

preface

There are several avian species that have been useful in studies of disease. Although not used nearly as commonly as mice, they are nonetheless important models in some areas of study. Chickens have made the most significant contributions historically as they were instrumental in the characterization of retroviruses, oncogenes, and lymphocyte cell lineages. They continue to be important models of several disease conditions, including muscular dystrophy and infectious diseases. In addition to chickens, the Japanese quail (*Coturnix japonica*), mallard duck (*Anas platyrhynchos*), pigeons (*Columba livia*), and several passerine species are all commonly used today for studies in a wide array of disciplines from environmental toxicology to behavioral neuroscience. The publication of the chicken, zebra-finch (*Taeniopygia guttata*), and pigeon genomes in 2004, 2010, and 2013, respectively, only adds tools to the research armamentarium and makes it likely that these and other species will remain useful research models.

Because they are not defined as animals under the United States Department of Agriculture (USDA) Animal Welfare Act and Regulations, avian species are not included in publicly available USDA annual reports, and hence, the exact number of birds used in research annually in the United States is difficult to ascertain. In the United Kingdom, however, the Home Office reported that 4% of the 4.03 million (~160,000) animals used were birds, and this represented an increase of 14% over the previous year. By way of comparison, this is on par with the 147,112 hamsters reported in the USDA 2012 annual report.

This handbook was written to serve as a basic reference for those technicians, researchers, and veterinarians who have little

experience working with birds in the research setting. The six chapters contained herein address general avian biology and physiology, husbandry, regulations that apply to the care and use of birds in research, experimental methods, and veterinary care. There are several comprehensive works regarding avian medicine and surgery, and those are cited throughout. Additionally, Chapter 6 provides a comprehensive list of resources that might be useful to those working with birds.