

The Demographics of the U.S. Equine Population

10

CHAPTER

Emily R. Kilby

Introduction

In this demographic examination of America's equine population, the numbers clearly show upward trends in all things equestrian over the past fifty years. Will that trajectory continue, adding year after year to the current ten million population, or will loss of open spaces turn the tide as it limits horse housing and riding room? Will ownership patterns undergo fundamental changes when population density, land costs, and escalating environmental controls eliminate the "backyard"-keeping concept and make suburban boarding stables untenable? Will horse production expenses rise in the face of land pressures to the point that equestrian involvement, now a highly egalitarian pursuit in this country, truly becomes a rich person's game?

Horse people started fretting over these sorts of questions not long after horses stopped being beasts of burden in this country and became mostly recreational partners and companions. So far, the equine species has flourished in its nonutilitarian role, but there's no end run around the fact that horses are and always will be large animals in a shrinking natural world.

How Many U.S. Horses Are There?

This most basic question of demographic research is yet to be answered with satisfactory accuracy for the U.S. equine population. Horses and other equidae are no longer sufficiently critical to national well-being to warrant the close government oversight afforded food-producing animals, nor are they so much a part of the average American experience as to inspire close scrutiny of their numbers and condition. Instead, available demographic data for horses and their kin have arisen from special interests or within restricted populations, resulting in seemingly conflicting figures.

The American Horse Council Foundation (AHCf), a funding entity of the American Horse Council, commissioned a study in 2004 using data provided by horse owners for the previous year. The resulting report put the American horse population at 9.2 million in 2003, a 33 percent increase over the 6.9 million reported ten years before (AHCf 2005).

According to the National Agricultural Statistics Service (NASS), an agency of the U.S. Department

of Agriculture (USDA), the country's equine inventory was 3.75 million in 2002 (USDA 2002). NASS reported 3.15 million horses, ponies, donkeys, and mules in 1997 and, in 1992, 2.12 million. In a single decade, the equine population jumped 1.63 million, or 77 percent, at least according to USDA.

The American Veterinary Medical Association (AVMA) put the 2001 horse population at 5.1 million (AVMA 2002), a 28 percent increase over the 4 million calculated for 1996, which had represented an 18 percent decrease from the 4.9 million estimated five years before that.

Equine Census Taking

The American horse population is not nearly so volatile as these conflicting figures seem to indicate. Indeed, vast changes have occurred in equine numbers over the past century, with as many as six million horses and mules disappearing in a single decade, but those losses were in response to the mechanization of farming and transportation (Table 1). (The lack of data from 1960 to the present is regrettable. USDA surveys ceased to be an accu-

Table 1
U.S. Equine Population During
Mechanization of Agriculture
and Transportation

Year	Number of Horses and Mules
1900	21,531,635
1905	22,077,000
1910	24,042,882
1915	26,493,000
1920	25,199,552
1925	22,081,520
1930	18,885,856
1935	16,676,000
1940	13,931,531
1945	11,629,000
1950	7,604,000
1955	4,309,000
1960	3,089,000

Source: Adapted from Ensminger (1969).

rate assessment because they did not take into account recreational horses, and the horse industry has attempted only occasionally to undertake a national horse population assessment in the past thirty-six years.) However, it appears to be fairly safe to conclude that the 1950s marked the low point of American equine numbers, with horses and mules largely phased out of agricultural production and transportation but not yet filling significant recreational roles. Since then, the trend in equine numbers has been steadily upward.

The surveys' purposes, designs, and sampling methodology account for the three divergent assessments of the American equine population cited above and most likely for the relatively large shifts reportedly occurring within short intervals as well.

American Horse Council

The AHC has surveyed the economic activity associated with horses and horse uses every decade since the mid-1980s. The data are collected primarily for political purposes. By specifying dollars-and-cents figures for a specialized and relatively small recreational and business entity, the AHC, a lobbying organization, can better influence national and state legislatures in matters affecting horse breeders, owners, trainers, dealers, and recreational, sporting, and business users. The larger the numbers shown, the more impact equestrian interests appear to have.

The AHC's population figures were shaped by the following study characteristics, as explained in the study's technical appendix (AHC 2005):

- *The commerce of horse involvement was the survey focus.* Respondents in the owner group had to be at least eighteen years old and owner or part-owner of a horse(s). Data for youth involvement and for non-owning equestrians may be underreported or excluded.
- *The survey posed questions in terms of horses only.* No input is explicitly solicited for other equidae, which include ponies, miniature horses, donkeys/burros, and mules. It is not uncommon for recreational horse owners to maintain a mix of breeds and types, and if respondents answered the questions quite literally, the lesser but still significant population of ponies and asses is not included in the 9.2 million figure. Finally, it appears that owners and producers specializing in miniature horses might have been excluded entirely.
- *The survey sample was derived from equestrian membership lists and business databases.* The 18,648 usable owner/industry supplier responses from which the report data were subsequently derived (along with different surveys of horse show and racing management) represent a valid pool for studying economic matters, but the sample would have excluded owners who maintain horses with little or no organizational contact or commercial involvement. Horse population figures and activity profiles may have been skewed by this selection process.
- *The primary response mechanism was through an Internet website,* with a small proportion of mailed questionnaires for those without computer access. Again, the methodology selected against owners outside mainstream culture, which would not have much effect on an economic impact study but probably underrepresents "invisible" own-

ers in providing raw equine population figures.

The AHC report's very precise tally of U.S. horses in 2003—9,222,847—is actually the center point of a statistically determined range defining a 95 percent confidence interval. According to these calculations, if the same methodology were applied a hundred times, ninety-five of the surveys would produce a U.S. horse population figure somewhere between 8,869,858 and 9,575,837. Given the methodology's exclusion of certain types of horse owners and some equine classes, the actual equine population seems likely to be at the higher end of the range or possibly exceeding that 9.6 million (rounded) maximum figure.

U.S. Department of Agriculture

USDA has kept tabs on agricultural production through periodic censuses, starting in 1840. Every five years, NASS attempts to survey all U.S. agricultural producers with a shorter form and chooses a sizable sampling of them for a more detailed assessment of agricultural practices and expenses. For the most recent enumeration, approximately 2.8 million census packets were mailed in December 2002, and follow-up contacts continued until each county had at least a 75 percent response rate. Such blanket coverage assures a very accurate count of most food- and fiber-producing units in the country, but horses and their kin are special case animals.

USDA's equine population figures are significantly limited by the primary criterion for inclusion in the enumeration: censuses are sent to all agricultural operations that produce or sell \$1,000 or more of agricultural products annually or would do so in normal years. The large block of "backyard" owners who maintain horses on a few acres or nonagricultural "farmettes" would not be surveyed. It is also unclear if suburban boarding, training, and les-

son stables would be captured during the list-building process.

The most recent USDA enumeration lists 3.64 million horses and ponies and 105,358 mules, burros, and donkeys in the "other animal production category," along with the likes of bison, goats, rabbits, and bees. Horse/pony numbers on income-producing farms increased by one million between 1992 and 1997 and by another half-million by 2002, a 78 percent increase overall. During the same decade, ass numbers nearly doubled between 1992 and 1997, rising from 67,692 to 123,211, then fell back to 105,358 in 2002. While the progression in horse/pony numbers reflects the population trend reported by other observers, the rather precipitous rise and retreat of ass numbers in a single decade begs the question of a sampling or reporting anomaly in one of the years.

Recognizing the shortcomings of the purely agricultural enumeration model for gathering equine data, USDA conducted additional surveys following the 1997 census to estimate the number of *all* equidae in the country and their sales, not just those on qualifying agricultural establishments. By including equine data estimated from enumerations of sixteen thousand randomly selected square-mile areas across the country and surveys of twenty thousand larger farms and commercial operations, along with the basic findings from the standard census, NASS calculated the total number of equidae at the start of 1998 to be 5,250,400 and a year later to be 5,317,400 (USDA 1999). If that 1.3 percent annual increase continued until 2003, there would be 5.6 million equidae by this survey model, still millions shy of the AHC count for that year.

American Veterinary Medical Association

The professional association for U.S. veterinarians conducts animal ownership surveys at half-decade inter-

vals and produces a demographics sourcebook to aid its members in making business and marketing decisions. The data for these reports come from a statistically representative sample chosen from an established panel of U.S. households that have agreed to participate in surveys of this nature (Clancy and Rowan 2003). The most recent survey, performed in 2001, found 1.7 percent of responding households reporting horse ownership, with an average of 2.9 horses per owning household. Using data of this sort for the various species, the AVMA can offer population-estimating formulas for veterinarians to use in calculating potential client pools in their communities. The AVMA's equine formula is therefore: divide the community population by 2.69 to get the number of households, then multiply the number of households by 0.05. The national proportion of horses to households was determined by this study.

Though it does provide a useful business tool, the AVMA's enumeration method is too many steps removed from an actual hooves-on-the-ground count to generate reliable population figures.

- *The survey goal was to characterize ownership patterns, not perform a true count of pet species in the United States.*
- *The survey focused on companion/recreational owners and may have underrepresented or excluded horses used for breeding, work, and competition.*
- *The respondent pool was initially skewed by the self-selection of participants, then narrowed further by selecting a sample representative of the entire U.S. population, not one representative of U.S. horse owners.* Horse ownership is a phenomenon associated with rural areas and smaller communities whose populations may not have been sufficiently represented in the AVMA sample for accurate equine data collection.

