



## **An HSUS Report: The Welfare of Animals in the Foie Gras Industry**

### **Abstract**

The production of *pâté de foie gras* involves force-feeding ducks and geese by placing a long tube down the birds' esophagi and pumping an unnatural quantity of food directly into their stomachs. Force-feeding induces hepatic lipidosis and causes the birds' livers to become diseased and enlarged. Substantial scientific evidence suggests that force-feeding can cause pain and injury from feeding tube insertion, fear and stress during capture and handling, gait abnormality due to distended livers, pathologies in liver function, and increased mortality. Force-feeding birds to produce foie gras is detrimental to their welfare.

### **Introduction**

Foie gras, French for "fatty liver," is a food item produced from the livers of overfed ducks and geese. The majority of the world's foie gras is now made from ducks, and 75-80% is produced in France.<sup>1,2</sup> Approximately 700,000 geese and 37 million ducks are slaughtered each year in the process of making French foie gras.<sup>3</sup> In the United States, four facilities produce livers for foie gras.<sup>4,5,6,7</sup> The U.S. company with the largest market share slaughters 250,000 ducks annually.<sup>8</sup>

Only male ducks are used in foie gras production. Female ducklings are either raised for meat or killed immediately after hatching.<sup>9</sup>

Birds force-fed for foie gras can suffer from a number of significant welfare problems, including frustration of natural behavior,<sup>10</sup> injury,<sup>11</sup> liver disease, lameness,<sup>12</sup> diseases of the respiratory and digestive tracts,<sup>13</sup> and high rates of mortality.<sup>14</sup>

The European Food Safety Authority's Panel on Animal Health and Welfare, formerly the Scientific Committee on Animal Health and Animal Welfare (SCAHAW), provides scientific opinions and expertise to support the European Commission, European Parliament, and European Union Member States in the development of policies and legislation. Members include more than a dozen professors of veterinary medicine and animal science from across Europe.<sup>15,16</sup> After a thorough investigation, the experts concluded that "force feeding, as currently practised, is detrimental to the welfare of the birds."<sup>17</sup>

### **Force-Feeding**

Foie gras producers first begin to force feed birds at 10-14 weeks of age,<sup>18</sup> with ducks usually force-fed twice daily for 12-15 days and geese three times daily for 15-21 days.<sup>19</sup> In some instances, geese may be force-fed six times per day for 13-14 days, in order to reduce the total amount of corn that is used.<sup>20</sup>

The force-feeding procedure involves holding a bird by the neck, drawing the animal towards the feeding pipe or tube, which is approximately 20-30 cm (8-12 in) in length, thrusting the pipe down the bird's throat, and initiating the food pumping process.<sup>21</sup> Corn mash is pushed through the pipe and into the bird's esophagus with an auger or, in large facilities, via pneumatic pump. At the first force-feeding, 180 g (0.4 lb) of food is forced

into a duck, and by the last feeding, the amount is increased to 450 g (1 lb), injected in as little as 2 seconds.<sup>22</sup> Reportedly, if the corn mash becomes lodged in the bird's esophagus, a stick is sometimes used to force it down.<sup>23</sup> This quantity of mash, injected twice daily, is much more food than ducks eat voluntarily.<sup>24</sup>

Ducks and geese are natural omnivores.<sup>25</sup> The corn-based feed force-fed to birds in foie gras production is nutritionally incomplete. According to Yvan Beck, an expert on force-feeding in foie gras production: "The food given to palmipeds [waterfowl] does not cover the physiological needs of this species. It is an unbalanced diet, designed to artificially cause hepatic lipidosis." Beck explains that if the feed were given under natural conditions, the birds would refuse it, and that the birds could not survive on this diet alone due to the deficiencies it would lead to in the long term.<sup>26</sup>

A chemical analysis of the corn mash used at Hudson Valley Foie Gras in New York established the feed did not meet the nutrient requirements of ducks, being "too low in protein and too high in trace minerals."<sup>27,28</sup> Ducks reportedly removed from a foie gras farm in California who were presented to a veterinarian for inspection were extremely ill and showed signs of malnutrition.<sup>29</sup>

After the birds' livers have expanded significantly, the animals are slaughtered and the livers are removed and processed.<sup>30</sup>

## **Liver Disease**

The purpose of pre-force-feeding, where access to food is increased to reach higher than normal *ad libitum* consumption, is in part to cause the "onset of liver steatosis"<sup>31</sup> or fatty degeneration—a pathological condition characterized by the presence of abnormally large quantities of fat within cells. The concentration of fat gives foie gras its distinctive taste. The liver of a healthy duck or goose is approximately 5% fat, while the liver of a force-fed bird is approximately 50-60% fat.<sup>32,33,34</sup>

Force-feeding causes a rapid increase in the size of birds' livers. Estimates of this change in size vary between six and greater than ten times its original, healthy weight.<sup>35,36,37</sup> The force-feeding process changes the biochemical composition of the organ and results in impaired hepatic function.<sup>38,39</sup>

From the SCAHAW report:

The most obvious change [resulting from force-feeding] is the increase in the number of large fat globules visible in the cells. A limited increase in the presence of fat globules in liver can occur in normal liver in certain conditions but no normal animal has steatosis of the liver to the extent which occurs in all force fed birds. During the force feeding period, liver function is impaired.<sup>40</sup>

In a sworn affidavit before the New York State Department of Agriculture and Markets, veterinarian Bruce Feldmann described the liver disease of three ducks he examined who were reportedly taken from a California foie gras farm: "[T]hese animals suffered from various diseases, including hepatic lipidosis and possibly hepatic encephalopathy, which were brought on directly by the force feeding process they were subjected to."<sup>41</sup>

When functioning normally, the liver processes fats and filters toxins.<sup>42</sup> Hepatic encephalopathy is damage to the brain caused by toxins in the blood that are not filtered as they would normally be by a healthy liver.<sup>43</sup>

Ian Duncan, Emeritus Chair in Animal Welfare at the University of Guelph, states: "Force feeding quickly results in birds that are obese and in a pathological state, called hepatic lipidosis or fatty liver disease. There is no doubt, that in this pathological state, the birds will feel very ill."<sup>44</sup>

In surveys cited in the SCAHAW report, 25 pathologists from various countries were asked their opinions of the condition of force-fed livers. Most stated the condition of foie gras livers was pathological. SCAHAW stated

that “because normal liver function is seriously impaired in birds with the hypertrophied liver which occurs at the end of force feeding this level of steatosis should be considered pathological.”<sup>45</sup>

Defenders of foie gras production sometimes argue that force-feeding replicates a natural behavior of wildfowl before migration<sup>46</sup>—i.e., ducks and geese increase their food intake in order to produce fat to fuel their long flights. However, wild ducks and geese undergo a very specific set of annual physiological adaptations triggered by changes in day length in order to adjust for increased fat metabolism at this time. Even if they were to be physiologically prepared for migration during the force-feeding period, birds do not eat larger-than-normal meals as they assimilate energy reserves for migratory flights; rather, they eat many small meals throughout the day.<sup>47</sup> Further, the Muscovy duck, from whom most ducks raised for foie gras are derived, does not migrate.<sup>48</sup> SCAHAW concludes: “Hence, whilst the domestic goose might well be adapted to store food before migration, it is less likely that a cross between the domestic duck and the Muscovy duck, the Mulard, has such a potential for food.”<sup>49</sup>

Moreover, normally, fat is not stored in the liver but synthesized in the organ and then stored in adipose tissue and muscles.<sup>50</sup> The livers of migrating birds never more than double in size.<sup>51</sup> Force-feeding is therefore not analogous to the behavioral and physiological process in which pre-migratory birds engage.

