Greenhouse Gas Emissions and Removals from Forest Land, Woodlands, and Urban Trees in the United States, 1990-2019

Appendix 2.—National Scale Quantitative Uncertainty Estimates for Individual States, 2019

Appendix 2 (<https://doi.org/10.2737/FS-RU-307-Appendix2>) in: Domke, Grant M.; Walters, Brian F.; Nowak, David J.; Smith, James, E.; Nichols, Michael C.; Ogle, Stephen M.; Coulston, J.W.; Wirth, T.C. 2021. Greenhouse gas emissions and removals from forest land, woodlands, and urban trees in the United States, 1990-2019. Resource Update FS-307. Madison, WI: U.S. Department of Agriculture, Forest Service, Northern Research Station. 5 p. [plus 2 appendixes]. <https://doi.org/10.2737/FS-RU-307>.

Appendix Contents				
Alabama	Alaska	Arizona	Arkansas	California
Colorado	Connecticut	Delaware	Florida	Georgia
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Appendix Notes:

- Managed forest land for U.S. Territories is not currently included in Section 6.1 Representation of the U.S. Land Base in the “Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2019” (US EPA 2021), therefore U.S. Territories are not included here.
- There is not sufficient Forest Inventory and Analysis data to include estimates of forest ecosystem C stocks, C stock changes, or non-CO₂ emissions for the state of Hawaii at this time.
- Not every table is included for every state. This may be due to the resolution of the available data, a lack of observations of the particular land use category or land use conversion category, or there was insufficient data.
- The state-level estimates reported in the following tables will not sum to the national total due to independent rounding.

Alabama

Table 1: Quantitative Uncertainty Estimates for Net CO₂ Flux from *Forest Land Remaining Forest Land* (MMT CO₂ Eq. and Percent), Alabama

Source	2019 Flux Estimate (MMT CO ₂ Eq.)	Uncertainty Range Relative to Emission Estimate ^a			
		(MMT CO ₂ Eq.)		(%)	
		Lower Bound	Upper Bound	Lower Bound	Upper Bound
Forest Ecosystem C Pools	(46.1)	(52.8)	(39.4)	-14.5%	14.5%

^a Range of flux estimates predicted through a combination of sample-based and model-based uncertainty for a 95 percent confidence interval, IPCC Approach 1.

Notes: Parentheses indicate negative values or net uptake. Totals may not sum due to independent rounding.

Table 2: Quantitative Uncertainty Estimates of Non-CO₂ Emissions from Forest Fires (MMT CO₂ Eq. and Percent), Alabama^a

Source	Gas	2019 Emission Estimate (MMT CO ₂ Eq.)	Uncertainty Range Relative to Emission Estimate ^b			
			(MMT CO ₂ Eq.)		(%)	
			Lower Bound	Upper Bound	Lower Bound	Upper Bound
Non-CO ₂ Emissions from Forest Fires	CH ₄	+	+	0.1	-28.8%	31.6%
Non-CO ₂ Emissions from Forest Fires	N ₂ O	+	+	+	-25.6%	27.6%

+ Absolute value does not exceed 0.05 MMT CO₂ Eq.

^a These estimates include non-CO₂ emissions from forest fires on *Forest Land Remaining Forest Land* and *Land Converted to Forest Land*.

^b Range of flux estimates predicted by Monte Carlo Stochastic Simulation for a 95 percent confidence interval, IPCC Approach 2.

Alaska

Table 3: Quantitative Uncertainty Estimates for Net CO₂ Flux from *Forest Land Remaining Forest Land* (MMT CO₂ Eq. and Percent), Alaska

Source	2019 Flux Estimate (MMT CO ₂ Eq.)	Uncertainty Range Relative to Emission Estimate ^a			
		(MMT CO ₂ Eq.)		(%)	
		Lower Bound	Upper Bound	Lower Bound	Upper Bound
Forest Ecosystem C Pools	(16.7)	(21.9)	(11.5)	-31.2%	31.2%

^a Range of flux estimates predicted through a combination of sample-based and model-based uncertainty for a 95 percent confidence interval, IPCC Approach 1.

Notes: Parentheses indicate negative values or net uptake. Totals may not sum due to independent rounding.

Table 4: Quantitative Uncertainty Estimates of Non-CO₂ Emissions from Forest Fires (MMT CO₂ Eq. and Percent), Alaska^a

Source	Gas	2019 Emission Estimate (MMT CO ₂ Eq.)	Uncertainty Range Relative to Emission Estimate ^b			
			(MMT CO ₂ Eq.)		(%)	
			Lower Bound	Upper Bound	Lower Bound	Upper Bound
Non-CO ₂ Emissions from Forest Fires	CH ₄	0.2	0.1	0.3	-42.8%	51.1%
Non-CO ₂ Emissions from Forest Fires	N ₂ O	0.1	0.1	0.2	-39.5%	45.8%

^a These estimates include non-CO₂ emissions from forest fires on *Forest Land Remaining Forest Land* and *Land Converted to Forest Land*.

^b Range of flux estimates predicted by Monte Carlo Stochastic Simulation for a 95 percent confidence interval, IPCC Approach 2.

Arizona

Table 5: Quantitative Uncertainty Estimates for Net CO₂ Flux from *Forest Land Remaining Forest Land* (MMT CO₂ Eq. and Percent), Arizona

Source	2019 Flux Estimate (MMT CO ₂ Eq.)	Uncertainty Range Relative to Emission Estimate ^a			
		(MMT CO ₂ Eq.)		(%)	
		Lower Bound	Upper Bound	Lower Bound	Upper Bound
Forest Ecosystem C Pools	2.2	0.8	3.7	-64.7%	64.7%

^a Range of flux estimates predicted through a combination of sample-based and model-based uncertainty for a 95 percent confidence interval, IPCC Approach 1.

Notes: Parentheses indicate negative values or net uptake. Totals may not sum due to independent rounding.

Table 6: Quantitative Uncertainty Estimates of Non-CO₂ Emissions from Forest Fires (MMT CO₂ Eq. and Percent), Arizona^a

Source	Gas	2019 Emission Estimate (MMT CO ₂ Eq.)	Uncertainty Range Relative to Emission Estimate ^b			
			(MMT CO ₂ Eq.)		(%)	
			Lower Bound	Upper Bound	Lower Bound	Upper Bound
Non-CO ₂ Emissions from Forest Fires	CH ₄	0.1	0.1	0.2	-33%	39.8%
Non-CO ₂ Emissions from Forest Fires	N ₂ O	0.1	0.1	0.1	-27.7%	32.4%

^a These estimates include non-CO₂ emissions from forest fires on *Forest Land Remaining Forest Land* and *Land Converted to Forest Land*.

^b Range of flux estimates predicted by Monte Carlo Stochastic Simulation for a 95 percent confidence interval, IPCC Approach 2.

Arkansas

Table 7: Quantitative Uncertainty Estimates for Net CO₂ Flux from *Forest Land Remaining Forest Land* (MMT CO₂ Eq. and Percent), Arkansas

Source	2019 Flux Estimate (MMT CO ₂ Eq.)	Uncertainty Range Relative to Emission Estimate ^a			
		(MMT CO ₂ Eq.)		(%)	
		Lower Bound	Upper Bound	Lower Bound	Upper Bound
Forest Ecosystem C Pools	(29.9)	(35.7)	(24.2)	-19.2%	19.2%

^a Range of flux estimates predicted through a combination of sample-based and model-based uncertainty for a 95 percent confidence interval, IPCC Approach 1.

Notes: Parentheses indicate negative values or net uptake. Totals may not sum due to independent rounding.

Table 8: Quantitative Uncertainty Estimates of Non-CO₂ Emissions from Forest Fires (MMT CO₂ Eq. and Percent), Arkansas^a

Source	Gas	2019 Emission Estimate (MMT CO ₂ Eq.)	Uncertainty Range Relative to Emission Estimate ^b			
			(MMT CO ₂ Eq.)		(%)	
			Lower Bound	Upper Bound	Lower Bound	Upper Bound
Non-CO ₂ Emissions from Forest Fires	CH ₄	0.1	0.1	0.1	-27.6%	32.6%
Non-CO ₂ Emissions from Forest Fires	N ₂ O	0.1	+	0.1	-24.8%	28.3%

+ Absolute value does not exceed 0.05 MMT CO₂ Eq.

^a These estimates include non-CO₂ emissions from forest fires on *Forest Land Remaining Forest Land* and *Land Converted to Forest Land*.

^b Range of flux estimates predicted by Monte Carlo Stochastic Simulation for a 95 percent confidence interval, IPCC Approach 2.

California

Table 9: Quantitative Uncertainty Estimates for Net CO₂ Flux from *Forest Land Remaining Forest Land* (MMT CO₂ Eq. and Percent), California

Source	2019 Flux Estimate (MMT CO ₂ Eq.)	Uncertainty Range Relative to Emission Estimate ^a			
		(MMT CO ₂ Eq.)		(%)	
		Lower Bound	Upper Bound	Lower Bound	Upper Bound
Forest Ecosystem C Pools	(26.8)	(56.1)	2.5	-109.5%	109.5%

^a Range of flux estimates predicted through a combination of sample-based and model-based uncertainty for a 95 percent confidence interval, IPCC Approach 1.

Notes: Parentheses indicate negative values or net uptake. Totals may not sum due to independent rounding.