Applying the AVMA formula to the 2003 U.S. estimated human population produces an estimated 5,297,938 companion/recreational equidae. Extrapolating an “agricultural” equid population for 2003 by increasing USDA’s 2002 count another 1.3 percent yields 3,798,381. Some overlap probably occurs between the AVMA and the USDA respondent pools, but sampling procedures and criteria for inclusion for each are quite distinct, producing data from two essentially discrete groups of horse keepers. The total of these two estimated populations is 9,096,319, very close to AHC’s count of 9,222,847 for 2003. The AHC’s broader-ranging sampling method appears to have captured both companion/recreational and production owners for the most accurate and complete numeric snapshot of today’s equid population.

Wild Horses and Burros

None of the censuses cited above includes equidae roaming on federal lands or maintained in government holding facilities. This unowned population originated from domesticated horses and burros who escaped or were freed onto range lands, starting in the sixteenth century with the first Spanish explorers. The Atlantic barrier islands, from coastal Maryland down through the Georgia coast, have also harbored feral herds since the colonial era. Even under seemingly harsh conditions, these feral equidae reproduce quite successfully, with modern-day herds capable of doubling in size every five years, given the absence of natural predators in most of today’s ranges (BLM 2006). Until the 1960s free-ranging horses and burros were considered wildlife of sorts, fair game for public taking for taming, selling for pet food or slaughter, or killing to reduce grazing competition for domestic stock.

Since passage of the Wild and Free-Roaming Horse and Burro Act of 1971 and its implementation in 1973, the Department of the Interior’s Bureau of Land Management (BLM) has been responsible for overseeing herds on federal lands in ten Western states (Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, and Wyoming). The agency is charged with multipurpose management of vast federal holdings for recreation, logging, mining, grazing, and wildlife management, in addition to the equine oversight, and at the same time sustaining the health and productivity of public lands (BLM 2006).

Wild horse and burro populations are now held to population limits that will prevent overgrazing or other destruction of their range lands while still leaving adequate herd numbers for a healthy gene pool. Each management area has an upper population limit determined by available resources, and herds are subject to periodic culling to maintain optimum populations. Additionally, birth control measures are now being applied to wild horses to lower their reproduction rates and reduce the number of excess animals needing removal. The BLM (2006) disposes of excess horses and burros from federal lands as follows:

- “adopting” them out to private citizens with restrictions to assure adequate care and prevent their being sold to slaughter;
- maintaining them in holding facilities until adoption or in long-range pasturage if they are not adopted; and
- since December 2004 disposing of the unadoptable population through unrestricted sale, meaning that buyers can deal with the animals as they would after a private transaction, although challenges were subsequently made to this management change.

As of March 2006 the BLM (2006) population included:

- approximately thirty-two thousand horses and burros on public range lands, exceeding the optimum total population of twenty-eight thousand by four thousand and
- twenty-six thousand in short- and long-term holding facilities.

In fiscal year 2005, ending in September, 11,023 animals were removed from the Western ranges. By early 2006, 5,701 of them had been adopted out, continuing the stream of 208,000 BLM horses and burros that have been placed with private owners since 1973. The remainder left in BLM holding facilities were to be offered for adoption three times before being deemed unadoptable and made available for unrestricted sale. Until the December 2004 legislation, unadoptable horses were kept as government property for the remainder of their lives. The BLM’s 2005 budget for the Wild Horse and Burro Program was \$39.6 million, with \$20.1 million used to maintain gathered animals in short- and long-term holding facilities. The legislation allowing unrestricted sale was intended to eliminate the expense of lifetime care for the unadoptables.

Where it has jurisdiction over national seashores, the National Park Service (NPS) either removes feral horses there as non-native species or attempts to maintain barrier island horse populations at levels that do not harm the ecological balance. On Assateague Island, for instance, the NPS now uses contraceptive injections to reduce the Maryland herd’s reproduction rate to maintain a population of 150 adults (Kirkpatrick 2005). On the Virginia portion of Assateague, the Chincoteague Volunteer Fire Company conducts an annual July “pony penning” to cull that herd to the same target number (NPS 2003).

Horse herds on barrier islands farther down the coast have met with a patchwork of population-control measures as coastal development

has overrun their ranges, and awareness of their damage to the fragile barrier-island ecology has grown. Over the years some herds have been removed entirely from the islands, others have been fenced away from the new communities built on their former ranges (with only marginal success), and others still are managed by the NPS or private entities to maintain a viable presence on their historic ranges (Hause 2006). If the various target populations have been met and maintained, the current horse population on barrier islands along the Atlantic coast appears to number around a thousand, a far cry from the National Geographic Society's 1926 estimate of six thousand wild horses roaming the Outer Banks just from Currituck to Shackleford (Hause 2006).

Government agencies now manage most unowned horses roaming free on public lands. The BLM's 2005 fiscal year count of wild horses in ten Western states was 27,369; the number of wild burros ranging in five of those states totaled 4,391 (BLM 2005). With the East Coast barrier horses added in, approximately 33,000 free-roaming equidae are currently in the United States. Another 27,000 are living as wards of the state, so to speak, in holding facilities, for a total feral/once-feral population of 60,000.

“Invisible” Populations

As large as horses are, they do go undetected by government and association enumerators alike. An untold number of equidae live as pets or pensioners in places, such as semisuburban smallholdings, not normally associated with livestock keeping, and many urban centers have an equestrian presence, such as police horses, riding stables, and carriage operators, that exists outside the norm. Other equidae “hide” amid a menagerie

of critters on hobby farms or as work animals on secluded properties. Not all horse owners compete, register, join up, subscribe, or shop for horsey things and thus reveal their whereabouts for enumerators. If these “below the radar” animals equal just 1 percent of the known equine population of the country, that's another hundred thousand added to the true total.

Two more definable equine populations are most likely underreported because they are legally and/or culturally outside the American mainstream.

Horses on Indian Reservations

These horses throughout the country actually live in sovereign lands and thus are not directly subject to state or national regulation or oversight. Many Western tribes maintain large numbers of horses for stock work on their range lands and also because of deep cultural and ceremonial significance attached to the species. For the 2002 agricultural census, which did survey reservations, NASS performed a special enumeration of Native American farms/ranches and merged those results with full reservation data to produce “Appendix B,” detailing the agricultural characteristics of American Indian and Eskimo farm operations.

According to NASS, Native Americans on 12,174 properties producing \$1,000 or more in agricultural goods owned 115,464 horses in 2002 (USDA 2002). Yet because reservation horses are often handled as communal property rather than individually owned and because large herds on Plains and Western reservations are often managed as range animals, that enumeration may be very approximate. For instance, the NASS count given for horses on Indian-operated ranches in Washington State in 2002 was 4,018, yet that statewide figure is less than the 5,000 re-

ported by a newspaper writer in 2004 for the Yakima Indian Reservation alone (Palmer 2004). By BLM standards Washington State has no “wild” horses because they are not on BLM-managed federal lands, but the herds kept on the vast reservation acreages there and throughout the West and the Plains are certainly less clearly defined and probably more numerous than the NASS count suggests.

Amish Horses, Mules and Donkeys

These are canvassed for NASS enumerations, as long as they are on properties that meet the \$1,000-production standard. While the majority of the Amish in communities now spread across twenty-five states do remain in agricultural production to some degree, members are increasingly turning to carpentry, manufacturing, and other nonfarm work for their livelihoods (Milicia 2004), thus removing them from the NASS survey pool. With church tenants holding them separate from the “English” (non-Amish) world, Amish horse owners may not respond readily to agricultural censuses and are unlikely to have any presence at all in other forms of polling.

In lieu of reliable enumeration, the current number of Amish horses and mules can be estimated by applying the horse-to-human ratio that existed in pre-motorized America. In 1910, two years after the first Model T rolled onto the roads, there were 24,042,882 horses/mules and 92,228,496 people for a 1:3.8 ratio. Today's Amish population, 70 percent of which lives in Ohio, Pennsylvania, and Indiana, is estimated to number around 180,000 and is rapidly growing (Milicia 2004). If this statistical time travel has validity, there are at least 47,000 Amish horses and mules in the United States.

How Many U.S. Horses Are There?

Although current equine enumerations can be faulted for limitations in their focus, methodology, and results, their data, considered cumulatively, point to the accuracy of the American Horse Council estimate. Projecting the AHCF horse population figure for 2003 two years into the future (1.3 percent growth in '04 and '05 = 9,464,200), and adding overlooked ponies and asses (200,000), the country's feral equidae (60,000) and the "invisible" populations (200,000) produce a figure of 9,924,000 for the 2006 U.S. equine population.

The Future

With institution of a National Animal Identification System by 2010, all uncertainty should be removed from the equine-counting business. In the planning stages as of 2006, this USDA initiative will permit tracking of all U.S. livestock from first breath to last for the sake of disease control and bioterrorism protection. Each animal will be identified through a standard coding system indicating place of origin, along with an individual identifier. Microchipping is the likely technology that will be applied to equidae, reporting all horses, ponies, and asses to a single database where population figures will be actual hooves-on-the-ground numbers, not statistical extrapolations.

What Does the U.S. Equine Population Look Like?