## **Fear**

Behavioral evidence suggests that force-feeding causes fear.<sup>52</sup> Ducks show signs of aversion to force-feeding<sup>53</sup> and may not voluntarily enter a feeding pen. One study, for example, compared responses of force-fed and non-force-fed ducks to a feeding pen. In general, the non-force-fed ducks went willingly from the home pen into the feeding pen. In contrast, the force-fed ducks had to be driven out of the home pen.<sup>54</sup> SCAHAW concludes: “Since the feeding pen was attractive to the birds which were not force-fed, the results indicate that the force feeding pen was not attractive to the force fed ducks and that the procedure might involve an aversive component.”<sup>55</sup>

## **Injuries**

Force-feeding can cause a number of injuries: pain and injury from handling caused by the tubing of the force-feeding funnel; trauma caused by injecting a high-temperature corn mash; bruising or perforation of the esophagus when the pipe is inserted; hemorrhaging and inflammation of the neck resulting from too forcible an introduction of the pipe to the throat; or asphyxia caused by food improperly forced into the trachea.<sup>56,57</sup> Wounds of the esophagus may subsequently become infected with opportunistic pathogens.<sup>58</sup>

Duncan explains: “[T]he regular insertion of a feeding tube down the esophagus several times a day will inevitably lead to damage of the esophagus. When the esophagus becomes damaged, then the painfulness of every force feeding episode will be exacerbated.”<sup>59</sup>

In a declaration submitted to the San Joaquin County District Attorney, veterinarian Laurie Siperstein-Cook states: “It has been shown on necropsy that the esophagus [*sic*] of force-fed ducks exhibit scarring from the repeated trauma from the wide metal tubes that are pushed down the esophagus during the force-feeding process. Rough handling by the workers doing the force-feeding would exacerbate this trauma to the mucosal surface of the esophagus.”<sup>60</sup>

SCAHAW reports:

Most injuries caused by tissue damage during handling or tube insertion would result in pain. The oropharyngeal area is particularly sensitive and is physiologically adapted to perform a gag reflex in order to prevent fluids entering the trachea. Force feeding will have to overcome this reflex and hence the birds may initially find this distressing and injury may result.<sup>61</sup>

The working group was informed that ducks at the end of the force feeding period can have serious injuries to the oesophagus or, more usually, having [*sic*] clear evidence of tissue damage in the oesophagus. It seems likely that birds have sufficient damage to oesophagus tissue, caused by the force feeding process to have been painful to the birds.<sup>62</sup>

Ducks used in foie gras production are prone to broken bones. During the force-feeding period, the frequency of fractures to the humeral (wing) bones repeatedly reaches 54%.<sup>63</sup> The SCAHAW report states: “Different lesions can be observed on carcasses. The most frequent are bone fractures. They occur on wing bones, mainly the humerus.”<sup>64</sup> The report continues by explaining that the prevalence of bone fractures due to handling at slaughter for Mulard ducks is between 30-70%.<sup>65</sup> Scientists postulate that the problem of broken bones could be due to changes in homeostasis caused by force-feeding of an abnormal diet, which could affect metabolism of calcium and phosphate and subject birds to osteopathy, “making their bones more fragile or even more painful.”<sup>66</sup>

Greg Harrison, Diplomate of the American Board of Veterinary Practitioners and the European College of Avian Medicine and Surgery, agrees: “The lack of sufficient protein, vitamins and minerals (calcium) leads the young birds’ rapidly growing bones to be structurally flawed (osteodystrophy). This leads to bending and breaking (rickets).”<sup>67</sup>

## **Lameness**

According to SCAHAW’s findings, force-fed birds with “expanded livers had difficulty in standing and their natural gait and ability to walk were severely impaired,” ambulatory problems believed to be due to the gross changes in body anatomy caused by the force-feeding. Additionally, SCAHAW reported that the great expansion of the liver seems to force the birds’ legs out to the side, placing undue stresses on the birds’ leg joints.<sup>68</sup>

Feldmann examined two ducks reportedly from a California foie gras production facility and noted: “The legs of both ducks also appeared swollen, and the bottoms of the feet were encrusted with ulcerated calluses. It appeared that the act of walking (or attempted walking) caused the ducks considerable pain, and they therefore avoided it when possible.”<sup>69</sup>

Siperstein-Cook also found foot and leg disorders, and declared that ducks kept on wire surfaces “will develop foot sores that lead to the infection called bumblefoot. This is a painful condition that can progress into the joint of the foot causing pain and difficulty walking.”<sup>70</sup> Bumblefoot has also been found in ducks reportedly from New York foie gras operations.<sup>71,72,73</sup>

Bone and skin disorders linked to the nutritional deficiencies in the diet of force-fed birds may exacerbate the problem. Harrison explains:

[Nutritional] imbalances also lead to a skin disorder known as hyperkeratosis (thinning, flaking, excess callus formation, slow healing). The bone pain combines with the lethargy from the toxins and leads to further immobilization of the bird. This lack of exercise leads to poor circulation in the feet. These factors combine with the hyperkeratosis to allow ulcers to form on the bottom of the feet. These become infected, red and swollen. Pain and bacterial toxins further complicate the situation.<sup>74</sup>

## **Other Diseases**

Force-fed birds suffer from a variety of diseases. One poultry handbook states:

Force-fed animals are fragile animals, and the accidents or illnesses during the course of this operation are many and varied: anoxemia, due to insufficient aeration; toxemia, which is an intoxication of the blood; cirrhosis of the liver; candidosis, which is provoked by a yeast which profits from esophageal

inflammations (due to the feeding tube, for example); feeding tube injuries, caused by clumsiness, which can go as far as the bursting of the crop; “blue thigh”, due to internal muscular hemorrhages provoked by a deficiency in vitamin K and poor manipulation of the animals.<sup>75</sup>

A guide to diseases of waterfowl notes that the “digestive pathology of the goose and the duck in the midst of force-feeding contains distinct causes linked to the operation of force-feeding, to latent parasitism and to bacterial or fungal infections” and diseases suffered by force-fed ducks and geese include “[i]njuries; bowel obstruction; indigestion; tympanism; parasitism; amidostimosis; epomidostimosis; spirurosis; enteritis; intestinal indigestion; fibrosis of the liver; hypoglycemic coma; bronchial obstruction.”<sup>76</sup>

In the section on enterotoxemias, the guide states: “The determining causes are of nutritional origin. The excess of starch creates a diminishing intestinal pH; it results in an unbalanced microbial intestinal flora favoring the implantation and multiplication of toxin producing germs; clostridia, colibacillus, salmonella...”<sup>77</sup>

Conditions that are rare in healthy birds can become common in force-fed birds: “Mycosis of the digestive tract, caused by *Candida albicans*, can occur frequently in some classes of poultry but not in geese. An exception is force-fed birds, where inflammation of the oesophagus may be caused by the insertion of the corn dispenser. This inflammation can then provide a port of entry for *Candida albicans*.”<sup>78</sup> In one study, candidosis was observed in up to 6% of birds.<sup>79</sup> The necropsy of a duck apparently taken from the foie gras facility in California revealed lesions in the esophagus where bacteria and yeast had proliferated.<sup>80</sup>

Thermoregulatory and respiratory disorders are also common. Ducks pant to vent excess heat, and it has been shown that force-fed ducks sometimes exhibit open-beak breathing to thermoregulate—i.e., ducks pant intensely to vent the excess heat generated by their forced over-consumption of grain.<sup>81,82</sup> Although panting is independent of the ambient temperature, when ducks are kept in individual cages in which they cannot spread their wings, they are prevented from cooling themselves and consequently pant more and consume more water during the force-feeding period.<sup>83,84</sup> Open-beak behavior becomes more frequent as the force-feeding period continues.<sup>85</sup>