Table 10: Quantitative Uncertainty Estimates of Non-CO₂ Emissions from Forest Fires (MMT CO₂ Eq. and Percent), California^a

Source	Gas	2019 Emission Estimate (MMT CO ₂ Eq.)	Uncertainty Range Relative to Emission Estimate ^b			
			(MMT CO ₂ Eq.)		(%)	
			Lower Bound	Upper Bound	Lower Bound	Upper Bound
Non-CO ₂ Emissions from Forest Fires	CH ₄	4.2	2.8	5.7	-31.6%	36.5%
Non-CO ₂ Emissions from Forest Fires	N ₂ O	2.7	2.1	3.5	-25%	28.1%

^a These estimates include non-CO₂ emissions from forest fires on *Forest Land Remaining Forest Land* and *Land Converted to Forest Land*.

^b Range of flux estimates predicted by Monte Carlo Stochastic Simulation for a 95 percent confidence interval, IPCC Approach 2.

Colorado

Table 11: Quantitative Uncertainty Estimates for Net CO₂ Flux from *Forest Land Remaining Forest Land* (MMT CO₂ Eq. and Percent), Colorado

Source	2019 Flux Estimate (MMT CO ₂ Eq.)	Uncertainty Range Relative to Emission Estimate ^a			
		(MMT CO ₂ Eq.)		(%)	
		Lower Bound	Upper Bound	Lower Bound	Upper Bound
Forest Ecosystem C Pools	11.7	(19.6)	42.9	-267.6%	267.6%

^a Range of flux estimates predicted through a combination of sample-based and model-based uncertainty for a 95 percent confidence interval, IPCC Approach 1.

Notes: Parentheses indicate negative values or net uptake. Totals may not sum due to independent rounding.

Table 12: Quantitative Uncertainty Estimates of Non-CO₂ Emissions from Forest Fires (MMT CO₂ Eq. and Percent), Colorado^a

Source	Gas	2019 Emission Estimate (MMT CO ₂ Eq.)	Uncertainty Range Relative to Emission Estimate ^b			
			(MMT CO ₂ Eq.)		(%)	
			Lower Bound	Upper Bound	Lower Bound	Upper Bound
Non-CO ₂ Emissions from Forest Fires	CH ₄	0.6	0.3	0.8	-37.5%	44.9%
Non-CO ₂ Emissions from Forest Fires	N ₂ O	0.4	0.3	0.5	-29.6%	36.1%

^a These estimates include non-CO₂ emissions from forest fires on *Forest Land Remaining Forest Land* and *Land Converted to Forest Land*.

^b Range of flux estimates predicted by Monte Carlo Stochastic Simulation for a 95 percent confidence interval, IPCC Approach 2.

Connecticut

Table 13: Quantitative Uncertainty Estimates for Net CO₂ Flux from *Forest Land Remaining Forest Land* (MMT CO₂ Eq. and Percent), Connecticut

Source	2019 Flux Estimate (MMT CO ₂ Eq.)	Uncertainty Range Relative to Emission Estimate ^a			
		(MMT CO ₂ Eq.)		(%)	
		Lower Bound	Upper Bound	Lower Bound	Upper Bound
Forest Ecosystem C Pools	(3.2)	(4.2)	(2.2)	-32.4%	32.4%

^a Range of flux estimates predicted through a combination of sample-based and model-based uncertainty for a 95 percent confidence interval, IPCC Approach 1.

Notes: Parentheses indicate negative values or net uptake. Totals may not sum due to independent rounding.

Delaware

Table 14: Quantitative Uncertainty Estimates for Net CO₂ Flux from *Forest Land Remaining Forest Land* (MMT CO₂ Eq. and Percent), Delaware

Source	2019 Flux Estimate (MMT CO ₂ Eq.)	Uncertainty Range Relative to Emission Estimate ^a			
		(MMT CO ₂ Eq.)		(%)	
		Lower Bound	Upper Bound	Lower Bound	Upper Bound
Forest Ecosystem C Pools	(0.2)	(0.4)	(0.1)	-47.4%	47.4%

^a Range of flux estimates predicted through a combination of sample-based and model-based uncertainty for a 95 percent confidence interval, IPCC Approach 1.

Notes: Parentheses indicate negative values or net uptake. Totals may not sum due to independent rounding.

Florida

Table 15: Quantitative Uncertainty Estimates for Net CO₂ Flux from *Forest Land Remaining Forest Land* (MMT CO₂ Eq. and Percent), Florida

Source	2019 Flux Estimate (MMT CO ₂ Eq.)	Uncertainty Range Relative to Emission Estimate ^a			
		(MMT CO ₂ Eq.)		(%)	
		Lower Bound	Upper Bound	Lower Bound	Upper Bound
Forest Ecosystem C Pools	(19.7)	(22.1)	(17.2)	-12.4%	12.4%

^a Range of flux estimates predicted through a combination of sample-based and model-based uncertainty for a 95 percent confidence interval, IPCC Approach 1.

Notes: Parentheses indicate negative values or net uptake. Totals may not sum due to independent rounding.

Table 16: Quantitative Uncertainty Estimates of Non-CO₂ Emissions from Forest Fires (MMT CO₂ Eq. and Percent), Florida^a

Source	Gas	2019 Emission Estimate (MMT CO ₂ Eq.)	Uncertainty Range Relative to Emission Estimate ^b			
			(MMT CO ₂ Eq.)		(%)	
			Lower Bound	Upper Bound	Lower Bound	Upper Bound
Non-CO ₂ Emissions from Forest Fires	CH ₄	0.2	0.1	0.2	-18.3%	20.6%
Non-CO ₂ Emissions from Forest Fires	N ₂ O	0.1	0.1	0.1	-16.1%	18.1%

^a These estimates include non-CO₂ emissions from forest fires on *Forest Land Remaining Forest Land* and *Land Converted to Forest Land*.

^b Range of flux estimates predicted by Monte Carlo Stochastic Simulation for a 95 percent confidence interval, IPCC Approach 2.

Georgia

Table 17: Quantitative Uncertainty Estimates for Net CO₂ Flux from *Forest Land Remaining Forest Land* (MMT CO₂ Eq. and Percent), Georgia

Source	2019 Flux Estimate (MMT CO ₂ Eq.)	Uncertainty Range Relative to Emission Estimate ^a			
		(MMT CO ₂ Eq.)		(%)	
		Lower Bound	Upper Bound	Lower Bound	Upper Bound
Forest Ecosystem C Pools	(30.2)	(32.0)	(28.4)	-6%	6%

^a Range of flux estimates predicted through a combination of sample-based and model-based uncertainty for a 95 percent confidence interval, IPCC Approach 1.

Notes: Parentheses indicate negative values or net uptake. Totals may not sum due to independent rounding.

Table 18: Quantitative Uncertainty Estimates of Non-CO₂ Emissions from Forest Fires (MMT CO₂ Eq. and Percent), Georgia^a

Source	Gas	2019 Emission Estimate (MMT CO ₂ Eq.)	Uncertainty Range Relative to Emission Estimate ^b			
			(MMT CO ₂ Eq.)		(%)	
			Lower Bound	Upper Bound	Lower Bound	Upper Bound
Non-CO ₂ Emissions from Forest Fires	CH ₄	+	+	0.1	-71.4%	122.8%
Non-CO ₂ Emissions from Forest Fires	N ₂ O	+	+	+	-67.6%	104.7%

+ Absolute value does not exceed 0.05 MMT CO₂ Eq.

^a These estimates include non-CO₂ emissions from forest fires on *Forest Land Remaining Forest Land* and *Land Converted to Forest Land*.

^b Range of flux estimates predicted by Monte Carlo Stochastic Simulation for a 95 percent confidence interval, IPCC Approach 2.

Idaho

Table 19: Quantitative Uncertainty Estimates for Net CO₂ Flux from *Forest Land Remaining Forest Land* (MMT CO₂ Eq. and Percent), Idaho

Source	2019 Flux Estimate (MMT CO ₂ Eq.)	Uncertainty Range Relative to Emission Estimate ^a			
		(MMT CO ₂ Eq.)		(%)	
		Lower Bound	Upper Bound	Lower Bound	Upper Bound
Forest Ecosystem C Pools	4.6	(8.3)	17.5	-278.9%	278.9%

^a Range of flux estimates predicted through a combination of sample-based and model-based uncertainty for a 95 percent confidence interval, IPCC Approach 1.

Notes: Parentheses indicate negative values or net uptake. Totals may not sum due to independent rounding.

Table 20: Quantitative Uncertainty Estimates of Non-CO₂ Emissions from Forest Fires (MMT CO₂ Eq. and Percent), Idaho^a

Source	Gas	2019 Emission Estimate (MMT CO ₂ Eq.)	Uncertainty Range Relative to Emission Estimate ^b			
			(MMT CO ₂ Eq.)		(%)	
			Lower Bound	Upper Bound	Lower Bound	Upper Bound
Non-CO ₂ Emissions from Forest Fires	CH ₄	0.3	0.2	0.5	-29.6%	33.9%
Non-CO ₂ Emissions from Forest Fires	N ₂ O	0.2	0.2	0.3	-22.6%	26.2%

^a These estimates include non-CO₂ emissions from forest fires on *Forest Land Remaining Forest Land* and *Land Converted to Forest Land*.

^b Range of flux estimates predicted by Monte Carlo Stochastic Simulation for a 95 percent confidence interval, IPCC Approach 2.