In a random encounter with a member of the equine species in the United States, this is the most likely sighting throughout much of the country: a riding horse, standing about fifteen hands (sixty inches measured at the shoulders), either female (a mare) or neutered male (a gelding)—but certainly not a stallion—probably sorrel, tending toward a stocky build and ranging

in age between five and twenty. The random animal's breeding, usually discernible to experienced horsepeople by its physical characteristics, or conformation, would most likely be quarter horse, the country's preponderant type by all measures. The second most likely encounter would be with a somewhat more streamlined-looking horse in a "plain brown wrapper"—a sixteen-hand bay or dark brown Thoroughbred type, with perhaps a touch of white on face and foot.

But in the United States, diversity rules the equine as well as the human population, so that random sighting might instead be of a four-foot-tall critter with a white and brown coat, very long ears, a bray, not a neigh, and registration papers from an organization called the American Council of Spotted Asses. Or the sighting could be of a large, high-headed black horse with feathery legs and flowing mane hitched to a cart: a Friesian, one of many imported sorts increasingly brought into the country by horsepeople seeking something more exotic than the prevailing breeds for activities outside the norm. The United States unquestionably has the most variegated collection of equidae on earth. The American Horse Council's *Horse Industry Directory* listed 106 registries for horses, ponies, or asses (AHC 2003). Some are multiples drawing registrations from the same pool of animals, but an equal number of smaller organizations probably missed out on inclusion in the directory.

Breed Registries

Of the hundred or so U.S. registries, most record bloodlines to maintain a "pure" genetic pool by requiring that newly registered animals be the offspring of two parents who are already in the studbook. The original purpose of recording livestock bloodlines and maintaining them generation after generation was to give breeders information with

which they could make mating decisions that would improve their animals' production and performance. Today DNA testing is required by the more rigorous organizations to assure authenticity of parentage. The Thoroughbred studbook (The Jockey Club), started in England in the early seventeenth century, is the oldest and most carefully maintained of any, closely guarding the bloodlines and racing data of the breed. Other studbooks are "open," meaning that occasional outcrossing is allowed with a few other specified breeds. The quarter horse studbook, for instance, has permitted matings with Thoroughbreds, among others, particularly in producing racing stock. Crossbred registries either specify one type of mating pattern (for instance, Andalusian + quarter horse = Azteca horse, a registrable "breed") or register any type of offspring from the specified purebred parent (for example, the half-Arabian registry).

In addition to or in lieu of recording by bloodline, breeds are now defined by other parameters. Almost a quarter of the registries listed in the AHC directory accept horses on the basis of physical appearance, usually coloration, such as palomino and buckskin, or marking patterns, such as Appaloosas and pintos, but there's even a registry for curly-coated horses. Pony and miniature registries restrict entry by height as well as parentage. Gaited horses who move in a variety of less common footfall patterns, with names like walker, paso, singlefooter, mangalarga, and foxtrotter, belong to a subset of registries that have increased in popularity along with recreational horse use because they produce a bounce-free ride. Sports and activities, such as flat and harness racing and performance/sport horses bred for eventing and jumping, are the organizing principle for some of the oldest and some of the newest registries. Finally, historically significant and geographically distinct

tive horses get their own associations, including Spanish mustangs, Icelandic horses, and a recreated medieval charger going under the name Spanish-Norman horse. In the modern proliferation of equine registries, record-keeping more often has to do with membership

services and show-ring results than with actual breed improvement.

Registry Tallies

Tracking the tallies of annual registrations entered into the nine major U.S. registries is one way of

profiling the national equine population. Viewing registration trends over time provides insights into the waxing and waning of particular horse types and equestrian interests. In both 2006 and throughout the past decades, American Quarter Horse Association (AQHA) reg-

Table 2
Annual New Registrations for the
Nine Largest U.S. Horse Breed Registries

Year	Quarter Horse	Paint	Thoroughbred	Arabian	Appaloosa	Standard-bred	Tennessee Walking Horse	Saddle-bred	Morgan
1977	94,445	5,565	27,551	18,797	19,316	13,929	6,212	3,855	3,700
1983	168,346	14,626	43,787	18,391	22,184	20,298	7,561	2,787	5,317
1985	157,360	12,692	46,635	30,004	16,189	18,384	7,812	4,351	4,538
1988	128,352	14,929	45,256	24,578	12,317	17,393	8,400	3,811	3,526
1989	NA	14,930	44,250	21,723	10,746	16,896	8,850	3,708	3,732
1990*	115,000	15,000	40,333	13,000	10,000	15,000	8,000	3,700	3,400
1991	101,390	18,648	38,149	12,993	9,902	13,617	8,092	3,570	3,392
1992	102,843	22,396	35,050	12,544	10,033	13,029	8,123	3,048	2,408
1993	104,876	24,220	33,820	12,349	9,079	12,086	7,510	3,353	3,120
1994	106,017	27,549	32,117	12,962	10,104	12,204	7,856	3,192	3,038
1995	107,332	34,846	31,882	12,398	10,903	10,918	9,450	2,300	3,063
1996	108,604	41,491	32,242	11,645	10,067	11,589	10,991	2,142	3,053
1997	110,714	50,440	32,115	11,594	11,030	11,336	12,256	3,213	3,415
1998	125,308	55,356	32,944	11,320	9,100	10,881	13,250	2,952	3,100
1999	135,528	62,186	33,838	11,501	10,099	11,183	13,375	2,705	3,220
2000	145,936	62,511	34,719	9,660	10,906	11,281	14,387	2,908	3,654
2001	150,956	56,869	34,705	9,266	9,322	11,261	14,479	3,050	3,475
2002	156,199	60,000	32,941	9,394	9,092	11,699	14,865	2,931	3,976
2003	160,980	51,000	33,671	9,400	9,200	11,050	14,978	2,578	2,938
2004**	162,590	52,000	34,070	9,000	9,200	11,500	15,000	3,200	3,500
2005**	165,000	44,000	34,070	8,000	7,000	11,000	13,500	3,000	3,400

*Approximate, except for Thoroughbred.

**Registry estimates.

Sources: Thoroughbred registrations for the U.S. only: The Jockey Club (2006); other breeds, years 1992–2001: AHC (2003); remaining years: EQUUS (1989, 1990, 1991, 1994, 1995, 1997, 1999, 2000, 2004).

istrations exceeded all others by tens of thousands (Tables 2 and 3).

The American Paint Horse Association (APHA), formed in 1965 to register quarter horse types with more white coat markings than are permitted for AQHA registration, is now the second-largest breed registry. During the past fifteen years, registered quarter horses and paints combined made up almost three-quarters of all registrations in that nine-breed cohort. It is safe to say that the multipurpose, American-made breed derived from bloodlines that excelled in sprint racing during colonial days (hence the “quarter mile” designation), then seasoned as stock horses on the Western ranges represents the preferred using type for today’s American owner. Quarter horses are just what the recreational market wants: medium in size, comparatively easy-going and low maintenance, and capable of performing a variety of activities, particularly as the registry has allowed outcrossing to create the more streamlined physiques favored in the “English” disciplines (an equestrian style based on a flat saddle that includes hunters, jumpers, dressage, and polo, and “saddleseat” style riding) to the original, stockier cattle-horse type.

Breed Numbers

Quarter horse/paint dominance is indisputable, but the diverse U.S. equine population cannot be characterized by registration numbers alone. Despite the opportunities to “paper” just about any variety of equid, a portion of the population—probably a significant one—was never registered, or its registrations have gotten lost with changes of ownership. Membership and registration fees are expensive, and the majority of Americans are involved in horse activities that don’t require registry/association affiliation, thus papers are not a compelling need throughout the horse-owning population. The AHC economic impact

study, supported largely by the Thoroughbred and quarter horse associations, characterized the makeup of the 2003 U.S. horse population using only three broad profiles: Thoroughbred, quarter horse, and “other,” which included other registered and nonregistered horses. The survey respondents reported ownership for 2003 in the following proportions (AHC 2005):

- Thoroughbred—14 percent, or 1,291,807
- Quarter horse—35.6 percent, or 3,288,302
- Other horses—50.3 percent, or 4,642,739

Identical 50–50 proportions for the combined Thoroughbred-quarter horse cohort and the other-horse group were also found by the only scientific survey yet done of the U.S. horse population and its manage-

ment, conducted in 1998 for the USDA’s National Animal Health Monitoring System (NAHMS) (USDA 1998). However, the 1998 sample of owners, selected from twenty-eight states accounting for 78 percent of the national equine population enumerated by NASS for 1992, reported an even greater concentration of quarter horses—40 percent—than the more recent AHC study. The NAHMS survey included all equidae found on U.S. properties and detailed the “other horses” that were lumped together in the AHC study. Table 4 shows the NAHMS-determined composition of the U.S. equine population by type and breed as percentages of the total and as current head counts, based on a 2005 population of ten million.