Some ducks allegedly from New York’s Hudson Valley Foie Gras died of aspiration pneumonia, a painful condition resulting from food being pushed into the birds’ lungs during the force-feeding process.<sup>86</sup> Necropsy reports also showed that other ducks reported to be from the same facility were severely congested, demonstrated signs of bronchiolitis and aspiration pneumonia, and had food material in their lungs.<sup>87,88</sup>

Veterinary inspection of force-fed ducks reportedly from a California foie gras facility revealed signs of infection, neurologic damage, and impaction of the crop and esophagus with undigested food.<sup>89</sup>

## **Mortality**

SCAHAW notes that the “effects of force feeding are lethal when the procedures are continued”<sup>90</sup> and found that “[t]he mortality rate in force fed birds varies from 2% to 4% in the two week force feeding period compared with around 0.2% in non force fed ducks.”<sup>91</sup> As force-feeding continues, mortality increases. In one scientific investigation, 9 out of 144 force-fed ducks died and mortality increased with the length of the force-feeding period imposed in the study: 1 death among the animals force-fed for 10 days, 2 deaths for those force-fed for 13 days, and 6 deaths in the group force-fed for 16 days. The researchers attributed the mortality to “mechanical and behavioral” causes, as some of the birds who died had such difficulty walking that they could not access drinking water.<sup>92</sup>

## **Housing**

While some foie gras facilities provide outdoor access to pasture during part of the birds’ lives,<sup>93,94</sup> during the force-feeding stage, the animals are confined indoors typically to small pens. Ducks and geese are web-footed birds who primarily live in water and, in nature, are social animals and spend much of their time foraging and

maintaining their plumage by bathing and preening.<sup>95</sup> In foie gras production, however, the birds are often housed at high densities and prevented from engaging in natural behavior.

Pen systems provide 0.2-0.25 m<sup>2</sup> (2.15-2.7 ft<sup>2</sup>) per duck or 0.33 m<sup>2</sup> (3.6 ft<sup>2</sup>) per goose.<sup>96</sup> Each group pen confines 12-15 ducks or 9 geese, and has wire mesh walls and slatted floors. Drinking water is available from a trough placed inside the pen.<sup>97</sup>

On some production facilities, birds are confined in near darkness, in an attempt to keep them calm. Sonoma Foie Gras in California reportedly keeps birds in darkened sheds for the two-week force-feeding period.<sup>98</sup> Darkness likely impairs normal exploratory behavior and physical exercise.<sup>99</sup>

Confined birds raised for foie gras are unable to forage for food and are denied water in which to swim and clean their plumage.<sup>100</sup> The absence of opportunities to engage in such instinctual behavior is likely to cause frustration and stress.<sup>101</sup> Without access to open water, ducks may display abnormal repetitive behavioral patterns, including head shaking and stereotypic feather preening, and foraging behavior that would normally take place on the water surface may be redirected toward less appropriate substrates such as straw, if present.<sup>102</sup>

Waterfowl are strongly motivated to bathe in and interact with water. In an experiment designed to assess their level of motivation, ducks lifted heavily weighted doors in order to gain access to a pen with bathing water. They performed this behavior at least as often as they lifted the weights in order to access a pen with food,<sup>103</sup> suggesting that the internal drive to swim is as strong as the drive to eat. In another study, ducklings traversed higher barriers to access a drinking trough than they would for access to bell drinkers or drinking nipples. The researchers concluded that “ducklings prefer wider, deeper water channels that allow a greater range of drinker directed activities.”<sup>104</sup>

Ducks need water in order to adequately groom and clean their body and plumage. Without open water in which ducks can immerse their heads, the beak, eyes, and nostrils may become dirty.<sup>105,106</sup> In experiments with Muscovy ducks, groups with access to a water “gutter” spent more time preening and had better plumage condition at slaughter than those who had access only to a bell drinker.<sup>107</sup> Clearly, the welfare of ducks is impaired by commercial production conditions that deny birds access to water for swimming and bathing.

## **Human Health Implications**

In addition to the extensive animal welfare problems associated with the production of foie gras, there are also newly recognized human food safety concerns with foie gras consumption. Amyloidosis is a group of diseases in which accumulated proteins damage body tissues and disrupt their function. It is a serious, often fatal disease when major organs are affected.<sup>108</sup> In a study published in 2007, collaborating researchers in the United States and Sweden found amyloid deposits in commercially available foie gras and discovered that they could induce amyloidosis in animals in a laboratory setting by injecting or feeding them amyloid extracted from foie gras. Given their findings, the researchers cautioned that it would be prudent for certain susceptible human populations to avoid foods, such as foie gras, that may be contaminated with amyloid fibrils.<sup>109</sup> Populations at risk of developing amyloidosis include those who suffer from a long list of chronic infections or inflammatory diseases, such as tuberculosis, osteomyelitis, Crohn’s disease, ulcerative colitis, lupus, bronchiectasis, and sarcoidosis. However, 60% of the most common type of systemic amyloidosis cases occur in persons who suffer simply from Rheumatoid Arthritis (RA),<sup>110</sup> suggesting that many otherwise healthy people could potentially be at risk if they consume foie gras.

## **Conclusion**

Expert opinions and an extensive scientific literature have found that force-feeding ducks and geese for foie gras production causes significant welfare issues, including disease, injury, and increased mortality. Animal welfare scientist Christine Nicol, Professor of Animal Welfare at the School of Veterinary Science at the University of Bristol, states: “My view on the production of foie gras is clear and supported by biological evidence. This

practice causes unacceptable suffering to these animals....It causes pain during and as a consequence of the force feeding, feelings of malaise as the body struggles to cope with extreme nutrient imbalance, and distress due to the forceful handling. The most extreme distress is caused by loss of control of the birds' most basic homeostatic regulation mechanism as their hunger control system is over-ridden."<sup>111</sup> From the SCAHAW review:

The Scientific Committee on Animal Health and Animal Welfare concludes that force-feeding, as currently practised, is detrimental to the welfare of the birds....[T]he management and housing of the birds used for producing foie gras have a negative impact on their welfare. It should be noted that these are the only farm animal that are force fed and in some countries this procedure is prohibited.<sup>112</sup>

After a comprehensive study, the independent Pew Commission on Industrial Farm Animal Production, a project of The Pew Charitable Trusts and the Johns Hopkins Bloomberg School of Public Health chaired by former Kansas Governor John Carlin and including former U.S. Agriculture Secretary Dan Glickman, came to the conclusion that the practice of force-feeding birds to make foie gras should be ended.<sup>113</sup>

Opinion leaders and the public have reflected these scientific findings. During an interview, Pope Benedict XVI (then Cardinal Joseph Ratzinger) said: "Certainly, a sort of industrial use of creatures, so that geese are fed in such a way as to produce as large a liver as possible, or hens live so packed together that they become just caricatures of birds, this degrading of living creatures to a commodity seems to me in fact to contradict the relationship of mutuality that comes across in the Bible."<sup>114</sup> Social conservative, author, commentator, and political figure Patrick Buchanan said on The McLaughlin Group, "Look, on the foie gras, I think this is manifest cruelty to animals, it seems to me. And it is a brutal thing. And I think I would certainly ban that type of thing being done in this country."<sup>115</sup> A 2004 Zogby poll reportedly found that 77% of U.S. adults believe the process of force-feeding ducks and geese to produce foie gras should be banned.<sup>116</sup>

This reaction has been translated into policy. In 2004, the California legislature banned the production and sale of force-fed *pâté de foie gras* in the state on animal welfare grounds.<sup>117</sup> Though later repealed,<sup>118</sup> the city of Chicago banned the sale of foie gras in restaurants and groceries in 2006.<sup>119</sup> Production has also been banned in more than a dozen countries, where force-feeding has been deemed a violation of national animal welfare laws. These countries include Argentina,<sup>120</sup> Denmark,<sup>121</sup> Finland,<sup>122</sup> Germany,<sup>123</sup> Israel,<sup>124</sup> Italy,<sup>125</sup> Norway,<sup>126</sup> Poland,<sup>127</sup> and the United Kingdom.<sup>128</sup>

---

<sup>1</sup> Guémené D and Guy G. 2004. The past, present and future of force-feeding and "foie gras" production. *World's Poultry Science Journal* 60:210-22, citing: CIFOG. 2002. Rapport économique. AG du 06/09/2002. Anglet France.

