Height constant (no SE)	V	80	E/U	V	V	C	120	120	120

Table shows above-ground live forest carbon estimate for each scenario. Baseline scenario shows the most reasonable values for each model parameter. Lower bound is the 2.5th percentile and upper bound is the 97.5th percentile of all simulation runs within a scenario. DBH, diameter at breast height; V, variable (see Table S1 for details); C, constant; E, even-aged (Weibull distribution); U, uneven-aged (exponential distribution).

Table S3. Scenarios used in Monte Carlo simulation runs to estimate uncertainty because of biases in the U.S. Forest Service Forest Inventory and Analysis (2000s) dataset

	Allometric Equations				
	Volume	Height	Lower bound, TgC	Median, TgC	Upper bound, TgC
Baseline	V	V	275	276	277
Other Scenarios					
Volume constant (no SE)	C	V	276	276	276
Height constant (no SE)	V	C	275	276	277

Table shows above-ground live forest carbon estimate for each scenario. Baseline scenario shows the most reasonable values for each model parameter. Lower bound is the 2.5th percentile and upper bound is the 97.5th percentile of all simulation runs within a scenario. V, variable (see Table S1 for details); C, constant.