Comparison of Tables 3 and 4 shows little agreement between

Table 3
Fifteen-Year Total Registrations for
Nine Major U.S. Registries, 1991–2005

Association Registry	Total	Percentage of Nine-Breed Total
American Quarter Horse Association	2,844,273	59.6
American Paint Horse Association	663,512	13.9
The Jockey Club (Thoroughbreds)	506,333	10.6
U.S. Trotting Association (Standardbreds)	174,634	3.7
Tenn. Walking Horse Breeders’ and Exhibitors’ Association	178,112	3.7
Arabian Horse Registry of America	164,026	3.4
Appaloosa Horse Club	145,037	3.0
American Morgan Horse Association	48,752	1.0
American Saddlebred Horse Association	44,142	0.9
Total	4,768,821	

Source: Calculations from Table 2.

the population percentages in the two lists, but they diverge most strikingly for quarter horses and paints. The NAHMS quarter horse percentage derived from owner data was 20 percentage points lower than the registry's share of the nine-breed total; for paints the farm count was 5.4 percent, while the registry proportion equaled 13.4. Only the Standardbred was close to the same percentage on both lists, while the remaining specified breeds were a little to a lot higher on the farm than the registry numbers would indicate.

One explanation for this disparity is the methodologies. Registries

attempt to keep an exact count of each year's new entries; the NAHMS percentages derived from a sample consisting of fewer than three thousand respondents taken from little more than half the states. Yet a more significant reason for the differences is probably timing. Since the 1998 survey was conducted, AQHA and APHA have experienced strong growth, while most of the remaining registries have nudged upward very little, remained steady, or declined.

The three windows onto U.S. breed numbers seem impossibly contradictory when actual population figures are compared. Taken at

face value, the breed populations produced by NAHMS percentages and the two breed counts specified in the AHC study cannot be reconciled with reality. Even if every single quarter horse and Thoroughbred registered in the past fifteen years were alive today, there would still have to be an additional 643,577 surviving older registered quarter horses and another 394,327 aged Thoroughbreds to fulfill the NAHMS percentage allotments. The overages are flipped using AHC calculations: 444,000 for quarter horses and 785,400 for Thoroughbreds. All of the other breed counts derived from NAHMS percentages exceed the cumulative registry figures as well.

Horses do not really have to be immortal to make these numbers work. The more realistic explanation for the breed population inflation reflected in survey results is recreational horse owners' disregard for the formal papering process. When questioned, as they were on both surveys, about how many of each breed they own, they usually respond with the animals' known or suspected origins, not strictly with their registration status. Given this tendency to report by type, not registry affiliation, the U.S. horse population probably has a much greater proportion of unregistered horses than the 9 percent designated "other, not registered" in the NAHMS results. That particular group probably includes primarily horses, often called "grade," who are of unknown origin and no discernible type. All others are probably enumerated in whatever standard breed category they most closely resemble.

Special Populations

The NAHMS study was uncommonly inclusive and provides a useful glimpse of less visible equidae found on U.S. equestrian properties. The nonhorse group, including ponies, miniature horses, and asses, represented little over 10

Table 4
U.S. Breed Distribution Using Percentages Determined by USDA/National Animal Health Monitoring System, 1998*

Type/Breed	Percentage of Population	Approximate Population
Donkeys/burros	2.7	270,000
Mules	2.0	200,000
Miniature horses	1.6	160,000
Ponies	5.4	540,000
Horses	88.3	8,830,000
Quarter horse	39.5	3,487,850
Thoroughbred	10.2	900,600
Other, registered	9.1	803,530
Other, not registered	9.0	794,700
Arabian	7.8	688,740
Appaloosa	5.9	520,970
Paint	5.4	476,820
Draft	4.8	423,840
Tenn. Walking Horse	4.8	423,840
Standardbred	3.5	309,050

*Based on a current total equine population of ten million.

Source: USDA (1998)

percent of the equine population on the surveyed properties in 1998. Miniature horses, which constituted the smallest fraction at 1.6 percent, are clearly the growth group in this niche. Between 1992 and 2001, the American Miniature Horse Association recorded 83,361 new registrations, with the trajectory being upward throughout the decade (AHC 2003). Even though they were the smallest population recorded by NAHMS in 1998, annual registrations of these pet equidae now exceed those for Arabians, Appaloosas, saddlebreds, and Morgans.

Age Characteristics

Equidae are quite long-lived compared to livestock and small-pet species. They commonly live into their twenties, even into their forties and beyond. According to the Guinness Book of World Records, the oldest documented horse was sixty-two, the oldest pony, fifty-five (Equine World Records 2006). Health-care advances and ownership attitudes have combined to extend the average life span of recreational/companion equidae. In a 2000 special report on the aged equine population, EQUUS magazine reported that, according to their registries, 52 percent of Arabians and 57 percent of Morgans were over fifteen years of age, compared to 30 percent of quarter horses, 25 percent of saddlebreds, and 15 percent of paint horses and Standardbreds (EQUUS 2000). In general, breeds registering an increasing number of animals in the last five to ten years would have a younger population than would those with declining registrations in the most recent decade.

The Standardbred youthfulness does not reflect recent breed growth, however. Instead, it is the consequence of the relatively short productive life of racehorses. Standardbreds tend to race longer than Thoroughbreds, but even then a trotter or pacer still competing at age twelve is considered an old-timer.

Unless the retired Standardbred is used for breeding—not an option for geldings—he or she must be converted to pleasure or carriage use or disposed of. As riding animals, retired Thoroughbred runners may have more opportunities for second careers as performers in other sports or as recreational animals, but temperamentally they are not always suitable for pleasure mounts.

The NAHMS survey excluded race-track populations from its analysis of age patterns in 1998. At that time the survey group fell into the following age ranges (USDA 1998):

- 58.8 percent were five to twenty years of age, the horse's average working life;
- 23 percent were eighteen months to five years, the maturing and training period;
- 8.9 percent were six to eighteen months, horse adolescence, so to speak;
- 7.8 percent were twenty or more years old, generally retirement time;
- 1.3 percent were under six months, the period foals are normally at their mothers' side; and
- 0.5 percent were of unknown age.

When applied to a current equine population of ten million, these percentages would produce the following age profile:

- 8,180,000 of training and using age;
- 1,020,000 under using age; and
- 780,000 over age twenty and likely in retirement.

The different equid types in the 1998 sample had some quite distinctive age patterns. Horses, making up nearly 90 percent of the sample, were right on the norm in all age groups. Ponies were the most aged, with twice the percentage (15.2) of over-twenties and half the percentage (0.6) of sucklings in their numbers, though they were close to the average in the five-to-twenty age group. Mules also lacked an up-and-coming population, with

only 13.8 percent under age five, compared to the 33.2 percent of the total sample and an exceptionally high percentage—81.7—in the five-to-twenty group and only 4.3 percent over age twenty. Miniature horses and donkeys were well outside the age norms in the opposite direction (though the small sample sizes leave room for larger standard errors): nearly half of each group was in the eighteen-month to five-year group, and they exceeded the norms for the two younger groups as well; their percentages in the over-20 group were markedly less than the norm (2.7 for minis; 0.9 for donkeys).

Today's equine age profile no doubt follows the same basic bell curve, but the percentages are likely to have undergone some adjustments. Except for quarter horses and paints, production in the larger American breeds has been pretty flat or in decline for the past decade or longer. That would indicate an overall aging of the population. Yet the loss of business in established breeds may simply mean that American tastes/interests have splintered off in many new directions, where smaller breeds registering a few hundred horses annually and importation of "exotics" from other countries are taking up the production slack. Another possibility in the slowing of established registries is an increase in "backyard" cross-breeding. Pleasure owners have a propensity to grow one or two of their own from a favorite companion mare. The motive usually has more to do with sentiment than producing to a breed standard, and registrations would not be sought across the board.

The Future

As of mid-2006, NAHMS was in the process of preparing to publish a 2005 version of its horse management and health survey. It will be interesting to see how the current from-the-farm population profiles differ from the 1998 findings in

light of changing production patterns of registered stock during the intervening years, shifts in minor populations, particularly of miniature horses, and the aging—or not—of U.S. equidae.

Where Do U.S. Horses Live?

Ranking states by the numbers of horses residing within their boundaries is the usual way of examining equine population patterns and their significance. Both the AHC's national economic impact study and numerous state-generated economic valuations use raw horse numbers as primary data on which all other calculations are based. It makes sense that the more horses who are maintained within a state, the more economic activity will take place around them. Reckoned by head count only (AHCF 2005), the top ten horsiest places in the country are

1. Texas	978,822 horses
2. California	698,345
3. Florida	500,124
4. Oklahoma	326,134
5. Kentucky	320,173
6. Ohio	306,898
7. Missouri	281,255
8. North Carolina	256,269
9. Pennsylvania	255,763
10. Colorado	255,503

The USDA's equine-specific census of 1998 and 1999 arrived at a rather different state ranking based on its population estimates (USDA 1999). None of the state figures below is in any way comparable to the AHC's numbers (see the earlier discussion concerning methodologies):

1. Texas	600,000
2. California	240,000
3. Tennessee	190,000
4. Florida	170,000
4. Pennsylvania	170,000
4. Oklahoma	170,000
5. Ohio	160,000
6. Minnesota	155,000
6. New York	155,000
6. Washington	155,000

The NAHMS study, another USDA effort but concerned not so much with enumeration as with surveying horse management practices for health-monitoring purposes, reported 1998 population patterns by region (USDA 1998):

- Ten southern states, including Texas, Florida, Oklahoma, and Kentucky, accounted for 40 percent of the surveyed equine population.
- Seven Western states, including California and Colorado, accounted for 26 percent.
- Seven North-Central states, including Missouri, accounted for 20 percent.
- Four Northeastern states, including Ohio and Pennsylvania, accounted for 13 percent.