<sup>2</sup> Marie-Etancelin C, Chapuis H, Brun JM, Larzul C, Mialon-Richard MM, and Rouvier R. 2008. Genetics and selection of mule ducks in France: a review. *World's Poultry Science Journal* 64:187-207.

<sup>3</sup> Willsher K. 2011. French outrage as German food fair bans foie gras. *The Guardian*, July 19. [www.guardian.co.uk/world/2011/jul/19/france-outrage-germany-foie-gras-ban](http://www.guardian.co.uk/world/2011/jul/19/france-outrage-germany-foie-gras-ban). Accessed March 14, 2012.

<sup>4</sup> Sonoma Foie Gras. 2009. About us. [www.artisanfoiegras.com/about/](http://www.artisanfoiegras.com/about/). Accessed February 29, 2012.

<sup>5</sup> Hudson Valley Foie Gras. [www.hudsonvalleyfoiegras.com/about/vfg.html](http://www.hudsonvalleyfoiegras.com/about/vfg.html). Accessed February 29, 2012.

<sup>6</sup> Bella Bella Gourmet Foods. 2007. [www.bellabellagourmet.com](http://www.bellabellagourmet.com). Accessed February 29, 2012.

<sup>7</sup> Baier E. 2011. Minn.foie gras producer challenges notion that process is cruel. Minnesota Public Radio, October 10. <http://minnesota.publicradio.org/display/web/2011/10/10/foie-gras-producer-minnesota/>. Accessed March 12, 2012.

<sup>8</sup> Letter dated March 23, 2006, from CA Gargano, Hudson Valley Foie Gras, Ferndale, NY, to Public Authorities Control Board, Albany, NY.

<sup>9</sup> Rodenburg TB, Bracke MBM, Berk J, et al. 2005. Welfare of ducks in European duck husbandry systems. *World's Poultry Science Journal* 61:633-46.

- 
- <sup>10</sup> Scientific Committee on Animal Health and Animal Welfare (SCAHAW). 1998. Welfare aspects of the production of foie gras in ducks and geese. For the European Commission (December 16). [http://ec.europa.eu/food/animal/welfare/international/out17\\_en.pdf](http://ec.europa.eu/food/animal/welfare/international/out17_en.pdf). Accessed February 29, 2012.
- <sup>11</sup> Beck Y. 1994. Force-feeding of palmipeds and foie gras production: the global review of a choice made by society. Licence Interfacultaire en Environnement, Faculty of Sciences, Free University of Brussels, pp. 39-40. Stroud A, trans.
- <sup>12</sup> Scientific Committee on Animal Health and Animal Welfare (SCAHAW). 1998. Welfare aspects of the production of foie gras in ducks and geese. For the European Commission (December 16). [http://ec.europa.eu/food/animal/welfare/international/out17\\_en.pdf](http://ec.europa.eu/food/animal/welfare/international/out17_en.pdf). Accessed March 1, 2012.
- <sup>13</sup> Comiti A. 2006. Rebuttal to the claim by INRA researchers that force-feeding is not harmful to the bird's health and liver, citing: Vilate D. 1989. Manuel pratique des maladies des palmipèdes. Nouvelles Editions de Publications Agricoles, pp. 133-9. Comiti A, trans.
- <sup>14</sup> Scientific Committee on Animal Health and Animal Welfare (SCAHAW). 1998. Welfare aspects of the production of foie gras in ducks and geese. For the European Commission (December 16). [http://ec.europa.eu/food/animal/welfare/international/out17\\_en.pdf](http://ec.europa.eu/food/animal/welfare/international/out17_en.pdf). Accessed March 1, 2012.
- <sup>15</sup> European Food Safety Authority. Members of the Panel on Animal Health and Welfare (AHAW). [www.efsa.europa.eu/en/ahaw/ahawmembers.htm](http://www.efsa.europa.eu/en/ahaw/ahawmembers.htm). Accessed March 14, 2012.
- <sup>16</sup> Scientific Committee on Animal Health and Animal Welfare (SCAHAW). Members. [http://ec.europa.eu/food/fs/sc/sc/ahaw/members\\_en.html](http://ec.europa.eu/food/fs/sc/sc/ahaw/members_en.html). Accessed March 1, 2012.
- <sup>17</sup> Scientific Committee on Animal Health and Animal Welfare (SCAHAW). 1998. Welfare aspects of the production of foie gras in ducks and geese. For the European Commission (December 16). [http://ec.europa.eu/food/animal/welfare/international/out17\\_en.pdf](http://ec.europa.eu/food/animal/welfare/international/out17_en.pdf). Accessed March 1, 2012.
- <sup>18</sup> Guémené D and Guy G. 2004. The past, present and future of force-feeding and “foie gras” production. *World's Poultry Science Journal* 60:210-22.
- <sup>19</sup> Scientific Committee on Animal Health and Animal Welfare (SCAHAW). 1998. Welfare aspects of the production of foie gras in ducks and geese. For the European Commission (December 16, pp. 19-20). [http://ec.europa.eu/food/animal/welfare/international/out17\\_en.pdf](http://ec.europa.eu/food/animal/welfare/international/out17_en.pdf). Accessed March 1, 2012.
- <sup>20</sup> Food and Agriculture Organization of the United Nations. 2002. Fatty liver or foie gras production. In: Buckland R and Guy G (eds.), *Goose Production*. FAO Animal Production and Health Paper 154 (Rome, Italy: FAO). [www.fao.org/docrep/005/Y4359E/y4359e00.HTM](http://www.fao.org/docrep/005/Y4359E/y4359e00.HTM). Accessed March 1, 2012.
- <sup>21</sup> Scientific Committee on Animal Health and Animal Welfare (SCAHAW). 1998. Welfare aspects of the production of foie gras in ducks and geese. For the European Commission (December 16, p. 21). [http://ec.europa.eu/food/animal/welfare/international/out17\\_en.pdf](http://ec.europa.eu/food/animal/welfare/international/out17_en.pdf). Accessed March 1, 2012.
- <sup>22</sup> Scientific Committee on Animal Health and Animal Welfare (SCAHAW). 1998. Welfare aspects of the production of foie gras in ducks and geese. For the European Commission (December 16, p. 20). [http://ec.europa.eu/food/animal/welfare/international/out17\\_en.pdf](http://ec.europa.eu/food/animal/welfare/international/out17_en.pdf). Accessed March 5, 2012.
- <sup>23</sup> Finn P. 2000. To Hungarian professor, what's good for the goose is good for the goose liver industry. *The Washington Post*, January 31.
- <sup>24</sup> Scientific Committee on Animal Health and Animal Welfare (SCAHAW). 1998. Welfare aspects of the production of foie gras in ducks and geese. For the European Commission (December 16, p. 28). [http://ec.europa.eu/food/animal/welfare/international/out17\\_en.pdf](http://ec.europa.eu/food/animal/welfare/international/out17_en.pdf). Accessed March 5, 2012.
- <sup>25</sup> Scientific Committee on Animal Health and Animal Welfare (SCAHAW). 1998. Welfare aspects of the production of foie gras in ducks and geese. For the European Commission (December 16). [http://ec.europa.eu/food/animal/welfare/international/out17\\_en.pdf](http://ec.europa.eu/food/animal/welfare/international/out17_en.pdf). Accessed March 5, 2012.
- <sup>26</sup> Council of Europe. 1996. Report on force-feeding by Belgian experts. Permanent Council of the European Convention for the Protection of Animals Kept for Farming Purposes, 32<sup>nd</sup> meeting, Strasbourg, France, October 8-11, p. 49. Trewayne K, trans.
- <sup>27</sup> Letter dated March 20, 2006 from Paul Sirols of Dairy One Cooperative, Inc., Ithaca, NY, to Holly Cheever, DVM.
- <sup>28</sup> Cheever H. 2006. Sworn affidavit by Holly Cheever, DVM, before the New York State Department of Agriculture and Markets (Albany, NY, May 8).