Illinois

Table 21: Quantitative Uncertainty Estimates for Net CO₂ Flux from *Forest Land Remaining Forest Land* (MMT CO₂ Eq. and Percent), Illinois

Source	2019 Flux Estimate (MMT CO ₂ Eq.)	Uncertainty Range Relative to Emission Estimate ^a			
		(MMT CO ₂ Eq.)		(%)	
		Lower Bound	Upper Bound	Lower Bound	Upper Bound
Forest Ecosystem C Pools	(4.4)	(8.0)	(0.8)	-82.5%	82.5%

^a Range of flux estimates predicted through a combination of sample-based and model-based uncertainty for a 95 percent confidence interval, IPCC Approach 1.

Notes: Parentheses indicate negative values or net uptake. Totals may not sum due to independent rounding.

Table 22: Quantitative Uncertainty Estimates of Non-CO₂ Emissions from Forest Fires (MMT CO₂ Eq. and Percent), Illinois^a

Source	Gas	2019 Emission Estimate (MMT CO ₂ Eq.)	Uncertainty Range Relative to Emission Estimate ^b			
			(MMT CO ₂ Eq.)		(%)	
			Lower Bound	Upper Bound	Lower Bound	Upper Bound
Non-CO ₂ Emissions from Forest Fires	CH ₄	+	+	+	-76.3%	105.2%
Non-CO ₂ Emissions from Forest Fires	N ₂ O	+	+	+	-72.9%	91.5%

+ Absolute value does not exceed 0.05 MMT CO₂ Eq.

^a These estimates include non-CO₂ emissions from forest fires on *Forest Land Remaining Forest Land* and *Land Converted to Forest Land*.

^b Range of flux estimates predicted by Monte Carlo Stochastic Simulation for a 95 percent confidence interval, IPCC Approach 2.

Indiana

Table 23: Quantitative Uncertainty Estimates for Net CO₂ Flux from *Forest Land Remaining Forest Land* (MMT CO₂ Eq. and Percent), Indiana

Source	2019 Flux Estimate (MMT CO ₂ Eq.)	Uncertainty Range Relative to Emission Estimate ^a			
		(MMT CO ₂ Eq.)		(%)	
		Lower Bound	Upper Bound	Lower Bound	Upper Bound
Forest Ecosystem C Pools	(5.2)	(11.0)	0.6	-112.5%	112.5%

^a Range of flux estimates predicted through a combination of sample-based and model-based uncertainty for a 95 percent confidence interval, IPCC Approach 1.

Notes: Parentheses indicate negative values or net uptake. Totals may not sum due to independent rounding.

Table 24: Quantitative Uncertainty Estimates of Non-CO₂ Emissions from Forest Fires (MMT CO₂ Eq. and Percent), Indiana^a

Source	Gas	2019 Emission Estimate (MMT CO ₂ Eq.)	Uncertainty Range Relative to Emission Estimate ^b			
			(MMT CO ₂ Eq.)		(%)	
			Lower Bound	Upper Bound	Lower Bound	Upper Bound
Non-CO ₂ Emissions from Forest Fires	CH ₄	+	+	+	-78.8%	120.5%
Non-CO ₂ Emissions from Forest Fires	N ₂ O	+	+	+	-75.5%	100.2%

+ Absolute value does not exceed 0.05 MMT CO₂ Eq.

^a These estimates include non-CO₂ emissions from forest fires on *Forest Land Remaining Forest Land* and *Land Converted to Forest Land*.

^b Range of flux estimates predicted by Monte Carlo Stochastic Simulation for a 95 percent confidence interval, IPCC Approach 2.

Iowa

Table 25: Quantitative Uncertainty Estimates for Net CO₂ Flux from *Forest Land Remaining Forest Land* (MMT CO₂ Eq. and Percent), Iowa

Source	2019 Flux Estimate (MMT CO ₂ Eq.)	Uncertainty Range Relative to Emission Estimate ^a			
		(MMT CO ₂ Eq.)		(%)	
		Lower Bound	Upper Bound	Lower Bound	Upper Bound
Forest Ecosystem C Pools	(2.6)	(3.8)	(1.5)	-44.1%	44.1%

^a Range of flux estimates predicted through a combination of sample-based and model-based uncertainty for a 95 percent confidence interval, IPCC Approach 1.

Notes: Parentheses indicate negative values or net uptake. Totals may not sum due to independent rounding.

Kansas

Table 26: Quantitative Uncertainty Estimates for Net CO₂ Flux from *Forest Land Remaining Forest Land* (MMT CO₂ Eq. and Percent), Kansas

Source	2019 Flux Estimate (MMT CO ₂ Eq.)	Uncertainty Range Relative to Emission Estimate ^a			
		(MMT CO ₂ Eq.)		(%)	
		Lower Bound	Upper Bound	Lower Bound	Upper Bound
Forest Ecosystem C Pools	(2.3)	(3.8)	(0.7)	-68.2%	68.2%

^a Range of flux estimates predicted through a combination of sample-based and model-based uncertainty for a 95 percent confidence interval, IPCC Approach 1.

Notes: Parentheses indicate negative values or net uptake. Totals may not sum due to independent rounding.

Table 27: Quantitative Uncertainty Estimates of Non-CO₂ Emissions from Forest Fires (MMT CO₂ Eq. and Percent), Kansas^a

Source	Gas	2019 Emission Estimate (MMT CO ₂ Eq.)	Uncertainty Range Relative to Emission Estimate ^b			
			(MMT CO ₂ Eq.)		(%)	
			Lower Bound	Upper Bound	Lower Bound	Upper Bound
Non-CO ₂ Emissions from Forest Fires	CH ₄	+	+	+	-86.5%	152.5%
Non-CO ₂ Emissions from Forest Fires	N ₂ O	+	+	+	-82.1%	122.7%

+ Absolute value does not exceed 0.05 MMT CO₂ Eq.

^a These estimates include non-CO₂ emissions from forest fires on *Forest Land Remaining Forest Land* and *Land Converted to Forest Land*.

^b Range of flux estimates predicted by Monte Carlo Stochastic Simulation for a 95 percent confidence interval, IPCC Approach 2.

Kentucky

Table 28: Quantitative Uncertainty Estimates for Net CO₂ Flux from *Forest Land Remaining Forest Land* (MMT CO₂ Eq. and Percent), Kentucky

Source	2019 Flux Estimate (MMT CO ₂ Eq.)	Uncertainty Range Relative to Emission Estimate ^a			
		(MMT CO ₂ Eq.)		(%)	
		Lower Bound	Upper Bound	Lower Bound	Upper Bound
Forest Ecosystem C Pools	(17.4)	(23.2)	(11.7)	-32.9%	32.9%

^a Range of flux estimates predicted through a combination of sample-based and model-based uncertainty for a 95 percent confidence interval, IPCC Approach 1.

Notes: Parentheses indicate negative values or net uptake. Totals may not sum due to independent rounding.

Table 29: Quantitative Uncertainty Estimates of Non-CO₂ Emissions from Forest Fires (MMT CO₂ Eq. and Percent), Kentucky^a

Source	Gas	2019 Emission Estimate (MMT CO ₂ Eq.)	Uncertainty Range Relative to Emission Estimate ^b			
			(MMT CO ₂ Eq.)		(%)	
			Lower Bound	Upper Bound	Lower Bound	Upper Bound
Non-CO ₂ Emissions from Forest Fires	CH ₄	+	+	+	-67.2%	87.4%
Non-CO ₂ Emissions from Forest Fires	N ₂ O	+	+	+	-64.1%	72.9%

+ Absolute value does not exceed 0.05 MMT CO₂ Eq.

^a These estimates include non-CO₂ emissions from forest fires on *Forest Land Remaining Forest Land* and *Land Converted to Forest Land*.

^b Range of flux estimates predicted by Monte Carlo Stochastic Simulation for a 95 percent confidence interval, IPCC Approach 2.

Louisiana

Table 30: Quantitative Uncertainty Estimates for Net CO₂ Flux from *Forest Land Remaining Forest Land* (MMT CO₂ Eq. and Percent), Louisiana

Source	2019 Flux Estimate (MMT CO ₂ Eq.)	Uncertainty Range Relative to Emission Estimate ^a			
		(MMT CO ₂ Eq.)		(%)	
		Lower Bound	Upper Bound	Lower Bound	Upper Bound
Forest Ecosystem C Pools	(22.2)	(24.0)	(20.5)	-7.8%	7.8%

^a Range of flux estimates predicted through a combination of sample-based and model-based uncertainty for a 95 percent confidence interval, IPCC Approach 1.

Notes: Parentheses indicate negative values or net uptake. Totals may not sum due to independent rounding.

Table 31: Quantitative Uncertainty Estimates of Non-CO₂ Emissions from Forest Fires (MMT CO₂ Eq. and Percent), Louisiana^a

Source	Gas	2019 Emission Estimate (MMT CO ₂ Eq.)	Uncertainty Range Relative to Emission Estimate ^b			
			(MMT CO ₂ Eq.)		(%)	
			Lower Bound	Upper Bound	Lower Bound	Upper Bound
Non-CO ₂ Emissions from Forest Fires	CH ₄	0.1	0.1	0.1	-19.1%	20.3%
Non-CO ₂ Emissions from Forest Fires	N ₂ O	0.1	0.1	0.1	-16.9%	17.6%

^a These estimates include non-CO₂ emissions from forest fires on *Forest Land Remaining Forest Land* and *Land Converted to Forest Land*.