Any useful assessment of location's effects on the lives horses lead has to take into account more than raw population numbers. The very largest states in terms of land area are going to hold more horses than the medium to small states, but are horses also a large presence to the human population in the very large state and of little significance in the small state? The state tallies by themselves don't say. A more meaningful approach is to add two more factors to the analysis: how many horses and how many people are on how much land? Viewed through this multifocal lens, the U.S. horse population looks quite different (Table 5).

The top ten horsiest states in terms of number of horses per square mile of land area are

1. Maryland	15.6 per square mile of land
2. New Jersey	11.2
3. Connecticut	10.7
4. Florida	9.3
5. Kentucky	8.0
6. Ohio	7.5
7. Virginia	6.0
8. Indiana	5.7
8. Pennsylvania	5.7
9. North Carolina	5.3

Someone driving through Maryland would be twice as likely to encounter horses as would someone traveling through Kentucky, and New Jersey and Connecticut residents live with readier geographical access to horses than do residents of Texas and California.

The human-to-horse ratio defines the states' horsiness in yet another way. The ten locales with the fewest number of people for every horse are

1. Wyoming	5.1 people per horse
2. South Dakota	6.4
3. Montana	7.1
4. Idaho	8.8
5. North Dakota	10.7
6. Oklahoma	10.8
7. Nebraska	11.6
8. New Mexico	12.9
8. Kentucky	12.9
9. Iowa	14.8

Residents in these ten states are far more likely to have direct contact with horses than are people in more populous areas. Kentucky is the anomaly in the listing for not being a wide-open-spaces Plains or Western state. Human-to-horse ratio is better proof than the head count alone that a state is truly a horsey area. In all the other low-ratio states, both the human and equine populations are sparse. Even then, the two species knocking around in an expansive land area have closer associations than do tiny Rhode Island's 308 people for every one horse.

New England, home of less than 2 percent of the national horse population is, far and away, the least horsey area in the forty-eight contiguous states. Expanding the region to coincide with the U.S. Census Bureau's Northeast designation by including much horsier New York and Pennsylvania and the little-bit-horsier New Jersey improves the horse presence to 8 percent of the national total. At the same time, this region contains 19 percent of the human population (USCB 2000) and includes the nation's

**Table 5
State Horse Population Characteristics**

	Horse Population*	Horses/ Square Mile	Number of People/ Horse***
United States	9,222,847	2.7**	31.8
Northeast			
Maine	37,854	1.2	34.8
Massachusetts	37,529	4.8	171.0
Rhode Island	3,509	3.4	308.0
Vermont	24,540	2.7	25.3
New Hampshire	14,681	1.6	88.5
Connecticut	51,968	10.7	67.4
New York	201,906	4.3	95.2
New Jersey	82,982	11.2	104.8
Pennsylvania	255,763	5.7	48.5
Southern Region			
Delaware	11,083	5.7	74.9
Maryland	152,930	15.6	36.3
West Virginia	89,880	3.7	20.2
Virginia	239,102	6.0	31.2
North Carolina	256,269	5.3	33.3
South Carolina	94,773	3.1	44.3
Georgia	179,512	3.1	49.2
Florida	500,124	9.3	34.8
Kentucky	320,173	8.0	12.9
Tennessee	206,668	5.0	28.6
Alabama	148,152	2.9	30.6
Mississippi	113,063	2.4	25.7
Louisiana	164,305	3.8	27.5
Texas	978,822	3.7	23.0
Arkansas	168,014	3.2	16.4
Oklahoma	326,134	4.7	10.8
Midwest Region			
Ohio	306,898	7.5	37.3
Michigan	234,477	4.1	43.1
Indiana	202,986	5.7	30.7
Illinois	192,524	3.5	66.0
Wisconsin	178,636	3.3	30.8
Minnesota	182,229	2.3	28.0
Missouri	281,255	4.1	20.5
North Dakota	59,391	0.9	10.7
South Dakota	120,878	1.6	6.4
Iowa	199,220	3.6	14.8
Nebraska	150,891	2.0	11.6
Kansas	178,651	2.2	15.3
Western Region			
New Mexico	147,181	1.2	12.9
Arizona	177,124	1.6	32.4
Nevada	51,619	0.5	42.1
Colorado	255,503	2.5	18.0
Utah	120,183	1.5	19.9
Idaho	158,458	1.9	8.8
Montana	129,997	0.9	7.1
Wyoming	99,257	1.0	5.1
California	698,345	4.5	51.4
Oregon	167,928	1.7	21.4
Washington	249,964	3.8	24.8
Alaska	11,449	0.0****	57.2
Hawaii	8,037	1.3	157.0

*AHCF (2005).

**Land area for forty-eight contiguous states.

***USCB (2004).

****Fewer than 0.1 percent

four most densely populated states: New Jersey, at 1,134.4 people per square mile; Rhode Island with 1,003.2; Massachusetts with 809.8; and Connecticut with 702.9. New York is sixth and Pennsylvania tenth in population density. The conclusion seems unavoidable: a reverse correlation exists between an area's human population density and its equine population density. The cause, too, seems obvious: more human inhabitants per square mile mean less physical space for keeping large animals and for the services, such as hay production, needed to sustain them. In addition, higher population density translates to higher living costs, making horse hobbies less affordable.

As general principles, those conclusions are true, but reality does not fall tidily into the either-people-or-horses dichotomy. Maine, for instance, has the largest land area of all the New England states and is, in fact, almost the same size as South Carolina, with less than a third of that state's population. Even with plenty of room for lots of horses, this northernmost state has only 1.2 horses per square mile and just one for every 35 people, a lower than middling placement in the national ratio rankings. New Hampshire also has the physical space for horses, but its per-square-mile horse population is almost as low as Maine's, and the human-horse ratio, at 88.5:1, is one of the country's highest. Yet neighboring Vermont, sharing many of New Hampshire's characteristics except for its spillover population from Boston, is a much horsier place, still below the national average with only 2.7 horses per square mile but with a better human-horse ratio. The small state of Connecticut and very small state of New Jersey break the many humans/fewer horses rule in the opposite direction by fitting proportionately large horse populations into very suburbanized landscapes.

Culture and Climate

Physical space in a state or region is a major equine population determiner, but human demand decides the density rate. Maine, with its smallholdings of poor agricultural land and New England rectitude, has a comparatively short history with horses as work animals and as recreational presences. Its climate does not invite year-round horse enjoyment or make horse keeping an easy, inexpensive venture. Mainers would apparently rather be sailing or snowshoeing than horseback riding. Vermont's distinction as the birthplace of the Morgan breed and continued home of its registry probably contributes to that state's greater equestrian involvement. Marylanders have no demographic reasons for their higher-than-average horse interest. They live in the most densely populated state outside the Northeast, ranking fifth in the country, with 541.9 people per square mile. With less than a third the land area of Maine, Maryland has four times its horse population and the nation's highest horse density. The small state's more congenial climate and better soil are factors, but its historical associations with horse sports back to the colonial era have encouraged commercial horse production and professional operations, and well-paid workers in two major metropolitan areas have the disposable income to spend on horse enjoyment.

A warm climate apparently has greater appeal to horse owners overall than do large incomes. Horses themselves adapt quite well to cold climates and are probably healthier in the north, where there's less opportunity for biting insects to spread several serious equine diseases and where heat-associated conditions, infections, and skin disorders are less common. But horses cluster where people want to use/enjoy them, primarily in outdoor activities, and the

greatest concentration of the U.S. equine population—41 percent—is in the Southern region (AHCF 2005), where only 36 percent of the U.S. population lives (USCB 2000). In twelve of the sixteen Southern states, the median household income in 1999 was a little—or a lot—lower than the national median (USCB 2000). Along with its warmth, the Southern region is historically horse country from its long and, in some areas, continuing dependence on live horsepower in agricultural and ranch work and its horse-sport-and-socializing legacy.

The eleven Pacific Coast and Mountain states in the Western region and the twelve states in the Midwest region (as defined by USCB, not by the NAHMS study) are closely matched in horse numbers, with 25 and 26 percent, respectively, as well as human population, with 22 and 23 percent, respectively. In the northern tier of states, weather may put a damper on horse enjoyment, but both regions offer boundless space for equestrian activities, and horses have always been an essential element in Western and Midwestern work and culture. In the states in these two regions with the lowest human-horse ratios, the median household incomes in 1999 were also below the national average (USCB 2000). As long as an area has lots of open space, horses are not the luxury items that they are often perceived to be. In fact, a state's median income appears to be a poor predictor of horsiness, given the fact that New Jersey, Connecticut, Massachusetts, and New Hampshire had among the highest median household incomes in the country in 1999 (USCB 2000) and only a small fraction of its horses.