- 
- <sup>29</sup> Feldmann BM. 2006. Sworn affidavit by Bruce Feldmann, DVM, before the New York State Department of Agriculture and Markets (Albany, NY, April 8).
- <sup>30</sup> Guémené D and Guy G. 2004. The past, present and future of force-feeding and “foie gras” production. *World’s Poultry Science Journal* 60:210-22.
- <sup>31</sup> Guémené D and Guy G. 2004. The past, present and future of force-feeding and “foie gras” production. *World’s Poultry Science Journal* 60:210-22.
- <sup>32</sup> Scientific Committee on Animal Health and Animal Welfare (SCAHAW). 1998. Welfare aspects of the production of foie gras in ducks and geese. For the European Commission (December 16, pp. 39, 42). [http://ec.europa.eu/food/animal/welfare/international/out17\\_en.pdf](http://ec.europa.eu/food/animal/welfare/international/out17_en.pdf). Accessed March 5, 2012.
- <sup>33</sup> Molee W, Bouillier-Oudot M, Auvergne A, and Babilé R. 2005. Changes in lipid composition of hepatocyte plasma membrane induced by overfeeding in duck. *Comparative Biochemistry and Physiology, Part B* 141:437-44.
- <sup>34</sup> Gabarrou JF, Salichon MR, Guy G, and Blum JC. 1996. Hybrid ducks overfed with boiled corn develop an acute hepatic steatosis with decreased choline and polyunsaturated fatty acid level in phospholipids. *Reproduction Nutrition Development* 36:473-84.
- <sup>35</sup> Food and Agriculture Organization of the United Nations. 2002. Fatty liver or foie gras production. In: Buckland R and Guy G (eds.), *Goose Production*. FAO Animal Production and Health Paper 154 (Rome, Italy: FAO). [www.fao.org/docrep/005/Y4359E/y4359e00.HTM](http://www.fao.org/docrep/005/Y4359E/y4359e00.HTM). Accessed March 5, 2012.
- <sup>36</sup> Gabarrou JF, Salichon MR, Guy G, and Blum JC. 1996. Hybrid ducks overfed with boiled corn develop an acute hepatic steatosis with decreased choline and polyunsaturated fatty acid level in phospholipids. *Reproduction Nutrition Development* 36:473-84.
- <sup>37</sup> Scientific Committee on Animal Health and Animal Welfare (SCAHAW). 1998. Welfare aspects of the production of foie gras in ducks and geese. For the European Commission (December 16, pp. 39, 60), citing: Babilé R, Auvergne A, Dubois JP, Bénard G, and Manse H. 1998. Réversibilité de la stéatose hépatique chez l’oie. 3ème Journées de la Recherche sur les Palmipèdes à Foie Gras, October 27-28, Bordeaux, pp. 45-6. [http://ec.europa.eu/food/animal/welfare/international/out17\\_en.pdf](http://ec.europa.eu/food/animal/welfare/international/out17_en.pdf). Accessed March 5, 2012.
- <sup>38</sup> Scientific Committee on Animal Health and Animal Welfare (SCAHAW). 1998. Welfare aspects of the production of foie gras in ducks and geese. For the European Commission (December 16, p. 40). [http://ec.europa.eu/food/animal/welfare/international/out17\\_en.pdf](http://ec.europa.eu/food/animal/welfare/international/out17_en.pdf). Accessed March 5, 2012.
- <sup>39</sup> Bogin E, Avidar Y, Merom M, et al. 1984. Biochemical changes associated with fatty liver in geese. *Avian Pathology* 13:683-701.
- <sup>40</sup> Scientific Committee on Animal Health and Animal Welfare (SCAHAW). 1998. Welfare aspects of the production of foie gras in ducks and geese. For the European Commission (December 16, p. 61). [http://ec.europa.eu/food/animal/welfare/international/out17\\_en.pdf](http://ec.europa.eu/food/animal/welfare/international/out17_en.pdf). Accessed March 5, 2012.
- <sup>41</sup> Feldmann BM. 2006. Sworn affidavit by Bruce Feldmann, DVM, before the New York State Department of Agriculture and Markets (Albany, NY, April 8).
- <sup>42</sup> Siperstein-Cook L. 2004. Statement on examination of force-fed ducks. Declaration submitted to San Joaquin County District Attorney dated February 20.
- <sup>43</sup> Olsen GH and Orosz SE. 2000. *Manual of Avian Medicine* (St. Louis, MO: Mosby, Inc., p. 175).
- <sup>44</sup> Duncan IJH. 2004. Statement against force-feeding of ducks and geese. February 4.
- <sup>45</sup> Scientific Committee on Animal Health and Animal Welfare (SCAHAW). 1998. Welfare aspects of the production of foie gras in ducks and geese. For the European Commission (December 16, p. 41). [http://ec.europa.eu/food/animal/welfare/international/out17\\_en.pdf](http://ec.europa.eu/food/animal/welfare/international/out17_en.pdf). Accessed March 5, 2012.
- <sup>46</sup> Guémené D and Guy G. 2004. The past, present and future of force-feeding and “foie gras” production. *World’s Poultry Science Journal* 60:211-22.
- <sup>47</sup> Berthold P. 1993. *Bird Migration: A General Survey* (New York, NY: Oxford University Press, p. 93).
- <sup>48</sup> Scientific Committee on Animal Health and Animal Welfare (SCAHAW). 1998. Welfare aspects of the production of foie gras in ducks and geese. For the European Commission (December 16, p. 25). [http://ec.europa.eu/food/animal/welfare/international/out17\\_en.pdf](http://ec.europa.eu/food/animal/welfare/international/out17_en.pdf). Accessed March 5, 2012.
- <sup>49</sup> Scientific Committee on Animal Health and Animal Welfare (SCAHAW). 1998. Welfare aspects of the production of foie gras in ducks and geese. For the European Commission (December 16, p. 26). [http://ec.europa.eu/food/animal/welfare/international/out17\\_en.pdf](http://ec.europa.eu/food/animal/welfare/international/out17_en.pdf). Accessed March 5, 2012.