^b Range of flux estimates predicted by Monte Carlo Stochastic Simulation for a 95 percent confidence interval, IPCC Approach 2.

Maine

Table 32: Quantitative Uncertainty Estimates for Net CO₂ Flux from *Forest Land Remaining Forest Land* (MMT CO₂ Eq. and Percent), Maine

Source	2019 Flux Estimate (MMT CO ₂ Eq.)	Uncertainty Range Relative to Emission Estimate ^a			
		(MMT CO ₂ Eq.)		(%)	
		Lower Bound	Upper Bound	Lower Bound	Upper Bound
Forest Ecosystem C Pools	(9.5)	(20.5)	1.6	-116.4%	116.4%

^a Range of flux estimates predicted through a combination of sample-based and model-based uncertainty for a 95 percent confidence interval, IPCC Approach 1.

Notes: Parentheses indicate negative values or net uptake. Totals may not sum due to independent rounding.

Maryland

Table 33: Quantitative Uncertainty Estimates for Net CO₂ Flux from *Forest Land Remaining Forest Land* (MMT CO₂ Eq. and Percent), Maryland

Source	2019 Flux Estimate (MMT CO ₂ Eq.)	Uncertainty Range Relative to Emission Estimate ^a			
		(MMT CO ₂ Eq.)		(%)	
		Lower Bound	Upper Bound	Lower Bound	Upper Bound
Forest Ecosystem C Pools	(4.2)	(6.1)	(2.2)	-46.5%	46.5%

^a Range of flux estimates predicted through a combination of sample-based and model-based uncertainty for a 95 percent confidence interval, IPCC Approach 1.

Notes: Parentheses indicate negative values or net uptake. Totals may not sum due to independent rounding.

Table 34: Quantitative Uncertainty Estimates of Non-CO₂ Emissions from Forest Fires (MMT CO₂ Eq. and Percent), Maryland^a

Source	Gas	2019 Emission Estimate (MMT CO ₂ Eq.)	Uncertainty Range Relative to Emission Estimate ^b			
			(MMT CO ₂ Eq.)		(%)	
			Lower Bound	Upper Bound	Lower Bound	Upper Bound
Non-CO ₂ Emissions from Forest Fires	CH ₄	+	+	+	-89.7%	155.7%
Non-CO ₂ Emissions from Forest Fires	N ₂ O	+	+	+	-86.5%	131.4%

+ Absolute value does not exceed 0.05 MMT CO₂ Eq.

^a These estimates include non-CO₂ emissions from forest fires on *Forest Land Remaining Forest Land* and *Land Converted to Forest Land*.

^b Range of flux estimates predicted by Monte Carlo Stochastic Simulation for a 95 percent confidence interval, IPCC Approach 2.

Massachusetts

Table 35: Quantitative Uncertainty Estimates for Net CO₂ Flux from *Forest Land Remaining Forest Land* (MMT CO₂ Eq. and Percent), Massachusetts

Source	2019 Flux Estimate (MMT CO ₂ Eq.)	Uncertainty Range Relative to Emission Estimate ^a			
		(MMT CO ₂ Eq.)		(%)	
		Lower Bound	Upper Bound	Lower Bound	Upper Bound
Forest Ecosystem C Pools	(4.6)	(6.0)	(3.2)	-29.9%	29.9%

^a Range of flux estimates predicted through a combination of sample-based and model-based uncertainty for a 95 percent confidence interval, IPCC Approach 1.

Notes: Parentheses indicate negative values or net uptake. Totals may not sum due to independent rounding.

Michigan

Table 36: Quantitative Uncertainty Estimates for Net CO₂ Flux from *Forest Land Remaining Forest Land* (MMT CO₂ Eq. and Percent), Michigan

Source	2019 Flux Estimate (MMT CO ₂ Eq.)	Uncertainty Range Relative to Emission Estimate ^a			
		(MMT CO ₂ Eq.)		(%)	
		Lower Bound	Upper Bound	Lower Bound	Upper Bound
Forest Ecosystem C Pools	(14.4)	(27.6)	(1.2)	-91.5%	91.5%

^a Range of flux estimates predicted through a combination of sample-based and model-based uncertainty for a 95 percent confidence interval, IPCC Approach 1.

Notes: Parentheses indicate negative values or net uptake. Totals may not sum due to independent rounding.

Table 37: Quantitative Uncertainty Estimates of Non-CO₂ Emissions from Forest Fires (MMT CO₂ Eq. and Percent), Michigan^a

Source	Gas	2019 Emission Estimate (MMT CO ₂ Eq.)	Uncertainty Range Relative to Emission Estimate ^b			
			(MMT CO ₂ Eq.)		(%)	
			Lower Bound	Upper Bound	Lower Bound	Upper Bound
Non-CO ₂ Emissions from Forest Fires	CH ₄	+	+	+	-71.3%	106.7%
Non-CO ₂ Emissions from Forest Fires	N ₂ O	+	+	+	-63.6%	86%

+ Absolute value does not exceed 0.05 MMT CO₂ Eq.

^a These estimates include non-CO₂ emissions from forest fires on *Forest Land Remaining Forest Land* and *Land Converted to Forest Land*.

^b Range of flux estimates predicted by Monte Carlo Stochastic Simulation for a 95 percent confidence interval, IPCC Approach 2.

Minnesota

Table 38: Quantitative Uncertainty Estimates for Net CO₂ Flux from *Forest Land Remaining Forest Land* (MMT CO₂ Eq. and Percent), Minnesota

Source	2019 Flux Estimate (MMT CO ₂ Eq.)	Uncertainty Range Relative to Emission Estimate ^a			
		(MMT CO ₂ Eq.)		(%)	
		Lower Bound	Upper Bound	Lower Bound	Upper Bound
Forest Ecosystem C Pools	(13.4)	(21.9)	(5.0)	-63.1%	63.1%

^a Range of flux estimates predicted through a combination of sample-based and model-based uncertainty for a 95 percent confidence interval, IPCC Approach 1.

Notes: Parentheses indicate negative values or net uptake. Totals may not sum due to independent rounding.

Mississippi

Table 39: Quantitative Uncertainty Estimates for Net CO₂ Flux from *Forest Land Remaining Forest Land* (MMT CO₂ Eq. and Percent), Mississippi

Source	2019 Flux Estimate (MMT CO ₂ Eq.)	Uncertainty Range Relative to Emission Estimate ^a			
		(MMT CO ₂ Eq.)		(%)	
		Lower Bound	Upper Bound	Lower Bound	Upper Bound
Forest Ecosystem C Pools	(58.3)	(68.8)	(47.8)	-18%	18%

^a Range of flux estimates predicted through a combination of sample-based and model-based uncertainty for a 95 percent confidence interval, IPCC Approach 1.

Notes: Parentheses indicate negative values or net uptake. Totals may not sum due to independent rounding.

Table 40: Quantitative Uncertainty Estimates of Non-CO₂ Emissions from Forest Fires (MMT CO₂ Eq. and Percent), Mississippi^a

Source	Gas	2019 Emission Estimate (MMT CO ₂ Eq.)	Uncertainty Range Relative to Emission Estimate ^b			
			(MMT CO ₂ Eq.)		(%)	
			Lower Bound	Upper Bound	Lower Bound	Upper Bound
Non-CO ₂ Emissions from Forest Fires	CH ₄	0.1	+	0.1	-25.5%	29.1%
Non-CO ₂ Emissions from Forest Fires	N ₂ O	+	+	+	-22.7%	24.9%

+ Absolute value does not exceed 0.05 MMT CO₂ Eq.

^a These estimates include non-CO₂ emissions from forest fires on *Forest Land Remaining Forest Land* and *Land Converted to Forest Land*.

^b Range of flux estimates predicted by Monte Carlo Stochastic Simulation for a 95 percent confidence interval, IPCC Approach 2.

Missouri

Table 41: Quantitative Uncertainty Estimates for Net CO₂ Flux from *Forest Land Remaining Forest Land* (MMT CO₂ Eq. and Percent), Missouri

Source	2019 Flux Estimate (MMT CO ₂ Eq.)	Uncertainty Range Relative to Emission Estimate ^a			
		(MMT CO ₂ Eq.)		(%)	
		Lower Bound	Upper Bound	Lower Bound	Upper Bound
Forest Ecosystem C Pools	(10.8)	(20.2)	(1.3)	-87.8%	87.8%

^a Range of flux estimates predicted through a combination of sample-based and model-based uncertainty for a 95 percent confidence interval, IPCC Approach 1.

Notes: Parentheses indicate negative values or net uptake. Totals may not sum due to independent rounding.

Table 42: Quantitative Uncertainty Estimates of Non-CO₂ Emissions from Forest Fires (MMT CO₂ Eq. and Percent), Missouri^a

Source	Gas	2019 Emission Estimate (MMT CO ₂ Eq.)	Uncertainty Range Relative to Emission Estimate ^b			
			(MMT CO ₂ Eq.)		(%)	
			Lower Bound	Upper Bound	Lower Bound	Upper Bound
Non-CO ₂ Emissions from Forest Fires	CH ₄	+	+	+	-59.5%	82%
Non-CO ₂ Emissions from Forest Fires	N ₂ O	+	+	+	-55.6%	68.9%

+ Absolute value does not exceed 0.05 MMT CO₂ Eq.