Breeds by Region

Regional breed differences reported in the NAHMS study (USDA 1998) reflect the use patterns and equestrian preferences characteristic of each area:

- Quarter horses were the dominant breed everywhere except the Northeast, where they represented 24 percent of the population, 16 percent less than the norm. If the survey had not included Ohio in this region, the proportion would have been even less.
- Draft breeds made up only 1 and 2 percent of the populations in the Southern and Western regions, respectively, but accounted for 11 percent in the Northeast and 12 percent in the Central region.
- Standardbreds had a negligible presence in the West (0.9 percent) and the South (2.1 percent), but approached 10 percent in the Northeast and 6 percent in the Central region. The inclusion of Ohio as a Northeastern state has distorted the results, as the Standardbred registry is located in Columbus, and the breed has more of a following in the Midwest.
- Thoroughbreds comprised more of the Southern horse population than elsewhere (14.2 percent) and had the smallest presence in the Central states (4.3 percent).
- As could be expected, Tennessee Walking Horses were found in greatest concentration in the Southern region (8.2 percent of the population there), but their second strongest showing was in the Northeast, accounting for 4.3 percent of that area's population.
- Arabians made up about 10 percent of the horse population in the Northeast, Western, and Central regions, but only 4.5 percent in the South.
- Appaloosas were consistent throughout, ranging from 5 to 7 percent.
- Paints had their greatest concentration in the Northeast, at 8.8 percent, while they accounted for around 5 percent of the rest of the regions.

- As for the nonhorse populations, there were fewer ponies but more miniature horses in the Southern region than there were elsewhere in the country. Mules had the smallest presence in the Northeast and the largest in the West, and donkeys/burros made up 4 percent of Southern equidae but only 1.4 percent of the Western population.

Wild horses and the “invisible” populations are particularly tied to their locales. Table 6 shows the top locations for BLM, reservation, and Amish horses, with population figures where available. In their geographical niches, they are protected from mainstream assimilation and influence.

Where Do U.S. Horses Originate?

Despite economic- and tax-related slumps—and downright slides in some of the major breed registrations starting about twenty years ago—the U.S. horse population has expanded steadily overall since the mid-twentieth century. As some big bubbles burst, particularly for Arabians and Appaloosas, and as racehorse production reversed, particularly for Standardbreds (Table 2), the small and medium breeds just kept on registering babies at the usual rate and sometimes at a little better than that. There was still that host of recreational owners and its every-now-and-then production pattern. The U.S. market has had plenty of horses to go around since the 1960s. Of that number, importation from other countries accounts for only a tiny fraction.

In the past decade, only 19,541 live horses classified as purebred breeding animals, divided about equally between mares and stallions, have come into the country (USDA 2006a). (The remaining 300,000 or so live horses imported during that same period appear to have been brought into the country

to go directly to slaughter, although the “nonpurebred” division could include performance horses not intended for breeding [USDA 2006a; FAO 2006].) Instead of shopping elsewhere, the nation’s horsemen grow their own, comparatively few of them on massive farms or ranches producing sometimes more than a hundred foals annually, many more on moderate-size operations with a dozen or two broodmares, and, as discussed earlier, a great many on hobby properties producing occasional foals for personal satisfaction.

Amateur Involvement

Size factors into the high level of amateur involvement in U.S. horse production. In European countries breeding is generally left to the professionals, often with a national standard and performance evaluation to ensure a quality product for specific uses. In the United States, the national tendency toward independence/self-reliance, combined with plenty of rural and semirural land, allows practically anyone with the urge to do so to become a horse breeder. Perusal of reader profiles for four of the country’s largest general interest, all-breeds horse publications supports that assertion:

- 39 percent of *EQUUS*’s 149,647 subscribers own one or more broodmares (EquiSearch.com 2006).
- Almost half of *Horse & Rider*’s 169,077 subscribers report owning at least one broodmare (EquiSearch.com 2006).
- One-quarter of *Practical Horseman*’s 78,224 readers own one or more broodmares (EquiSearch.com 2006).
- One-quarter of *Western Horseman*’s 181,764 horse-owning readers uses horses for breeding, whether professionally or as a hobby not specified (*Western Horseman* 2006).

Commercial Producers

The AHC Economic Impact Study examined breeding in only the racing and showing sectors, and then only for its financial implications. Of the country’s approximately eight hundred fifty thousand Thoroughbreds in the racing industry, about half were in training/competition and the other half in the breeding sector, including mature producers, their immature offspring, and mares and stallions returning from the track to become breeding stock. In show horse production, the division between competitors and breeders was not at all even: more than two million were competing, while a third that many were producing new show stock (AHCF 2005). Horses bred to race have a much shorter competitive life than do most show and competition horses, so production turnaround has to be quicker to keep up a stream of starter horses. Speed over short distances is not enhanced by age, so successful runners are usually at their peak before age five. In other competitive disciplines requiring schooling in behaviors more “sophisticated” than all-out running, age four or five is often the earliest starting point in show careers.

The NAHMS horse management study assessed the prevalence of professional or semiprofessional horse breeders among all equine operations, but the percentage may well have changed in the intervening years. Of all sectors of the horse industry, larger-scale breeders not backed by financial reserves from other sources are most susceptible to economic downturns and financial setbacks. Breeders’ production decisions take place at least two years, and usually longer, before sales can bring in enough cash to cover production costs. Equine gestation lasts eleven months, and the foal is usually four to six months old at weaning. Occasional weanling sales are made, but in the racehorse

Table 6
Primary Locations of Three Special Equine Populations
and Population Numbers, Where Available

Bureau of Land Management Horses		Burros		Reservation Horses		Amish Horses (top county)
Nevada	13,251	Arizona	1,542	Oklahoma	17,826	Ohio (Holmes)
Wyoming	3,991	Nevada	1,464	Arizona	15,598	Indiana (LaGrange)
California	3,079	California	1,228	South Dakota	10,695	Pennsylvania (Lancaster)
Oregon	2,670	Utah	142	Montana	8,230	Maryland (St. Mary's)
Utah	2,420	Oregon	15	Texas	6,938	Communities in 20+/- other states

Sources: BLM (2005); USDA (2002); Milicia (2004).

world, yearlings are the first marketable commodity. In recreational sales buyers generally look for a little or a lot of training put into an animal who can perform satisfactorily in the desired activity. Training does not begin until the youngster is at least two years of age, and basic to intermediate training for some disciplines can take years. If the market shrinks in the interim between the mating and the age at which the offspring can be sold, the “product” continues to need expensive feed, shelter, and care without much prospect for recouping the expenses, let alone making enough to cover capital expenses. Even when production is cut back or stopped in response to current market pressures, the foals conceived just before the decision will still be born and still need raising. During the shutdown, maintenance or disposal of the production “machinery”—mares and stallions valuable for their pedigrees, and often for emotional reasons as well—poses a further difficulty for strapped breeders. When financial times and the horse market improve, production is equally slow to rebound. Horse reproduction, maturation, and training to usefulness take no less than three years, and there is no way around the resulting lag time

in the response to both oversupply and undersupply. In the former situation, the horses are likely to be caught in the squeeze when they cannot be sold, and bills for their care continue to mount.

Production Trends

At the time of the NAHMS survey, almost ten years ago, horse production was beginning to regain some momentum after the 1980s bust, which resulted from a combination of unfavorable tax changes, recession in the oil industry and the U.S. economy, and deflation of hyped markets for some fancy show stock (Kilby 1989). The survey identified 5.2 percent of the sampled operations with breeding as their primary function, the second-smallest sector after boarding/training stables (USDA 1998). At the same time, the horses on these operations made up 14.8 percent of the total, for a higher-than-average per-farm count. As an indicator of U.S. breeding activity, the age profile for U.S. equidae produced by NAHMS raises some questions when examined in light of breed registry figures. Using eight million as a generous estimated national equine population

for 1998, the under-six-months group (1.3 percent of the total) would include 104,000 foals on the ground during the polling. Yet the total new registrations (264,211) recorded by just nine registries for that year was more than 2.5 times the number suggested by the NAHMS results.

One explanation for the disparity in foal production figures is the survey procedure, which gathered data through phone interviews between March 16 and April 10, 1998. Although many commercial breeders aim to produce foals in the first quarter of the year for competitive advantage in juvenile races and futurity competitions, May is the peak month for U.S. horse births, which then trail off in June and continue at a low rate into early fall. But even doubling the percentage as compensation still does not add up to the registration indicators of breeding activity in this country. Taking the major breeds' 1998 total and adding a conservative hundred thousand more for small-breed registrations and the unregistered foals produced in 1998 indicates a 4.6 percent reproduction rate for that year. When applied to the 2003 population (9.2 million), that rate would indicate a foal crop of 423,200. The known registrations

with the nine major breeds was 265,795, leaving a remainder of 157,405, which would have to be accounted for through unregistered offspring and those entered into smaller studbooks. That remainder may be an inflated version of the production reality for the year, but, clearly, the U.S. foal crop has been closer to 4 percent annually than to 1.3 percent of the total population.

The gender makeup on NAHMS-surveyed equine operations for 1998 (Table 7) shows some interesting differences among the several populations and again raises questions about its portrayal of U.S. horse-reproduction activity.

First, the questions. If 10.6 percent of the surveyed population were pregnant mares (754,720 of an estimated horse population of 7.12 million that year), the outcome would be a virtual population explosion that year. The live foal rate in bred domesticated mares is not 100 percent by any means, but it is no longer the dismal 50 percent posited in the prereproductive technology era (Loch and Massey 2006), so there is no way that many pregnant mares could have produced the likely number of foals born, starting with the 264,000 registered in the nine breeds. That late in their gestations, more than 755,000 pregnant

mares would be expected to have at least 650,000 foals running at their sides by season's end, which, of course, they did not. Two explanations could account for the survey's divergence from reality: either respondents cited the number of mares on their operations considered to be breeding stock but not all of them were pregnant at that time, or the sample of respondents over-represented the active breeding sector in the country as a whole. Ten percent of the U.S. horse population may be thought of as broodmares, but they are not cranking out foals every year.