- 
- <sup>50</sup> Zanusso J, Rémignon H, Guy G, Manse H, and Babilé R. 2003. The effects of overfeeding on myofibre characteristics and metabolic traits of the breast muscle in Muscovy ducks (*Cairina moschata*). *Reproduction Nutrition Development* 43:105-15.
- <sup>51</sup> Beck Y. 1994. Force-feeding of palmipeds and foie gras production: the global review of a choice made by society. *Licence Interfacultaire en Environnement, Faculty of Sciences, Free University of Brussels*, p. 55. Stroud A, trans.
- <sup>52</sup> Scientific Committee on Animal Health and Animal Welfare (SCAHAW). 1998. Welfare aspects of the production of foie gras in ducks and geese. For the European Commission (December 16, p. 34). [http://ec.europa.eu/food/animal/welfare/international/out17\\_en.pdf](http://ec.europa.eu/food/animal/welfare/international/out17_en.pdf). Accessed March 5, 2012.
- <sup>53</sup> Faure JM, Guémené D, and Guy G. 2001. Is there avoidance of the force feeding procedure in ducks and geese? *Animal Research* 50:157-64.
- <sup>54</sup> Scientific Committee on Animal Health and Animal Welfare (SCAHAW). 1998. Welfare aspects of the production of foie gras in ducks and geese. For the European Commission (December 16, p. 33). [http://ec.europa.eu/food/animal/welfare/international/out17\\_en.pdf](http://ec.europa.eu/food/animal/welfare/international/out17_en.pdf). Accessed March 5, 2012.
- <sup>55</sup> Scientific Committee on Animal Health and Animal Welfare (SCAHAW). 1998. Welfare aspects of the production of foie gras in ducks and geese. For the European Commission (December 16, p. 33). [http://ec.europa.eu/food/animal/welfare/international/out17\\_en.pdf](http://ec.europa.eu/food/animal/welfare/international/out17_en.pdf). Accessed March 5, 2012.
- <sup>56</sup> Beck Y. 1994. Force-feeding of palmipeds and foie gras production: the global review of a choice made by society. *Licence Interfacultaire en Environnement, Faculty of Sciences, Free University of Brussels*, pp. 39-40. Stroud A, trans.
- <sup>57</sup> Villate D. 1989. *Practical Manual of Diseases of Palmipeds*. Nouvelles Editions de Publications Agricoles, pp. 133-4. Stroud A, trans.
- <sup>58</sup> Villate D. 1989. *Practical Manual of Diseases of Palmipeds*. Nouvelles Editions de Publications Agricoles, pp. 133-5. Stroud A, trans.
- <sup>59</sup> Duncan IJH. 2004. Statement against force-feeding of ducks and geese. February 4.
- <sup>60</sup> Siperstein-Cook L. 2004. Statement on examination of force-fed ducks. Declaration submitted to San Joaquin County District Attorney dated February 20.
- <sup>61</sup> Scientific Committee on Animal Health and Animal Welfare (SCAHAW). 1998. Welfare aspects of the production of foie gras in ducks and geese. For the European Commission (December 16, p. 35). [http://ec.europa.eu/food/animal/welfare/international/out17\\_en.pdf](http://ec.europa.eu/food/animal/welfare/international/out17_en.pdf). Accessed May 1, 2009.
- <sup>62</sup> Scientific Committee on Animal Health and Animal Welfare (SCAHAW). 1998. Welfare aspects of the production of foie gras in ducks and geese. For the European Commission (December 16, p. 46). [http://ec.europa.eu/food/animal/welfare/international/out17\\_en.pdf](http://ec.europa.eu/food/animal/welfare/international/out17_en.pdf). Accessed March 6, 2012.
- <sup>63</sup> Guinotte F and Guy G. 1996. Can the mineralization of the skeleton in the Mulard duck be improved? *Actes des 2e Journées de la Recherche sur les Palmipèdes à Foie Gras*, March 12-13, pp. 49-52. Stroud A, trans.
- <sup>64</sup> Scientific Committee on Animal Health and Animal Welfare (SCAHAW). 1998. Welfare aspects of the production of foie gras in ducks and geese. For the European Commission (December 16, p. 45). [http://ec.europa.eu/food/animal/welfare/international/out17\\_en.pdf](http://ec.europa.eu/food/animal/welfare/international/out17_en.pdf). Accessed March 6, 2012.
- <sup>65</sup> Scientific Committee on Animal Health and Animal Welfare (SCAHAW). 1998. Welfare aspects of the production of foie gras in ducks and geese. For the European Commission (December 16, p. 45), citing: Bénard P, Bengone T, Bénard G, Prehn D, Tanguy J, Babile R, Grimm F. 1996. Démonstration de la réversibilité du gavage chez le canard à l'aide de tests d'exploration fonctionnelle hépatique. *Deuxièmes Journées de la Recherche sur les Palmipèdes à Foie Gras*, pp. 45-8. [http://ec.europa.eu/food/animal/welfare/international/out17\\_en.pdf](http://ec.europa.eu/food/animal/welfare/international/out17_en.pdf). Accessed March 6, 2012.
- <sup>66</sup> Scientific Committee on Animal Health and Animal Welfare (SCAHAW). 1998. Welfare aspects of the production of foie gras in ducks and geese. For the European Commission (December 16, p. 44). [http://ec.europa.eu/food/animal/welfare/international/out17\\_en.pdf](http://ec.europa.eu/food/animal/welfare/international/out17_en.pdf). Accessed March 6, 2012.
- <sup>67</sup> Harrison GJ. 2006. Sworn affidavit by Greg Harrison, DVM, before the New York State Department of Agriculture and Markets (Albany, NY, May 25).
- <sup>68</sup> Scientific Committee on Animal Health and Animal Welfare (SCAHAW). 1998. Welfare aspects of the production of foie gras in ducks and geese. For the European Commission (December 16, p. 34). [http://ec.europa.eu/food/animal/welfare/international/out17\\_en.pdf](http://ec.europa.eu/food/animal/welfare/international/out17_en.pdf). Accessed March 6, 2012.