^a These estimates include non-CO₂ emissions from forest fires on *Forest Land Remaining Forest Land* and *Land Converted to Forest Land*.

^b Range of flux estimates predicted by Monte Carlo Stochastic Simulation for a 95 percent confidence interval, IPCC Approach 2.

Montana

Table 43: Quantitative Uncertainty Estimates for Net CO₂ Flux from *Forest Land Remaining Forest Land* (MMT CO₂ Eq. and Percent), Montana

Source	2019 Flux Estimate (MMT CO ₂ Eq.)	Uncertainty Range Relative to Emission Estimate ^a			
		(MMT CO ₂ Eq.)		(%)	
		Lower Bound	Upper Bound	Lower Bound	Upper Bound
Forest Ecosystem C Pools	10.4	(18.9)	39.8	-280.6%	280.6%

^a Range of flux estimates predicted through a combination of sample-based and model-based uncertainty for a 95 percent confidence interval, IPCC Approach 1.

Notes: Parentheses indicate negative values or net uptake. Totals may not sum due to independent rounding.

Table 44: Quantitative Uncertainty Estimates of Non-CO₂ Emissions from Forest Fires (MMT CO₂ Eq. and Percent), Montana^a

Source	Gas	2019 Emission Estimate (MMT CO ₂ Eq.)	Uncertainty Range Relative to Emission Estimate ^b			
			(MMT CO ₂ Eq.)		(%)	
			Lower Bound	Upper Bound	Lower Bound	Upper Bound
Non-CO ₂ Emissions from Forest Fires	CH ₄	0.2	0.2	0.3	-25.2%	26.9%
Non-CO ₂ Emissions from Forest Fires	N ₂ O	0.1	0.1	0.2	-19.2%	21.2%

^a These estimates include non-CO₂ emissions from forest fires on *Forest Land Remaining Forest Land* and *Land Converted to Forest Land*.

^b Range of flux estimates predicted by Monte Carlo Stochastic Simulation for a 95 percent confidence interval, IPCC Approach 2.

Nebraska

Table 45: Quantitative Uncertainty Estimates for Net CO₂ Flux from *Forest Land Remaining Forest Land* (MMT CO₂ Eq. and Percent), Nebraska

Source	2019 Flux Estimate (MMT CO ₂ Eq.)	Uncertainty Range Relative to Emission Estimate ^a			
		(MMT CO ₂ Eq.)		(%)	
		Lower Bound	Upper Bound	Lower Bound	Upper Bound
Forest Ecosystem C Pools	(0.6)	(0.8)	(0.4)	-33.1%	33.1%

^a Range of flux estimates predicted through a combination of sample-based and model-based uncertainty for a 95 percent confidence interval, IPCC Approach 1.

Notes: Parentheses indicate negative values or net uptake. Totals may not sum due to independent rounding.

Table 46: Quantitative Uncertainty Estimates of Non-CO₂ Emissions from Forest Fires (MMT CO₂ Eq. and Percent), Nebraska^a

Source	Gas	2019 Emission Estimate (MMT CO ₂ Eq.)	Uncertainty Range Relative to Emission Estimate ^b			
			(MMT CO ₂ Eq.)		(%)	
			Lower Bound	Upper Bound	Lower Bound	Upper Bound
Non-CO ₂ Emissions from Forest Fires	CH ₄	+	+	+	-89.6%	161.5%
Non-CO ₂ Emissions from Forest Fires	N ₂ O	+	+	+	-86.1%	137.3%

+ Absolute value does not exceed 0.05 MMT CO₂ Eq.

^a These estimates include non-CO₂ emissions from forest fires on *Forest Land Remaining Forest Land* and *Land Converted to Forest Land*.

^b Range of flux estimates predicted by Monte Carlo Stochastic Simulation for a 95 percent confidence interval, IPCC Approach 2.

Nevada

Table 47: Quantitative Uncertainty Estimates for Net CO₂ Flux from *Forest Land Remaining Forest Land* (MMT CO₂ Eq. and Percent), Nevada

Source	2019 Flux Estimate (MMT CO ₂ Eq.)	Uncertainty Range Relative to Emission Estimate ^a			
		(MMT CO ₂ Eq.)		(%)	
		Lower Bound	Upper Bound	Lower Bound	Upper Bound
Forest Ecosystem C Pools	0.1	(0.9)	1.1	-779.9%	779.9%

^a Range of flux estimates predicted through a combination of sample-based and model-based uncertainty for a 95 percent confidence interval, IPCC Approach 1.

Notes: Parentheses indicate negative values or net uptake. Totals may not sum due to independent rounding.

Table 48: Quantitative Uncertainty Estimates of Non-CO₂ Emissions from Forest Fires (MMT CO₂ Eq. and Percent), Nevada^a

Source	Gas	2019 Emission Estimate (MMT CO ₂ Eq.)	Uncertainty Range Relative to Emission Estimate ^b			
			(MMT CO ₂ Eq.)		(%)	
			Lower Bound	Upper Bound	Lower Bound	Upper Bound
Non-CO ₂ Emissions from Forest Fires	CH ₄	0.1	0.1	0.1	-38.4%	44.8%
Non-CO ₂ Emissions from Forest Fires	N ₂ O	0.1	+	0.1	-29.4%	34.7%

+ Absolute value does not exceed 0.05 MMT CO₂ Eq.

^a These estimates include non-CO₂ emissions from forest fires on *Forest Land Remaining Forest Land* and *Land Converted to Forest Land*.

^b Range of flux estimates predicted by Monte Carlo Stochastic Simulation for a 95 percent confidence interval, IPCC Approach 2.

New Hampshire

Table 49: Quantitative Uncertainty Estimates for Net CO₂ Flux from *Forest Land Remaining Forest Land* (MMT CO₂ Eq. and Percent), New Hampshire

Source	2019 Flux Estimate (MMT CO ₂ Eq.)	Uncertainty Range Relative to Emission Estimate ^a			
		(MMT CO ₂ Eq.)		(%)	
		Lower Bound	Upper Bound	Lower Bound	Upper Bound
Forest Ecosystem C Pools	(5.3)	(7.5)	(3.1)	-41.7%	41.7%

^a Range of flux estimates predicted through a combination of sample-based and model-based uncertainty for a 95 percent confidence interval, IPCC Approach 1.

Notes: Parentheses indicate negative values or net uptake. Totals may not sum due to independent rounding.

New Jersey

Table 50: Quantitative Uncertainty Estimates for Net CO₂ Flux from *Forest Land Remaining Forest Land* (MMT CO₂ Eq. and Percent), New Jersey

Source	2019 Flux Estimate (MMT CO ₂ Eq.)	Uncertainty Range Relative to Emission Estimate ^a			
		(MMT CO ₂ Eq.)		(%)	
		Lower Bound	Upper Bound	Lower Bound	Upper Bound
Forest Ecosystem C Pools	(2.1)	(2.4)	(1.8)	-15.5%	15.5%

^a Range of flux estimates predicted through a combination of sample-based and model-based uncertainty for a 95 percent confidence interval, IPCC Approach 1.

Notes: Parentheses indicate negative values or net uptake. Totals may not sum due to independent rounding.

Table 51: Quantitative Uncertainty Estimates of Non-CO₂ Emissions from Forest Fires (MMT CO₂ Eq. and Percent), New Jersey^a

Source	Gas	2019 Emission Estimate (MMT CO ₂ Eq.)	Uncertainty Range Relative to Emission Estimate ^b			
			(MMT CO ₂ Eq.)		(%)	
			Lower Bound	Upper Bound	Lower Bound	Upper Bound
Non-CO ₂ Emissions from Forest Fires	CH ₄	+	+	+	-74.9%	115%
Non-CO ₂ Emissions from Forest Fires	N ₂ O	+	+	+	-71.1%	96.6%

+ Absolute value does not exceed 0.05 MMT CO₂ Eq.

^a These estimates include non-CO₂ emissions from forest fires on *Forest Land Remaining Forest Land* and *Land Converted to Forest Land*.

^b Range of flux estimates predicted by Monte Carlo Stochastic Simulation for a 95 percent confidence interval, IPCC Approach 2.

New Mexico

Table 52: Quantitative Uncertainty Estimates for Net CO₂ Flux from *Forest Land Remaining Forest Land* (MMT CO₂ Eq. and Percent), New Mexico

Source	2019 Flux Estimate (MMT CO ₂ Eq.)	Uncertainty Range Relative to Emission Estimate ^a			
		(MMT CO ₂ Eq.)		(%)	
		Lower Bound	Upper Bound	Lower Bound	Upper Bound
Forest Ecosystem C Pools	3.8	(3.2)	10.9	-183.4%	183.4%

^a Range of flux estimates predicted through a combination of sample-based and model-based uncertainty for a 95 percent confidence interval, IPCC Approach 1.

Notes: Parentheses indicate negative values or net uptake. Totals may not sum due to independent rounding.

