



# Chicken v. Wildlife: The Environmental Costs of Eating Poultry

*As the amount of chicken in the American diet increases, the environmental costs are multiplying just as fast. Chicken production has devastating consequences on water quality, contributes to global climate change and harms natural habitat. Eating less chicken is a powerful way that you can protect wildlife and the planet.*

## Extinction Facts

Serving Size 5 oz. Chicken Breast

<b>Greenhouse Gases</b>	2.16 lb. CO <sub>2</sub> e
<b>Habitat Loss</b>	9.04 ft. <sup>2</sup>
<b>Water Use</b>	83.1 gal.
<b>Manure</b>	0.625 lbs.

Chicken is playing an increasingly large role in the American diet as people trade red meat for more poultry. Americans now eat more chicken per capita than beef or pork. In 2014 Americans ate 83 pounds of chicken per person, per year—twice as much as they consumed in the 1970s.<sup>1,2</sup> The USDA projects that consumption will rise to more than 90 pounds of chicken per person by 2019.<sup>3</sup>

This growing appetite for chicken is a major cause for concern, given the devastating environmental impact of chicken production, which currently adds up to an annual per capita cost of **404 pounds carbon dioxide equivalent (CO<sub>2</sub>e)<sup>4</sup>, 1690 ft<sup>2</sup> habitat, 15,500 gallons of water and 117 pounds of manure.**

### Chickens and Climate Change

It's a common misconception that chickens don't contribute to climate change because, unlike cows, their digestive processes don't produce methane. However, greenhouse gases (GHGs) are still emitted in order to grow chicken feed, including CO<sub>2</sub> from burning fossil fuels and nitrous oxide from fertilizer application. Chicken manure also

releases nitrous oxide, a GHG that is even more potent than methane and has 298 times the global warming potential of CO<sub>2</sub> over a 100-year period.<sup>5</sup> Only half of the emissions that come from chicken production are generated before slaughter.<sup>6</sup> Chicken meat is usually processed into a variety of products, from boneless and skinless meat to chicken nuggets; all of these processing steps require a high energy and water input, contributing significantly to the GHG footprint of chicken production.<sup>7</sup>

The annual American appetite for chicken produces **129 billion lb. CO<sub>2</sub>e emissions per year**—the same amount as from 12.37 million cars.

### Water Pollution and Manure

Chicken manure is especially degrading to waterways because it contains 2 to 4 times more nutrients (particularly nitrogen and phosphorous) than the manure of other types of livestock;<sup>8</sup> while this can make chicken manure a useful fertilizer, it can also have disastrous effects on water and soil quality.

As American demand for chicken increases, family farms are being replaced by massive, industrial facilities that process 600,000 birds every year.<sup>9</sup> However, federal and state regulations are weakly defined and poorly enforced when it comes to pollution and manure production on an industrial level. Generally, industrial farms dispose of manure by applying it to crop fields near their

<sup>1</sup> USDA, "Long Term Agricultural Projections Report (Table 17)." 2016.

<sup>2</sup> The Pew Charitable Trust. "Big Chicken: Pollution and Industrial Poultry Production in America." 26 July, 2011.

<sup>3</sup> USDA Long-Term Projections, Feb. 2016

<sup>4</sup> CO<sub>2</sub>e calculated using following global warming potentials (GWP) (i.e. warming effect relative to CO<sub>2</sub> over 100-year period): N<sub>2</sub>O GWP=298, CH<sub>4</sub> GWP=25, hydrofluorocarbons GWP=1,430) (Hamerslag, 6)

<sup>5</sup> Hamerslag, Kari. "Meat Eater's Guide"

<sup>6</sup> Hamerslag, Kari. "Meat Eater's Guide"

<sup>7</sup> Goodman, Peter. "A Look Inside the Modern Poultry Plant." *Washington Post*. 2 August, 1999.

<sup>8</sup> Pew Charitable Trust. "Big Chicken..." pp 13

<sup>9</sup> Pew Charitable Trust. "Big Chicken..." pp 1

facilities. A large-scale farm producing 600,000 chickens per year produces 3,300 tons of manure, containing 72,000 pounds of nitrogen.<sup>10</sup> To dispose of such a quantity of manure, it would need to be applied to 576 acres of corn.<sup>11</sup> However, 40 percent of U.S. broiler-chicken production occurs on farms with no crop acreage at all.<sup>12</sup>

Since so many farms lack adequate land to dispose of manure, it often ends up running into nearby waterways and concentrating in the soil. Poultry manure has polluted waterways throughout the “American Broiler Belt”—the 15 states in which just over 27,000 farms produce nearly 9 billion birds every year.<sup>13</sup> Agriculture, primarily poultry production, is the largest polluter of the Chesapeake Bay and related waterways.<sup>14</sup>

### Little Land Left for Wildlife

Factory farms often have multiple industrial-scale sheds, each as large as 36,000 ft<sup>2</sup>, containing hundreds of thousands of birds in total.<sup>15</sup> Manure application and feed production further expand the footprint of chicken production. Throughout the “Broiler Belt” region, chicken production has destroyed natural habitat for native wildlife.

American consumption of chicken uses **19,405 square miles** of land—equal to the land area of Maryland, Hawaii, and Delaware combined.

Water pollution from factory farms and diminished water availability particularly threaten species like the hellbender and Gulf sturgeon. When manure washes into waterways, the added load of nitrogen and phosphorous leads to rapid algae growth. This process, called eutrophication, can create aquatic “dead zones” where little to no life can exist. The hellbender, North America’s largest amphibian, faces drastic population declines as the aquatic habitat it depends on becomes too polluted to sustain life. Pesticide and fertilizer pollution also threatens sensitive amphibian species like the Yosemite toad, which are especially susceptible to aquatic pathogens.

Skipping one chicken breast per week for a year saves 4,321 gallons of water, which is equivalent to flushing the toilet 2,700 times.<sup>16</sup>

### Tips for a Wildlife-friendly Diet

Every meal is an opportunity to help protect wildlife by taking extinction off your plate.

- Choose chicken substitutes at the grocery store and in restaurants. These [plant-based chicken alternatives](#) are both delicious and a great source of protein.
- Replace chicken in traditional dishes by trying chicken-free [veggie pot pies](#), [fajitas](#), [alfredo pasta](#), [pad thai](#) and [burritos](#).

<sup>10</sup> MacDonald, James M., et al. “[Manure Use for Fertilizer and for Energy: Report to Congress](#).” *USDA*. June 2009. pp 5.

<sup>11</sup> *Ibid*, pp 5

<sup>12</sup> MacDonald, James M., et al. “[Manure Use for Fertilizer and for Energy: Report to Congress](#).” *USDA*. June 2009.

<sup>13</sup> The Pew Charitable Trust. “[Big Chicken: Pollution and Industrial Poultry Production in America](#).” July, 2011.

<sup>14</sup> Baker, William. “[A Manure Solution For the Chesapeake Bay](#).” *The Washington Post*. 9 January 2015

<sup>15</sup> Pew Charitable Trust. “[Big Chicken...](#)” pp 7

<sup>16</sup> Assuming average flush volume of 1.6 gallons/flush, as required by the EPA as of 1992.



For more facts, recipes and tips, visit [TakeExtinctionOffYourPlate.com](http://TakeExtinctionOffYourPlate.com).