Other than that unlikely percentage of pregnant mares, the most striking feature in the NAHMS gender profile is the reproductive implications for miniature horses. The fact that more than one-quarter of the males remain intact into breeding age is mirrored in the high percentage of pregnant females, a rate that, in this special population, presumably could be true, especially coupled with the upward trend in annual registrations cited earlier. Horse and even pony stallions, with their large size and testosterone-driven behaviors, can range from difficult to dangerous to handle and manage, requiring special housing and separate turnout in most domes-

ticated situations. Apparently minis, weighing much the same as their handlers and standing considerably shorter, do not inspire the same urgency to eliminate the hormone-driven behavior with castration.

Interesting, too, is the above normal number of entire asses (jacks) in the gender profile but without a corresponding rise in pregnant jennies (female asses). It may well be that donkeys/burros are maintained as one-of-a-kinds on most horse properties, whereas miniatures live in pairs or herds. Both of these small populations of small animals are the purest examples of what can be categorized as "pet" equidae, with little use as typically defined. Their diminutive size reduces the danger/difficulty of maintaining the males intact, saves on castration costs, and results in especially cute and not very expensive mini babies. The reproductive picture of these pet horses begins to resemble that of pet dogs and cats.

Reproduction Technologies

The physical risks and management difficulties of dealing with the male half of the reproductive effort has pretty much disappeared through-

Table 7
Gender Makeup of a Sample Equine Population,
Eighteen Months of Age and Older, 1998

	Males		Females	
	Intact (Stallions)	Castrated (Geldings)	Not Pregnant	Pregnant
Horses	7.4	40.4	39.7	10.6
Ponies	7.1	30.4	48.7	12.5
Miniature horses	27.0	26.8	24.7	14.5
Donkeys/burros	17.8	28.0	44.6	8.5

Note: Remaining percentages in each category "unknown."

Source: USDA (1998).

out the equine industry. Horse breeders still produce foals the old-fashioned way by what is called “live cover” (during which both animals are typically under human restraint during the mating to lessen the risk of injury), and some remain even more old-fashioned and “pasture breed,” running a band of ten or so mares with a stallion and letting nature take its course. These two more or less natural methodologies usually result in higher conception rates, but there are more risks of injury—kicks, bites, falls, internal tears—to the animals in the process than some owners care to take. For safety’s sake, many breeders collect semen from stallions and inject it in the mares even when the two mating animals are on the same property. But the real incentives for horse breeders’ interest in manipulated matings is in widening breeding choices that previously were limited by geography and extending reproductive possibilities once limited by biology.

Today any mare owner anywhere who has sufficient funds, a capable veterinarian, and moderate distance to an airport can breed to the best (though stallion owners can insist on a certain quality of mare) by using cooled, live transported semen or, with somewhat less success, thawed frozen semen. Embryo transplantation into surrogate dams allows competition mares to produce a foal or more each year without having to miss any shows or allows good mares with faulty/damaged organs to reproduce. Finally, the births in 2006 of the first commercially cloned horses take equine reproduction to the point where owners can produce exactly the individual they want by making an identical genetic copy of an existing horse.

Regardless of the technology, the goal has been to make a better—or even perfect—racehorse, show horse, polo pony, draft horse, or miniature. Like unplanned matings, planned matings inevitably

produce some “worse” along with the “betters,” creating a population of reject animals and spurring another try for the next “better” if not “perfect” horse. The accessibility of modern reproductive technology in U.S. horse breeding, not to mention the expense and management demands on owners who choose to use it, would seem to be strong influences in reducing the wastage of “unwanted” horses produced in this country. If every equine pregnancy is planned so painstakingly and paid for so dearly, each offspring would be all the more valuable than the foals mass-produced each year from mediocre stock in hopes that there will be a standout or two in each crop.

Currently, all breed registries, except for The Jockey Club for Thoroughbreds, allow some form of reproductive manipulation in the matings of their registered stock, if only the use of artificial insemination involving a mare and stallion on the same property. Most studbooks accept foals produced by any of the modern means up to cloning, which is too recent and too uncommon for rule book action. After all, the more foals registered, the better for the association. DNA tests can now assure the parentage of foals no matter how the egg was fertilized or whose uterus nourished the foal. That’s the fundamental concern of all bloodline registries.

How Are U.S. Horses Managed?

When horses manage themselves in free-range situations, their maintenance plan is simple:

- Drink at least five gallons of fresh, unpolluted water daily, more when sweating.
- Take a lick or two of salt every once in a while to sustain mineral levels.
- Graze sufficient forage to keep a light layer of fat over the ribs and backbone.

- Do all this in the company of a half-dozen or so congenial herd mates.
- Roam over topography sufficiently varied and vegetated to provide protection and comfort zones throughout the seasons.

The open-air wanderings hold contagion and parasitism at bay, while all the unshod footwork keeps the hooves in trim, and the endless grazing of coarse roughage wears continuously erupting teeth evenly for trouble-free nipping and grinding. It’s a simple, healthy plan not often available in domestication due to lack of space, conflicting work schedules for the horses, and owners’ fear of injury and blemishing.

Horses across the country can be found living entirely antithetical existences—tethered without sustenance amid junk and clutter; shut away perpetually in dark barns; swaddled in blankets inside opulent, heated stables; striving all day in harness, then standing in narrow tie stalls. But these are the extremes in an equine population that usually gets at least a taste of the natural way for part of each day. The NAHMS survey found 85 percent of its sample population living under their owners’ care either at nonagricultural residences or on farms/ranches involved in other agricultural pursuits. Northeastern horse owners were 12 percent less likely than other regions’ owners to reside with their horses on farms/ranches, producing related bumps in the percentage of horses at residences and boarding/training stables in the region. Horses in the Central region were the least likely to be under commercial care, and Western horses were the least likely to be at breeding farms. Overall, the distribution of U.S. horses according to their residences looked like Table 8 in 1998.

The agricultural bent of this survey’s sampling technique, plus the escalation of suburban ownership in more recent years, probably

Table 8
U.S. Horse Residence Patterns, 1998

Location	Percentage of Equine Population	Number of Resident Equines Per Location
Residence with equidae for personal use	55.0	5 or fewer
Farm or ranch	31.0	5 or fewer
Breeding farm	5.2	6–19
Boarding/training stable	3.9	6–19

Sources: NAHMS (1998).

means that a greater proportion of U.S. horses is kept in commercial boarding establishments today. The respondents in this survey may also have been more experienced in horse management than were the full gamut of owners, as only 9 percent of the reporting operations were newer than three years old, and the largest group had owned horses for twenty years or longer.

Keeping in mind, then, that the NAHMS management findings probably are not as suburbanized as they should be and do not represent the naive, negligent, and unenlightened sector of ownership, the horse's natural maintenance plan in U.S. domestication has been adjusted as follows (USDA 1998):

- Water for horses on at least 60 percent of operations came out of wells, except for those in the Southern region, where surface water (streams and ponds) was used more frequently than it was in other areas of the country.
- Along with essentially universal salt-block availability, close to 40 percent of horses receive supplemental vitamin-mineral mixes.
- Feed is generally provided, as opposed to expecting the animals to maintain themselves by foraging alone. In fact, pasturage is more often thought of as exercise space than as a source of nourishment. On 87

percent of operations that fed hay at least three months of the year, the preferred variety was grass hay but by only narrow margins over alfalfa, a protein-rich legume, and a grass-alfalfa mix. Nutritionally, grass hay matches the horse's digestive needs most closely. Hay is usually distributed twice daily, if not more frequently, or continually, matching the natural plan most closely. Minus the physical effort needed in ranging to find the food, domesticated horses tend to overindulge and be overweight. The feeding of grain, particularly in winter, also is commonplace in U.S. horse keeping plans, but with no real parallel in the natural model, other than occasional snacks on the mature seed heads of grassy plants. These concentrated energy sources, primarily doled out from commercial bagged rations formulated to nutritional standards for different classes of horses, may be necessary to fuel hardworking horses. At least as often and for recreational owners particularly, the addition of grain is more of a bonding mechanism than it is a nutritional necessity. Only 5.6 of operations reported feeding no grain, while 7.6 percent of the large majority

fed concentrates specially formulated for ease of chewing and better digestibility for geriatric horses.

- Socialization, a very important aspect of herd-living equidae, was guaranteed on at least half of the reporting operations and probably to some degree on the majority where three to twenty or more horses lived and thus offered ample intraspecies awareness, if not direct contact. Management on more than a third of operations did divide up the acreage into smaller lots specifically to permit segregation of different groups of residents, but even visual contact satisfies the equine need for company. Almost half of the noncommercial respondents reported keeping just one or two equidae on their residential or farm properties. In these small populations, horses at least paired are often more content than horses kept solo, but socialization outside their own species, including with owners, can make up for lone horses' isolation.
- The freedom to range and the responsibility to seek one's own comforts were not year-round options for many U.S. horses. Instead, their cut of the exercise areas (number of acres divided by the number of animals grazing/roaming there equals the stocking rate) on operations in all of the regions equaled about 1.25 acres. In most areas of the country, they were confined inside buildings for some part of their days as protection against the weather, more so in some areas than others. During Northeastern winters, 40 percent of operations kept their animals confined more than half the time, and another 40 percent stabled them fairly often but less than half the time. In contrast, Western horses got the most freedom

year-round, rarely or never being confined in summer in 86 percent of management situations and remaining unsheltered during winter in 76 percent of the operations. Central and Southern horses were about midway between the two regional extremes in their confinement patterns—unconfined in summer on about 60 percent of operations, with only a 5 percent increase in confinement during winter.