Table 53: Quantitative Uncertainty Estimates of Non-CO₂ Emissions from Forest Fires (MMT CO₂ Eq. and Percent), New Mexico^a

Source	Gas	2019 Emission Estimate (MMT CO ₂ Eq.)	Uncertainty Range Relative to Emission Estimate ^b			
			(MMT CO ₂ Eq.)		(%)	
			Lower Bound	Upper Bound	Lower Bound	Upper Bound
Non-CO ₂ Emissions from Forest Fires	CH ₄	0.2	0.1	0.3	-43.1%	53.7%
Non-CO ₂ Emissions from Forest Fires	N ₂ O	0.1	0.1	0.2	-34.2%	41.6%

^a These estimates include non-CO₂ emissions from forest fires on *Forest Land Remaining Forest Land* and *Land Converted to Forest Land*.

^b Range of flux estimates predicted by Monte Carlo Stochastic Simulation for a 95 percent confidence interval, IPCC Approach 2.

New York

Table 54: Quantitative Uncertainty Estimates for Net CO₂ Flux from *Forest Land Remaining Forest Land* (MMT CO₂ Eq. and Percent), New York

Source	2019 Flux Estimate (MMT CO ₂ Eq.)	Uncertainty Range Relative to Emission Estimate ^a			
		(MMT CO ₂ Eq.)		(%)	
		Lower Bound	Upper Bound	Lower Bound	Upper Bound
Forest Ecosystem C Pools	(23.9)	(32.4)	(15.5)	-35.3%	35.3%

^a Range of flux estimates predicted through a combination of sample-based and model-based uncertainty for a 95 percent confidence interval, IPCC Approach 1.

Notes: Parentheses indicate negative values or net uptake. Totals may not sum due to independent rounding.

North Carolina

Table 55: Quantitative Uncertainty Estimates for Net CO₂ Flux from *Forest Land Remaining Forest Land* (MMT CO₂ Eq. and Percent), North Carolina

Source	2019 Flux Estimate (MMT CO ₂ Eq.)	Uncertainty Range Relative to Emission Estimate ^a			
		(MMT CO ₂ Eq.)		(%)	
		Lower Bound	Upper Bound	Lower Bound	Upper Bound
Forest Ecosystem C Pools	(30.3)	(34.9)	(25.7)	-15.2%	15.2%

^a Range of flux estimates predicted through a combination of sample-based and model-based uncertainty for a 95 percent confidence interval, IPCC Approach 1.

Notes: Parentheses indicate negative values or net uptake. Totals may not sum due to independent rounding.

Table 56: Quantitative Uncertainty Estimates of Non-CO₂ Emissions from Forest Fires (MMT CO₂ Eq. and Percent), North Carolina^a

Source	Gas	2019 Emission Estimate (MMT CO ₂ Eq.)	Uncertainty Range Relative to Emission Estimate ^b			
			(MMT CO ₂ Eq.)		(%)	
			Lower Bound	Upper Bound	Lower Bound	Upper Bound
Non-CO ₂ Emissions from Forest Fires	CH ₄	+	+	+	-44.5%	58%
Non-CO ₂ Emissions from Forest Fires	N ₂ O	+	+	+	-40.4%	48.8%

+ Absolute value does not exceed 0.05 MMT CO₂ Eq.

^a These estimates include non-CO₂ emissions from forest fires on *Forest Land Remaining Forest Land* and *Land Converted to Forest Land*.

^b Range of flux estimates predicted by Monte Carlo Stochastic Simulation for a 95 percent confidence interval, IPCC Approach 2.

North Dakota

Table 57: Quantitative Uncertainty Estimates for Net CO₂ Flux from *Forest Land Remaining Forest Land* (MMT CO₂ Eq. and Percent), North Dakota

Source	2019 Flux Estimate (MMT CO ₂ Eq.)	Uncertainty Range Relative to Emission Estimate ^a			
		(MMT CO ₂ Eq.)		(%)	
		Lower Bound	Upper Bound	Lower Bound	Upper Bound
Forest Ecosystem C Pools	(0.1)	(0.4)	0.3	-448.8%	448.8%

^a Range of flux estimates predicted through a combination of sample-based and model-based uncertainty for a 95 percent confidence interval, IPCC Approach 1.

Notes: Parentheses indicate negative values or net uptake. Totals may not sum due to independent rounding.

Table 58: Quantitative Uncertainty Estimates of Non-CO₂ Emissions from Forest Fires (MMT CO₂ Eq. and Percent), North Dakota^a

Source	Gas	2019 Emission Estimate (MMT CO ₂ Eq.)	Uncertainty Range Relative to Emission Estimate ^b			
			(MMT CO ₂ Eq.)		(%)	
			Lower Bound	Upper Bound	Lower Bound	Upper Bound
Non-CO ₂ Emissions from Forest Fires	CH ₄	+	+	+	-79.3%	104.4%
Non-CO ₂ Emissions from Forest Fires	N ₂ O	+	+	+	-60.9%	79.8%

+ Absolute value does not exceed 0.05 MMT CO₂ Eq.

^a These estimates include non-CO₂ emissions from forest fires on *Forest Land Remaining Forest Land* and *Land Converted to Forest Land*.

^b Range of flux estimates predicted by Monte Carlo Stochastic Simulation for a 95 percent confidence interval, IPCC Approach 2.

Ohio

Table 59: Quantitative Uncertainty Estimates for Net CO₂ Flux from *Forest Land Remaining Forest Land* (MMT CO₂ Eq. and Percent), Ohio

Source	2019 Flux Estimate (MMT CO ₂ Eq.)	Uncertainty Range Relative to Emission Estimate ^a			
		(MMT CO ₂ Eq.)		(%)	
		Lower Bound	Upper Bound	Lower Bound	Upper Bound
Forest Ecosystem C Pools	(6.2)	(13.8)	1.4	-122.5%	122.5%

^a Range of flux estimates predicted through a combination of sample-based and model-based uncertainty for a 95 percent confidence interval, IPCC Approach 1.

Notes: Parentheses indicate negative values or net uptake. Totals may not sum due to independent rounding.

Oklahoma

Table 60: Quantitative Uncertainty Estimates for Net CO₂ Flux from *Forest Land Remaining Forest Land* (MMT CO₂ Eq. and Percent), Oklahoma

Source	2019 Flux Estimate (MMT CO ₂ Eq.)	Uncertainty Range Relative to Emission Estimate ^a			
		(MMT CO ₂ Eq.)		(%)	
		Lower Bound	Upper Bound	Lower Bound	Upper Bound
Forest Ecosystem C Pools	(5.3)	(7.6)	(3.0)	-43.6%	43.6%

^a Range of flux estimates predicted through a combination of sample-based and model-based uncertainty for a 95 percent confidence interval, IPCC Approach 1.

Notes: Parentheses indicate negative values or net uptake. Totals may not sum due to independent rounding.

Table 61: Quantitative Uncertainty Estimates of Non-CO₂ Emissions from Forest Fires (MMT CO₂ Eq. and Percent), Oklahoma^a

Source	Gas	2019 Emission Estimate (MMT CO ₂ Eq.)	Uncertainty Range Relative to Emission Estimate ^b			
			(MMT CO ₂ Eq.)		(%)	
			Lower Bound	Upper Bound	Lower Bound	Upper Bound
Non-CO ₂ Emissions from Forest Fires	CH ₄	+	+	+	-77.4%	124.2%
Non-CO ₂ Emissions from Forest Fires	N ₂ O	+	+	+	-66.8%	99%

+ Absolute value does not exceed 0.05 MMT CO₂ Eq.

^a These estimates include non-CO₂ emissions from forest fires on *Forest Land Remaining Forest Land* and *Land Converted to Forest Land*.

^b Range of flux estimates predicted by Monte Carlo Stochastic Simulation for a 95 percent confidence interval, IPCC Approach 2.

Oregon

Table 62: Quantitative Uncertainty Estimates for Net CO₂ Flux from *Forest Land Remaining Forest Land* (MMT CO₂ Eq. and Percent), Oregon

Source	2019 Flux Estimate (MMT CO ₂ Eq.)	Uncertainty Range Relative to Emission Estimate ^a			
		(MMT CO ₂ Eq.)		(%)	
		Lower Bound	Upper Bound	Lower Bound	Upper Bound
Forest Ecosystem C Pools	(36.3)	(44.0)	(28.6)	-21.2%	21.2%

^a Range of flux estimates predicted through a combination of sample-based and model-based uncertainty for a 95 percent confidence interval, IPCC Approach 1.

Notes: Parentheses indicate negative values or net uptake. Totals may not sum due to independent rounding.

Table 63: Quantitative Uncertainty Estimates of Non-CO₂ Emissions from Forest Fires (MMT CO₂ Eq. and Percent), Oregon^a

Source	Gas	2019 Emission Estimate (MMT CO ₂ Eq.)	Uncertainty Range Relative to Emission Estimate ^b			
			(MMT CO ₂ Eq.)		(%)	
			Lower Bound	Upper Bound	Lower Bound	Upper Bound
Non-CO ₂ Emissions from Forest Fires	CH ₄	1.2	0.7	1.7	-38.5%	46.3%
Non-CO ₂ Emissions from Forest Fires	N ₂ O	0.8	0.5	1.1	-30.6%	36.2%

^a These estimates include non-CO₂ emissions from forest fires on *Forest Land Remaining Forest Land* and *Land Converted to Forest Land*.

^b Range of flux estimates predicted by Monte Carlo Stochastic Simulation for a 95 percent confidence interval, IPCC Approach 2.