- 
- <sup>69</sup> Letter dated September 26, 2003, from B. M. Feldmann to San Joaquin County District Attorney.
- <sup>70</sup> Siperstein-Cook L. 2004. Statement on examination of force-fed ducks. Declaration submitted to San Joaquin County District Attorney dated February 20.
- <sup>71</sup> Stone W. 2005. Progress report on Mulard ducks (2), WPU Case #05-38-07A&B. Memo to New York State Department of Environmental Conservation, Delmar, NY, December 2.
- <sup>72</sup> Kincaid AL. 2003. Necropsy report by Anne Kincaid, DVM, of Antech Diagnostics (Lake Success, NY, January 24).
- <sup>73</sup> Schlafer DH. 2005. Necropsy report by Donald Schlafer, DVM, of Cornell University College of Veterinary Medicine, Veterinary Medical Teaching Hospital (Ithaca, NY, October 4).
- <sup>74</sup> Harrison GJ. 2006. Sworn affidavit by Greg Harrison, DVM, before the New York State Department of Agriculture and Markets (Albany, NY, May 25).
- <sup>75</sup> Comiti A. 2006. Rebuttal to the claim by INRA researchers that force-feeding is not harmful to the bird's health and liver, citing: Periquet JC. 1999. *Les oies et les canards*. Editions Rustica, p. 105. Comiti A, trans.
- <sup>76</sup> Comiti A. 2006. Rebuttal to the claim by INRA researchers that force-feeding is not harmful to the bird's health and liver, citing: Vilate D. 1989. *Manuel pratique des maladies des palmipèdes*. Nouvelles Editions de Publications Agricoles, pp. 133-9. Comiti A, trans.
- <sup>77</sup> Comiti A. 2006. Rebuttal to the claim by INRA researchers that force-feeding is not harmful to the bird's health and liver, citing: Vilate D. 1989. *Manuel pratique des maladies des palmipèdes*. Nouvelles Editions de Publications Agricoles, pp. 133-9. Comiti A, trans.
- <sup>78</sup> Food and Agriculture Organization of the United Nations. 2002. Goose diseases. In: Buckland R and Guy G (eds.), *Goose Production*. FAO Animal Production and Health Paper 154 (Rome, Italy: FAO). [www.fao.org/DOCREP/005/Y4359E/Y4359E00.HTM](http://www.fao.org/DOCREP/005/Y4359E/Y4359E00.HTM). Accessed March 14, 2012.
- <sup>79</sup> Scientific Committee on Animal Health and Animal Welfare (SCAHAW). 1998. Welfare aspects of the production of foie gras in ducks and geese. For the European Commission (December 16, p. 46). [http://ec.europa.eu/food/animal/welfare/international/out17\\_en.pdf](http://ec.europa.eu/food/animal/welfare/international/out17_en.pdf). Accessed March 6, 2012.
- <sup>80</sup> Feldmann BM. 2006. Sworn affidavit by Bruce Feldmann, DVM, before the New York State Department of Agriculture and Markets (Albany, NY, April 8).
- <sup>81</sup> Comiti A. 2006. Rebuttal to the claim by INRA researchers that force-feeding is not harmful to the bird's health and liver, citing: Faure JM, Guy G, and Guémené D. 2000. *Comportement exprime par le canard mulard en fonction du mode de logement pendant la periode de gavage*. Actes des 4e Journées de la Recherche sur les Palmipèdes à Foie Gras, Arcachon, October 4-5, p. 29. Comiti A, trans.
- <sup>82</sup> Faure JM, Guy G, and Guémené D. 2000. Behavior expressed by the Mulard duck based on the lodging conditions during the force-feeding period. Actes des 4e Journées de la Recherche sur les Palmipèdes à Foie Gras, Arcachon, Octobre 4-5, pp. 42-5. Stroud A, trans.
- <sup>83</sup> Guémené D, Guy G, Noirault J, Destombes N, and Faure JM. 2006. Rearing conditions during the force-feeding period in male mule ducks and their impact upon stress and welfare. *Animal Research* 55:443-58.
- <sup>84</sup> Guémené D, Guy G, Noirault J, Destombes N, and Faure JM. 2006. Rearing conditions during the force-feeding period in male mule ducks and their impact upon stress and welfare. *Animal Research* 55:443-58.
- <sup>85</sup> Faure JM, Guy G, and Guémené D. 2000. Behavior expressed by the Mulard duck based on the lodging conditions during the force-feeding period. Actes des 4e Journées de la Recherche sur les Palmipèdes à Foie Gras, Arcachon, Octobre 4-5, pp. 42-5. Stroud A, trans.
- <sup>86</sup> Stone W. 2005. Progress report on Mulard ducks (2), WPU Case #05-38-07A&B. Memo to New York State Department of Environmental Conservation, Delmar, NY, December 2.
- <sup>87</sup> Kincaid AL. 2003. Necropsy report by Anne Kincaid, DVM, of Antech Diagnostics (Lake Success, NY, January 24).
- <sup>88</sup> Kincaid AL. 2002. Necropsy report by Anne Kincaid, DVM, of Antech Diagnostics (Lake Success, NY, December 27).
- <sup>89</sup> Feldmann BM. 2006. Sworn affidavit by Bruce Feldmann, DVM, before the New York State Department of Agriculture and Markets (Albany, NY, April 8).
- <sup>90</sup> Scientific Committee on Animal Health and Animal Welfare (SCAHAW). 1998. Welfare aspects of the production of foie gras in ducks and geese. For the European Commission (December 16, p. 62). [http://ec.europa.eu/food/animal/welfare/international/out17\\_en.pdf](http://ec.europa.eu/food/animal/welfare/international/out17_en.pdf). Accessed March 7, 2012.

- 
- <sup>91</sup> Scientific Committee on Animal Health and Animal Welfare (SCAHAW). 1998. Welfare aspects of the production of foie gras in ducks and geese. For the European Commission (December 16, p. 49). [http://ec.europa.eu/food/animal/welfare/international/out17\\_en.pdf](http://ec.europa.eu/food/animal/welfare/international/out17_en.pdf). Accessed March 7, 2012.
- <sup>92</sup> Babilé R, Auvergne A, Andrade V, et al. 1996. Reversibility of hepatic steatosis in the Mulard duck. Actes des 2e Journées de la Recherche sur les Palmipèdes à Foie Gras, March 12-13, pp. 107-10. Stroud A, trans.
- <sup>93</sup> Baier E. 2011. Minn.foie gras producer challenges notion that process is cruel. Minnesota Public Radio, October 10. <http://minnesota.publicradio.org/display/web/2011/10/10/foie-gras-producer-minnesota/>. Accessed March 12, 2012.
- <sup>94</sup> Sonoma Foie Gras. 2009. About us. [www.artisanfoiegras.com/about/](http://www.artisanfoiegras.com/about/). Accessed March 7, 2012.
- <sup>95</sup> Scientific Committee on Animal Health and Animal Welfare (SCAHAW). 1998. Welfare aspects of the production of foie gras in ducks and geese. For the European Commission (December 16, p. 27). [http://ec.europa.eu/food/animal/welfare/international/out17\\_en.pdf](http://ec.europa.eu/food/animal/welfare/international/out17_en.pdf). Accessed March 7, 2012.
- <sup>96</sup> Scientific Committee on Animal Health and Animal Welfare (SCAHAW). 1998. Welfare aspects of the production of foie gras in ducks and geese. For the European Commission (December 16, p. 21). [http://ec.europa.eu/food/animal/welfare/international/out17\\_en.pdf](http://ec.europa.eu/food/animal/welfare/international/out17_en.pdf). Accessed March 7, 2012.
- <sup>97</sup> Scientific Committee on Animal Health and Animal Welfare (SCAHAW). 1998. Welfare aspects of the production of foie gras in ducks and geese. For the European Commission (December 16, pp. 21-3). [http://ec.europa.eu/food/animal/welfare/international/out17\\_en.pdf](http://ec.europa.eu/food/animal/welfare/international/out17_en.pdf). Accessed March 7, 2012.
- <sup>98</sup> Brown PL. 2003. Foie gras fracas: haute cuisine meets the duck liberators. The New York Times, September 24.
- <sup>99</sup> Scientific Committee on Animal Health and Animal Welfare (SCAHAW). 1998. Welfare aspects of the production of foie gras in ducks and geese. For the European Commission (December 16, p. 35). [http://ec.europa.eu/food/animal/welfare/international/out17\\_en.pdf](http://ec.europa.eu/food/animal/welfare/international/out17_en.pdf). Accessed March 7, 2012.
- <sup>100</sup> Scientific Committee on Animal Health and Animal Welfare (SCAHAW). 1998. Welfare aspects of the production of foie gras in ducks and geese. For the European Commission (December 16). [http://ec.europa.eu/food/animal/welfare/international/out17\\_en.pdf](http://ec.europa.eu/food/animal/welfare/international/out17_en.pdf). Accessed March 7, 2012.
- <sup>101</sup> Scientific Committee on Animal Health and Animal Welfare (SCAHAW). 1998. Welfare aspects of the production of foie gras in ducks and geese. For the European Commission (December 16, p. 27). [http://ec.europa.eu/food/animal/welfare/international/out17\\_en.pdf](http://ec.europa.eu/food/animal/welfare/international/out17_en.pdf). Accessed March 7, 2012.
- <sup>102</sup> Rodenburg TB, Bracke MBM, Berk J, et al. 2005. Welfare of ducks in European duck husbandry systems. World's Poultry Science Journal 61:633-46, citing: Simantke C. 2002. Ethologische Begründung des Wasserbedarfes von Pekingenten bei der Stallmast. Expert opinion, University of Kassel, Germany, p. 20.
- <sup>103</sup> Scientific Committee on Animal Health and Animal Welfare (SCAHAW). 1998. Welfare aspects of the production of foie gras in ducks and geese. For the European Commission (December 16, p. 31). [http://ec.europa.eu/food/animal/welfare/international/out17\\_en.pdf](http://ec.europa.eu/food/animal/welfare/international/out17_en.pdf). Accessed March 7, 2012.
- <sup>104</sup> Cooper JJ, McAfee L, and Skinn H. 2002. Behavioural responses of domestic ducks to nipple drinkers, bell drinkers and water troughs. British Poultry Science 43:S17-8.
- <sup>105</sup> Rodenburg TB, Bracke MBM, Berk J, et al. 2005. Welfare of ducks in European duck husbandry systems. World's Poultry Science Journal 61:633-46, citing: Knierim U, Bulheller MA, Kuhnt K, Briese A, and Hartung J. 2004. Wasserangebot für Enten bei Stallhaltung ein Überblick aufgrund der Literatur und eigener Erfahrung. Deutsche Tierärztliche Wochenschrift 111:115-8.
- <sup>106</sup> Rodenburg TB, Bracke MBM, Berk J, et al. 2005. Welfare of ducks in European duck husbandry systems. World's Poultry Science Journal 61:633-46, citing: Simantke C. 2002. Ethologische Begründung des Wasserbedarfes von Pekingenten bei der Stallmast. Expert opinion, University of Kassel, Germany, p. 20.
- <sup>107</sup> Bulheller M, Kuhnt K, Hartung J, and Knierim U. 2004. Effects of different types of water provision on the behaviour and cleanliness of the plumage of Muscovy ducks (*Cairina moschata*). Proceedings of the 38th International Congress of the ISAE (Helsinki, Finland: University of Kuopio and MTT Agri-Food Research Finland, p. 212).
- <sup>108</sup> Amyloidosis Foundation. 2005. Amyloidosis info. [www.amyloidosis.org/](http://www.amyloidosis.org/). Accessed March 14, 2012.
- <sup>109</sup> Solomon A, Richey T, Murphy CL, et al. 2007. Amyloidogenic potential of foie gras. Proceedings of the National Academy of Sciences of the United States of America 104:10998-1001.

