



## Regional Adaptations for Carbon in Different Landscapes (1 of 3)

**Activity 8: Counting Carbon** uses data specific to the southeastern U.S. for forest sequestration rates, state populations, and landscape areas. If you would like to use data for other regions of the country, please adapt the activity by using the instructions below.

- Use table IA rather than table I in the Carbon in Different Landscapes student page and provide students with the appropriate mixed forest sequestration rate for your state.

**Table IA. Sequestration Rates for Land Use Types Outside of Southeastern U.S.**

Land Use Type	Area in State (hectares)	Multiply	Carbon Sequestration Rate (tons C/hectare year)	Equals	Amount of Carbon Sequestered (tons/year)
Mixed Forest (Turner et al., 1995)		×	(look up by state in the list on next page)	=	
Urban Forest (Norwak & Crane, 2002)		×	0.80	=	
Cropland (Morgan et al., 2010)		×	0.10	=	
Rangeland/Grassland (Morgan et al., 2010)		×	0.07	=	

### Mixed Forest Sequestration Rates

Region/State	Sequestration Rate (tons C/hectare/year)
<b>Northeast</b> Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont, West Virginia	<b>1.50</b>
<b>North Central</b> Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, Wisconsin	<b>1.20</b>
<b>Rocky Mountain</b> Arizona, Colorado, Idaho, Montana, Nevada, New Mexico, Utah, Wyoming	<b>1.70</b>
<b>Pacific</b> California, Oregon, Washington	<b>1.53</b>



## Regional Adaptations for Carbon in Different Landscapes (2 of 3)

2. Use table 2A rather than table 2 at the end of Activity 8 to provide students with population and land use data.

**Table 2a. Population and Land Use Areas for States Outside of Southeastern Region**

State	Population <sup>1</sup>	Mixed Forest <sup>2</sup>	Cropland <sup>3</sup>	Rangeland <sup>3</sup>	Urban Area <sup>3</sup>
	(thousands)	(in thousands of hectares)			
Arizona	6,392	7,572	370	16,450	445
California	37,253	13,288	3,865	11,139	2,091
Colorado	5,029	9,294	4,625	11,684	336
Connecticut	3,547	683	55	13	467
Delaware	897	138	171	9	81
Idaho	1,568	8,656	2,420	7,318	109
Illinois	12,830	1,962	9,735	785	948
Indiana	6,483	1,955	5,158	665	587
Iowa	3,046	1,220	10,817	996	211
Kansas	2,853	986	11,553	6,652	227
Maine	1,328	7,147	187	42	90
Maryland	5,773	1,004	518	188	481
Massachusetts	6,547	1,220	69	22	744
Michigan	9,883	8,145	3,243	687	886
Minnesota	5,303	7,030	9,042	1,222	391
Missouri	5,988	6,261	6,702	3,409	480
Montana	989	10,356	7,231	18,636	69
Nebraska	1,826	638	8,746	9,385	121
Nevada	2,700	4,520	296	18,960	144
New Hampshire	1,316	1,956	42	37	145
New Jersey	8,791	794	194	21	735
New Mexico	2,059	6,753	958	21,093	199
New York	19,378	7,634	1,676	977	1,040
North Dakota	672	308	11,200	4,830	38
Ohio	11,536	3,273	4,421	779	1,054
Oregon	3,831	12,139	1,997	9,197	273
Pennsylvania	12,702	6,784	2,130	455	1,133
Rhode Island	1,052	142	9	3	103
South Dakota	814	773	8,034	9,414	44
Utah	2,764	7,396	703	10,570	182
Vermont	625	1,858	197	106	39
Washington	6,724	9,060	3,086	2,748	565
West Virginia	1,853	4,911	373	505	151
Wisconsin	5,686	6,872	4,129	1,120	430
Wyoming	564	4,633	898	18,070	45

<sup>1</sup> United States Census Bureau, 2012 <sup>2</sup> United States Forest Service, 2013 (area given is the total forestland for the state) <sup>3</sup> United States Department of Agriculture, 2012 (land use definitions found in the Economic Research Service Glossary at [http://www.ers.usda.gov/data-products/major-land-uses/glossary.aspx#.UkXM-X\\_JJ8Q](http://www.ers.usda.gov/data-products/major-land-uses/glossary.aspx#.UkXM-X_JJ8Q))



## Regional Adaptations for Carbon in Different Landscapes (3 of 3)

### References Cited

- Morgan, J. A., Follett, R. F., Allen, L. H., Del Grosso, S., Derner, J. D., Dijkstra, F., Franzluebbers, A., Fry, R., Paustian, K., & Schoeneberger, M. M. (2010). Carbon sequestration in agricultural lands of the United States. *Journal of Soil and Water Conservation*, 65(1), 6A–13A.
- Norwak, D. J. & Crane, D. E. (2002). Carbon storage and sequestration by urban trees in the USA. *Environmental Pollution*, 116, 381–89. Retrieved from <http://nrs.fs.fed.us/pubs/5521>
- Turner, D. P., Koerber, G. J., Harmon, M. E. & Lee, J. J. (1995). A carbon budget for forests of the conterminous United States. *Ecological Applications*, 5, 421–436.
- United States Census Bureau. (2012). *State population: Rank, percent change, and population density*. Retrieved from <http://www.census.gov/compendia/statab/cats/population.html>
- United States Department of Agriculture. (2012). *Economic research service: Major land use*. Retrieved from <http://www.ers.usda.gov/data-products/major-land-uses.aspx>
- United States Forest Service. (2013). *Forest inventory analysis: Forest statistics for the 48 coterminous states (all ownerships)*. Retrieved from <http://apps.fs.fed.us/fiadb-downloads/standardReports.html>