Pennsylvania

Table 64: Quantitative Uncertainty Estimates for Net CO₂ Flux from *Forest Land Remaining Forest Land* (MMT CO₂ Eq. and Percent), Pennsylvania

Source	2019 Flux Estimate (MMT CO ₂ Eq.)	Uncertainty Range Relative to Emission Estimate ^a			
		(MMT CO ₂ Eq.)		(%)	
		Lower Bound	Upper Bound	Lower Bound	Upper Bound
Forest Ecosystem C Pools	(19.5)	(35.8)	(3.1)	-84%	84%

^a Range of flux estimates predicted through a combination of sample-based and model-based uncertainty for a 95 percent confidence interval, IPCC Approach 1.

Notes: Parentheses indicate negative values or net uptake. Totals may not sum due to independent rounding.

Rhode Island

Table 65: Quantitative Uncertainty Estimates for Net CO₂ Flux from *Forest Land Remaining Forest Land* (MMT CO₂ Eq. and Percent), Rhode Island

Source	2019 Flux Estimate (MMT CO ₂ Eq.)	Uncertainty Range Relative to Emission Estimate ^a			
		(MMT CO ₂ Eq.)		(%)	
		Lower Bound	Upper Bound	Lower Bound	Upper Bound
Forest Ecosystem C Pools	(0.3)	(0.8)	0.2	-168.5%	168.5%

^a Range of flux estimates predicted through a combination of sample-based and model-based uncertainty for a 95 percent confidence interval, IPCC Approach 1.

Notes: Parentheses indicate negative values or net uptake. Totals may not sum due to independent rounding.

South Carolina

Table 66: Quantitative Uncertainty Estimates for Net CO₂ Flux from *Forest Land Remaining Forest Land* (MMT CO₂ Eq. and Percent), South Carolina

Source	2019 Flux Estimate (MMT CO ₂ Eq.)	Uncertainty Range Relative to Emission Estimate ^a			
		(MMT CO ₂ Eq.)		(%)	
		Lower Bound	Upper Bound	Lower Bound	Upper Bound
Forest Ecosystem C Pools	(12.5)	(14.5)	(10.5)	-15.9%	15.9%

^a Range of flux estimates predicted through a combination of sample-based and model-based uncertainty for a 95 percent confidence interval, IPCC Approach 1.

Notes: Parentheses indicate negative values or net uptake. Totals may not sum due to independent rounding.

Table 67: Quantitative Uncertainty Estimates of Non-CO₂ Emissions from Forest Fires (MMT CO₂ Eq. and Percent), South Carolina^a

Source	Gas	2019 Emission Estimate (MMT CO ₂ Eq.)	Uncertainty Range Relative to Emission Estimate ^b			
			(MMT CO ₂ Eq.)		(%)	
			Lower Bound	Upper Bound	Lower Bound	Upper Bound
Non-CO ₂ Emissions from Forest Fires	CH ₄	0.1	+	0.1	-24.5%	26.9%
Non-CO ₂ Emissions from Forest Fires	N ₂ O	+	+	+	-21.4%	24%

+ Absolute value does not exceed 0.05 MMT CO₂ Eq.

^a These estimates include non-CO₂ emissions from forest fires on *Forest Land Remaining Forest Land* and *Land Converted to Forest Land*.

^b Range of flux estimates predicted by Monte Carlo Stochastic Simulation for a 95 percent confidence interval, IPCC Approach 2.

South Dakota

Table 68: Quantitative Uncertainty Estimates for Net CO₂ Flux from *Forest Land Remaining Forest Land* (MMT CO₂ Eq. and Percent), South Dakota

Source	2019 Flux Estimate (MMT CO ₂ Eq.)	Uncertainty Range Relative to Emission Estimate ^a			
		(MMT CO ₂ Eq.)		(%)	
		Lower Bound	Upper Bound	Lower Bound	Upper Bound
Forest Ecosystem C Pools	0.4	(0.8)	1.7	-279.5%	279.5%

^a Range of flux estimates predicted through a combination of sample-based and model-based uncertainty for a 95 percent confidence interval, IPCC Approach 1.

Notes: Parentheses indicate negative values or net uptake. Totals may not sum due to independent rounding.

Table 69: Quantitative Uncertainty Estimates of Non-CO₂ Emissions from Forest Fires (MMT CO₂ Eq. and Percent), South Dakota^a

Source	Gas	2019 Emission Estimate (MMT CO ₂ Eq.)	Uncertainty Range Relative to Emission Estimate ^b			
			(MMT CO ₂ Eq.)		(%)	
			Lower Bound	Upper Bound	Lower Bound	Upper Bound
Non-CO ₂ Emissions from Forest Fires	CH ₄	0.1	+	0.1	-75.6%	100.5%
Non-CO ₂ Emissions from Forest Fires	N ₂ O	+	+	0.1	-57%	75.2%

+ Absolute value does not exceed 0.05 MMT CO₂ Eq.

^a These estimates include non-CO₂ emissions from forest fires on *Forest Land Remaining Forest Land* and *Land Converted to Forest Land*.

^b Range of flux estimates predicted by Monte Carlo Stochastic Simulation for a 95 percent confidence interval, IPCC Approach 2.

Tennessee

Table 70: Quantitative Uncertainty Estimates for Net CO₂ Flux from *Forest Land Remaining Forest Land* (MMT CO₂ Eq. and Percent), Tennessee

Source	2019 Flux Estimate (MMT CO ₂ Eq.)	Uncertainty Range Relative to Emission Estimate ^a			
		(MMT CO ₂ Eq.)		(%)	
		Lower Bound	Upper Bound	Lower Bound	Upper Bound
Forest Ecosystem C Pools	(23.4)	(28.9)	(17.8)	-23.6%	23.6%

^a Range of flux estimates predicted through a combination of sample-based and model-based uncertainty for a 95 percent confidence interval, IPCC Approach 1.

Notes: Parentheses indicate negative values or net uptake. Totals may not sum due to independent rounding.

Table 71: Quantitative Uncertainty Estimates of Non-CO₂ Emissions from Forest Fires (MMT CO₂ Eq. and Percent), Tennessee^a

Source	Gas	2019 Emission Estimate (MMT CO ₂ Eq.)	Uncertainty Range Relative to Emission Estimate ^b			
			(MMT CO ₂ Eq.)		(%)	
			Lower Bound	Upper Bound	Lower Bound	Upper Bound
Non-CO ₂ Emissions from Forest Fires	CH ₄	+	+	+	-86.1%	138.7%
Non-CO ₂ Emissions from Forest Fires	N ₂ O	+	+	+	-78.1%	115.9%

+ Absolute value does not exceed 0.05 MMT CO₂ Eq.

^a These estimates include non-CO₂ emissions from forest fires on *Forest Land Remaining Forest Land* and *Land Converted to Forest Land*.

^b Range of flux estimates predicted by Monte Carlo Stochastic Simulation for a 95 percent confidence interval, IPCC Approach 2.

Texas

Table 72: Quantitative Uncertainty Estimates for Net CO₂ Flux from *Forest Land Remaining Forest Land* (MMT CO₂ Eq. and Percent), Texas

Source	2019 Flux Estimate (MMT CO ₂ Eq.)	Uncertainty Range Relative to Emission Estimate ^a			
		(MMT CO ₂ Eq.)		(%)	
		Lower Bound	Upper Bound	Lower Bound	Upper Bound
Forest Ecosystem C Pools	(20.1)	(22.0)	(18.2)	-9.4%	9.4%

^a Range of flux estimates predicted through a combination of sample-based and model-based uncertainty for a 95 percent confidence interval, IPCC Approach 1.

Notes: Parentheses indicate negative values or net uptake. Totals may not sum due to independent rounding.

Table 73: Quantitative Uncertainty Estimates of Non-CO₂ Emissions from Forest Fires (MMT CO₂ Eq. and Percent), Texas^a

Source	Gas	2019 Emission Estimate (MMT CO ₂ Eq.)	Uncertainty Range Relative to Emission Estimate ^b			
			(MMT CO ₂ Eq.)		(%)	
			Lower Bound	Upper Bound	Lower Bound	Upper Bound
Non-CO ₂ Emissions from Forest Fires	CH ₄	0.1	0.1	0.1	-26.7%	30.2%
Non-CO ₂ Emissions from Forest Fires	N ₂ O	0.1	+	0.1	-24.1%	26.4%

+ Absolute value does not exceed 0.05 MMT CO₂ Eq.

^a These estimates include non-CO₂ emissions from forest fires on *Forest Land Remaining Forest Land* and *Land Converted to Forest Land*.

^b Range of flux estimates predicted by Monte Carlo Stochastic Simulation for a 95 percent confidence interval, IPCC Approach 2.

Utah

Table 74: Quantitative Uncertainty Estimates for Net CO₂ Flux from *Forest Land Remaining Forest Land* (MMT CO₂ Eq. and Percent), Utah

Source	2019 Flux Estimate (MMT CO ₂ Eq.)	Uncertainty Range Relative to Emission Estimate ^a			
		(MMT CO ₂ Eq.)		(%)	
		Lower Bound	Upper Bound	Lower Bound	Upper Bound
Forest Ecosystem C Pools	3.8	(1.3)	8.8	-134.7%	134.7%

^a Range of flux estimates predicted through a combination of sample-based and model-based uncertainty for a 95 percent confidence interval, IPCC Approach 1.

Notes: Parentheses indicate negative values or net uptake. Totals may not sum due to independent rounding.