- 
- <sup>110</sup> Greger M. 2008. Amyloid fibrils: potential food safety implications. *International Journal of Food Safety, Nutrition and Public Health* 1(2):103-15.
- <sup>111</sup> Letter dated February 3, 2004, from C. Nicol to Lauren Ornelas, Viva USA, opposing foie gras production methods.
- <sup>112</sup> Scientific Committee on Animal Health and Animal Welfare (SCAHAW). 1998. Welfare aspects of the production of foie gras in ducks and geese. For the European Commission (December 16, pp. 65-6). [http://ec.europa.eu/food/animal/welfare/international/out17\\_en.pdf](http://ec.europa.eu/food/animal/welfare/international/out17_en.pdf). Accessed March 14, 2012.
- <sup>113</sup> Pew Commission on Industrial Farm Animal Production. 2008. Putting meat on the table: industrial farm animal production in America. [www.ncifap.org/images/PCIFAPFin.pdf](http://www.ncifap.org/images/PCIFAPFin.pdf). Accessed March 8, 2012.
- <sup>114</sup> Ratzinger J (Pope Benedict XVI). 2002. *God and the World: Believing and Living in Our Time*. A Conversation with Peter Seewald (San Francisco, CA: Ignatius Press, p. 78).
- <sup>115</sup> Patrick Buchanan on The McLaughlin Group. Taped October 7, 2005; broadcast October 8-9, 2005. [www.mclaughlin.com/library/transcript.htm?id=487](http://www.mclaughlin.com/library/transcript.htm?id=487). Accessed March 8, 2012.
- <sup>116</sup> California Senate Rules Committee. 2004. SB 1520 bill analysis, May 6. [http://info.sen.ca.gov/pub/03-04/bill/sen/sb\\_1501-1550/sb\\_1520\\_cfa\\_20040506\\_152512\\_sen\\_floor.html](http://info.sen.ca.gov/pub/03-04/bill/sen/sb_1501-1550/sb_1520_cfa_20040506_152512_sen_floor.html). Accessed March 8, 2012.
- <sup>117</sup> California Senate. 2008. Senate Bill No. 1520, January 10. [http://info.sen.ca.gov/pub/03-04/bill/sen/sb\\_1501-1550/sb\\_1520\\_bill\\_20040929\\_chaptered.pdf](http://info.sen.ca.gov/pub/03-04/bill/sen/sb_1501-1550/sb_1520_bill_20040929_chaptered.pdf). Accessed March 8, 2012.
- <sup>118</sup> Davey M. 2008. Ban lifted, foie gras is back on the menu in Chicago. *The New York Times*, May 15. [www.nytimes.com/2008/05/15/us/15liver.html](http://www.nytimes.com/2008/05/15/us/15liver.html). Accessed March 8, 2012.
- <sup>119</sup> Committee on Health, City Council of Chicago. 2005. Amendment of Title 7, Chapter 39 of municipal code of Chicago by addition of new sections 001 and 005 prohibiting sale of foie gras by food establishments, October 25. [www.ward49.com/site/files/322/35116/155427/214511/foie\\_gras.pdf](http://www.ward49.com/site/files/322/35116/155427/214511/foie_gras.pdf). Accessed March 12, 2012.
- <sup>120</sup> Argentina. 2003. Resolution 413/2003, August 20. [www.senasa.gov.ar/contenido.php?to=n&in=1033&ino=1033&io=5369](http://www.senasa.gov.ar/contenido.php?to=n&in=1033&ino=1033&io=5369). Accessed March 12, 2012.
- <sup>121</sup> Denmark. 1991. Act on the Protection of Animals, June 6. <http://faolex.fao.org/docs/texts/den64193.doc>. Accessed March 12, 2012.
- <sup>122</sup> Finland. 1996. Animal Protection Act, April 4. <http://faolex.fao.org/docs/texts/fin11662.doc>. Accessed March 12, 2012.
- <sup>123</sup> Germany. 1972. Animal Protection Law, July 24. [http://bundesrecht.juris.de/tierschg/\\_3.html](http://bundesrecht.juris.de/tierschg/_3.html). Accessed March 12, 2012.
- <sup>124</sup> Supreme Court of Israel. 2003. Foie gras verdict, August. Shalev N and Wolfson Y, trans. <http://chai-online.org/en/compassion/foiegras/foiegras.pdf>. Accessed March 12, 2012.
- <sup>125</sup> Italy. 2001. Legislative Decree, March 26. [www.ambiente.it/impresa/legislazione/leggi/2001/dlgs146-2001.htm](http://www.ambiente.it/impresa/legislazione/leggi/2001/dlgs146-2001.htm). Accessed March 12, 2012.
- <sup>126</sup> Norway. 1974. Animal Welfare Act, December 20. [www.regjeringen.no/en/doc/laws/Acts/animal-welfare-act.html?id=571188](http://www.regjeringen.no/en/doc/laws/Acts/animal-welfare-act.html?id=571188). Accessed March 14, 2012.
- <sup>127</sup> Poland. 1997. Animal Protection Act, August 21. [www.internationalwildlifelaw.org/PolandAnimalProtectionAct.html](http://www.internationalwildlifelaw.org/PolandAnimalProtectionAct.html). Accessed March 12, 2012.
- <sup>128</sup> England. 2000. The Welfare of Farmed Animals Regulations, August 14. <http://faolex.fao.org/docs/html/uk20834.htm>. Accessed March 12, 2012.

The Humane Society of the United States is the nation's largest animal protection organization—backed by 10 million Americans, or one of every 30. For more than a half-century, The HSUS has been fighting for the protection of all animals through advocacy, education, and hands-on programs. Celebrating animals and confronting cruelty. On the Web at [humanesociety.org](http://humanesociety.org).