Table 75: Quantitative Uncertainty Estimates of Non-CO₂ Emissions from Forest Fires (MMT CO₂ Eq. and Percent), Utah^a

Source	Gas	2019 Emission Estimate (MMT CO ₂ Eq.)	Uncertainty Range Relative to Emission Estimate ^b			
			(MMT CO ₂ Eq.)		(%)	
			Lower Bound	Upper Bound	Lower Bound	Upper Bound
Non-CO ₂ Emissions from Forest Fires	CH ₄	0.7	0.4	1.0	-40.3%	49%
Non-CO ₂ Emissions from Forest Fires	N ₂ O	0.4	0.3	0.6	-31.6%	38.6%

^a These estimates include non-CO₂ emissions from forest fires on *Forest Land Remaining Forest Land* and *Land Converted to Forest Land*.

^b Range of flux estimates predicted by Monte Carlo Stochastic Simulation for a 95 percent confidence interval, IPCC Approach 2.

Vermont

Table 76: Quantitative Uncertainty Estimates for Net CO₂ Flux from *Forest Land Remaining Forest Land* (MMT CO₂ Eq. and Percent), Vermont

Source	2019 Flux Estimate (MMT CO ₂ Eq.)	Uncertainty Range Relative to Emission Estimate ^a			
		(MMT CO ₂ Eq.)		(%)	
		Lower Bound	Upper Bound	Lower Bound	Upper Bound
Forest Ecosystem C Pools	(5.9)	(8.5)	(3.2)	-44.6%	44.6%

^a Range of flux estimates predicted through a combination of sample-based and model-based uncertainty for a 95 percent confidence interval, IPCC Approach 1.

Notes: Parentheses indicate negative values or net uptake. Totals may not sum due to independent rounding.

Virginia

Table 77: Quantitative Uncertainty Estimates for Net CO₂ Flux from *Forest Land Remaining Forest Land* (MMT CO₂ Eq. and Percent), Virginia

Source	2019 Flux Estimate (MMT CO ₂ Eq.)	Uncertainty Range Relative to Emission Estimate ^a			
		(MMT CO ₂ Eq.)		(%)	
		Lower Bound	Upper Bound	Lower Bound	Upper Bound
Forest Ecosystem C Pools	(42.1)	(52.1)	(32.0)	-23.9%	23.9%

^a Range of flux estimates predicted through a combination of sample-based and model-based uncertainty for a 95 percent confidence interval, IPCC Approach 1.

Notes: Parentheses indicate negative values or net uptake. Totals may not sum due to independent rounding.

Table 78: Quantitative Uncertainty Estimates of Non-CO₂ Emissions from Forest Fires (MMT CO₂ Eq. and Percent), Virginia^a

Source	Gas	2019 Emission Estimate (MMT CO ₂ Eq.)	Uncertainty Range Relative to Emission Estimate ^b			
			(MMT CO ₂ Eq.)		(%)	
			Lower Bound	Upper Bound	Lower Bound	Upper Bound
Non-CO ₂ Emissions from Forest Fires	CH ₄	+	+	+	-55.3%	67.4%
Non-CO ₂ Emissions from Forest Fires	N ₂ O	+	+	+	-50.5%	57%

+ Absolute value does not exceed 0.05 MMT CO₂ Eq.

^a These estimates include non-CO₂ emissions from forest fires on *Forest Land Remaining Forest Land* and *Land Converted to Forest Land*.

^b Range of flux estimates predicted by Monte Carlo Stochastic Simulation for a 95 percent confidence interval, IPCC Approach 2.

Washington

Table 79: Quantitative Uncertainty Estimates for Net CO₂ Flux from *Forest Land Remaining Forest Land* (MMT CO₂ Eq. and Percent), Washington

Source	2019 Flux Estimate (MMT CO ₂ Eq.)	Uncertainty Range Relative to Emission Estimate ^a			
		(MMT CO ₂ Eq.)		(%)	
		Lower Bound	Upper Bound	Lower Bound	Upper Bound
Forest Ecosystem C Pools	(17.3)	(34.3)	(0.4)	-97.9%	97.9%

^a Range of flux estimates predicted through a combination of sample-based and model-based uncertainty for a 95 percent confidence interval, IPCC Approach 1.

Notes: Parentheses indicate negative values or net uptake. Totals may not sum due to independent rounding.

Table 80: Quantitative Uncertainty Estimates of Non-CO₂ Emissions from Forest Fires (MMT CO₂ Eq. and Percent), Washington^a

Source	Gas	2019 Emission Estimate (MMT CO ₂ Eq.)	Uncertainty Range Relative to Emission Estimate ^b			
			(MMT CO ₂ Eq.)		(%)	
			Lower Bound	Upper Bound	Lower Bound	Upper Bound
Non-CO ₂ Emissions from Forest Fires	CH ₄	0.7	0.4	1.1	-46.2%	57.3%
Non-CO ₂ Emissions from Forest Fires	N ₂ O	0.5	0.3	0.7	-36.3%	45.9%

^a These estimates include non-CO₂ emissions from forest fires on *Forest Land Remaining Forest Land* and *Land Converted to Forest Land*.

^b Range of flux estimates predicted by Monte Carlo Stochastic Simulation for a 95 percent confidence interval, IPCC Approach 2.

West Virginia

Table 81: Quantitative Uncertainty Estimates for Net CO₂ Flux from *Forest Land Remaining Forest Land* (MMT CO₂ Eq. and Percent), West Virginia

Source	2019 Flux Estimate (MMT CO ₂ Eq.)	Uncertainty Range Relative to Emission Estimate ^a			
		(MMT CO ₂ Eq.)		(%)	
		Lower Bound	Upper Bound	Lower Bound	Upper Bound
Forest Ecosystem C Pools	(14.8)	(21.1)	(8.4)	-43%	43%

^a Range of flux estimates predicted through a combination of sample-based and model-based uncertainty for a 95 percent confidence interval, IPCC Approach 1.

Notes: Parentheses indicate negative values or net uptake. Totals may not sum due to independent rounding.

Table 82: Quantitative Uncertainty Estimates of Non-CO₂ Emissions from Forest Fires (MMT CO₂ Eq. and Percent), West Virginia^a

Source	Gas	2019 Emission Estimate (MMT CO ₂ Eq.)	Uncertainty Range Relative to Emission Estimate ^b			
			(MMT CO ₂ Eq.)		(%)	
			Lower Bound	Upper Bound	Lower Bound	Upper Bound
Non-CO ₂ Emissions from Forest Fires	CH ₄	+	+	+	-69%	93.2%
Non-CO ₂ Emissions from Forest Fires	N ₂ O	+	+	+	-65.2%	79.1%

+ Absolute value does not exceed 0.05 MMT CO₂ Eq.

^a These estimates include non-CO₂ emissions from forest fires on *Forest Land Remaining Forest Land* and *Land Converted to Forest Land*.

^b Range of flux estimates predicted by Monte Carlo Stochastic Simulation for a 95 percent confidence interval, IPCC Approach 2.

Wisconsin

Table 83: Quantitative Uncertainty Estimates for Net CO₂ Flux from *Forest Land Remaining Forest Land* (MMT CO₂ Eq. and Percent), Wisconsin

Source	2019 Flux Estimate (MMT CO ₂ Eq.)	Uncertainty Range Relative to Emission Estimate ^a			
		(MMT CO ₂ Eq.)		(%)	
		Lower Bound	Upper Bound	Lower Bound	Upper Bound
Forest Ecosystem C Pools	(16.2)	(17.9)	(14.5)	-10.4%	10.4%

^a Range of flux estimates predicted through a combination of sample-based and model-based uncertainty for a 95 percent confidence interval, IPCC Approach 1.

Notes: Parentheses indicate negative values or net uptake. Totals may not sum due to independent rounding.

Wyoming

Table 84: Quantitative Uncertainty Estimates for Net CO₂ Flux from *Forest Land Remaining Forest Land* (MMT CO₂ Eq. and Percent), Wyoming

Source	2019 Flux Estimate (MMT CO ₂ Eq.)	Uncertainty Range Relative to Emission Estimate ^a			
		(MMT CO ₂ Eq.)		(%)	
		Lower Bound	Upper Bound	Lower Bound	Upper Bound
Forest Ecosystem C Pools	2.8	0.5	5.2	-82.1%	82.1%

^a Range of flux estimates predicted through a combination of sample-based and model-based uncertainty for a 95 percent confidence interval, IPCC Approach 1.

Notes: Parentheses indicate negative values or net uptake. Totals may not sum due to independent rounding.

Table 85: Quantitative Uncertainty Estimates of Non-CO₂ Emissions from Forest Fires (MMT CO₂ Eq. and Percent), Wyoming^a

Source	Gas	2019 Emission Estimate (MMT CO ₂ Eq.)	Uncertainty Range Relative to Emission Estimate ^b			
			(MMT CO ₂ Eq.)		(%)	
			Lower Bound	Upper Bound	Lower Bound	Upper Bound
Non-CO ₂ Emissions from Forest Fires	CH ₄	0.3	0.2	0.4	-44.5%	51.6%
Non-CO ₂ Emissions from Forest Fires	N ₂ O	0.2	0.1	0.3	-34%	39.5%

^a These estimates include non-CO₂ emissions from forest fires on *Forest Land Remaining Forest Land* and *Land Converted to Forest Land*.

^b Range of flux estimates predicted by Monte Carlo Stochastic Simulation for a 95 percent confidence interval, IPCC Approach 2.