- Management practices on commercial operations reflected awareness of the health implications of unnatural confinement of a large population of equidae in relatively small areas. Residential and farm owners with just one or two animals did the least to protect their animals against infectious diseases through vaccinations and potentially serious effects of parasitism through routine deworming. Less than half of that group's caretakers had at least one animal vaccinated in the previous year, while 90 percent of operations with more than twenty residents had met the same criterion. Deworming was performed more universally (86.7 of all operations), most likely because owners can perform the treatment themselves at small expense. Fecal testing found that 83 percent of the sampled horse populations were shedding only a low level of parasite eggs or none at all, suggesting the management programs were effective. The Western region, where confinement was lowest, also had the lowest levels detected of parasite eggs. Dental care for horses (primarily periodic filing, or "floating," of teeth to remove sharp protrusions and level the grinding surfaces) was sought by only 44 percent of the total sample, and most of that was in the performance, racing, and

breeding sectors. Hoof care, one of the major sources of equine lameness and disability, was not surveyed.

How Are U.S. Horses Used?

Horses and their kin are the champs of multitasking among all the domesticated animals. They are partners in work, partners in play, professional athletes, amateur athletes, beauty contestants, cultural icons, beasts of burden, marathon runners, service animals, baby makers, boon companions, basic transportation, schoolmasters, financial investments, animated lawn ornaments, and more. The AHC economic impact study boils their many roles down to four categories, folding breeding animals into the activity for which they're producing, and calculates their financial contribution to the gross domestic product. It adds up to billions nationally. Tables 9, 10, and 11 show the division of all U.S. horses and those in selected states by their uses.

The numbers given were not head counts but were calculated statistically, with extrapolation due to poor response to the show management survey, which may have produced some data flukes not reflected in the tables in states where quarter horses do not rule.

In imputation of state show activity, for example, Alaska received a 0.7 in the statistical weighting schema, while Maryland show activity rated a 0.5; Maryland may have fewer quarter horse shows, but it certainly does not have less overall show activity than Alaska.

The NAHMS survey identified six primary uses for horses in its sample, making breeding a separate activity as well as farm/ranch work, which AHC included in "other." The respondents were asked to identify the primary use of the horses on their property, but the specific count of animals in the various "occupations" was not solicited.

With most pleasure respondents keeping five or fewer animals and the commercial operations generally maintaining larger populations (Table 8), U.S. horses are not nearly so removed from competition and commerce as the percentages might indicate at first glance (Table 12).

Even so, the AHCF and NAHMS surveys again seem to be reporting on two different horse worlds. And, in fact, that was true to a degree. The economic impact study follows the money (and possibly accentuates/inflates it, too) in the horse world; the NAHMS survey studied the minutia of horses' everyday worlds, focusing not on show rings and racing ovals

**Table 9
National Equine Use Patterns, 2003**

Use	Percentage of Total	Number of Horses
Recreation	42	3,906,923
Showing/Competition	29	2,718,954
Other	19	1,752,439
Racing	9	844,531
	Total	9,222,847

Source: AHCF (2005).

but on barns and fields. The NAHMS vision sees the world the majority of U.S. horses inhabit—out of the limelight and out on the trails or out to pasture.

Recreational Horses

One woman's recreational horse is in the trailer and on the go to a trail ride here, an overnight camping adventure there, and a special training clinic way out there, week in and week out. Another woman's recreational horse is one of a half dozen at her home, and she might get a saddle on and ride over to the neighbor's place a couple of times a month, if she is lucky enough to squeeze in some time for it. With horses, recreation can be just about anything you please, from primping and pampering to roughing it in the outback; from a zen-

like search for the perfect circle or half pass (a lateral movement in dressage) to the discovery of inner peace as a volunteer in a therapeutic-riding program. The joiners have plenty of equestrian organizations, local to national, to add some socializing to the picture. The reclusive types can ride off into the sunset on solitary trails. That is a major appeal of horse involvement—something for everyone. And for a surprising number, the something is tending to their horses at least twice daily, forking manure and heaving hay bales; worrying over ailments, injuries, and feeds bills 365 days of the year; and having little time left over to actually use the animals. They do this year after year, and, when asked what they do with their horses, the answer is "just for pleasure."

Horses in the recreational/pleasure category may do everything the pros do, though rarely so well and usually not quite so seriously. They may be kept in top working trim and put on as many miles as human commuters being trailered to various events or riding venues. The NAHMS study reported that the second most common reason for trailering horses was attending shows/competitions (21 percent), with transportation to work being the first, and though practically all commercial operations had transported at least one horse during the previous year, 46 percent of the purely pleasure group had done so as well, the greatest portion of which was for recreation (USDA 1998). That was almost ten years ago; the rate of trailering by recreational owners has increased

Table 10
Horse Involvement by Activity
in Selected States, by Region

State	Racing	Showing	Recreation	Other	Total
New York	23,216	60,746	89,223	28,721	201,906
New Jersey	7,271	27,061	39,581	9,070	82,982
Maryland	41,805	29,032	47,337	34,756	152,930
Florida	134,406	158,641	160,696	46,381	500,124
Kentucky	58,755	88,176	100,185	73,057	320,173
Louisiana	20,815	59,669	58,793	25,027	164,305
Texas	104,836	310,988	340,383	222,615	978,822
Oklahoma	22,225	118,513	113,776	71,620	326,134
Ohio	33,477	98,660	119,102	55,659	306,898
Indiana	14,339	61,024	105,695	21,929	202,986
Missouri	9,742	65,345	145,674	60,461	281,255
New Mexico	10,076	36,746	63,955	36,405	147,181
Colorado	10,113	76,979	106,624	61,787	255,503
California	82,236	191,945	315,261	108,903	698,345

Source: AHCF (2005), state breakouts.

Table 11
Percentage of Selected States' 2003
Horse Populations, by Primary Use*

State	Recreation	Showing	Other	Racing
Northeast				
New York	44	30	14	11
New Jersey	48	33	11	9
South				
Maryland	31	19	23	27
Florida	32	32	9	16
Kentucky	31	28	23	18
Louisiana	36	36	15	13
Texas	35	32	23	11
Oklahoma	35	36	22	7
Midwest				
Ohio	39	32	18	11
Indiana	52	30	11	7
Missouri	52	23	21	3
West				
New Mexico	43	25	25	7
Colorado	42	30	24	4
California	45	27	16	12

*Calculated from Table 9.

Note: Rounding responsible for over/underages in percent totals.

Table 12
Primary Use of U.S. Horses, 1998

Primary Use of Resident Horses	Percentage of Surveyed Operations
Pleasure	66.0
Farm/ranch	15.2
Showing/competition	6.5
Breeding	6.0
Other	3.6
Racing	1.9

Source: USDA (1998).

steadily since, as they avail themselves of public trails, educational clinics, and riding vacations along with showing. Recreational horses in the United States are often the center of a nonstop lifestyle.

On the other hand, recreational horses may do nothing at all except be the object of someone's deepest affections, naive neglect, or irrational cruelty. Not a single criterion exists for being a recreational/pleasure horse in the United States. Any breed, age, size, capability, or appearance that catches a potential buyer's interest or appears to match the requirements for the dreamed-of activity, and the buyer is a recreational horseperson after hundreds—or hundreds of thousands—of dollars change hands. Horses do not need to be well trained or sound of limb, wind, or even mind for a recreational match to be made with a willing owner.

Too often the first-time buyer, particularly, sees the kind eye but not the puffy ankle and slight limp that go with it, or the golden palomino coat but not the head-flinging response to a hand approaching the lovely face. Perhaps he sees the retired harness racer's "snap" that will take the carriage down the road with style but not the trench worn along the paddock fence, indicative of a compulsive pacing that will make the horse a hard animal to keep weight on and/or live with in general. Worst of all, a well-meaning parent may think a young, untrained horse will make an ideal mount for a young, inexperienced child so "they can grow up and learn together."

Somehow, a lot of rank beginners and their inappropriate horses make it through the steep learning curve of first-time ownership, and a lifetime hobby/need is established. Of the nearly two million horse owners in this country (children under eighteen were not included in the survey), as calculated by the AHCF study, 83 percent were over thirty, with the

largest block (41 percent) between the ages of forty-five and fifty-nine (AHCF 2005). The elastic boundaries of recreational horsemanship have room for even truly elderly people if they wish to go there. It's the place for older horses, too. The recreational sector takes in past-their-prime pros from racing and upper-level sports and recycles their talents to compete at lower levels of the same sport or retrains them for other activities.

Recreational riders and their horses make up the broad base of Olympic sports, such as dressage, eventing, and reining, taking on progressively more difficult tests

and courses as they improve. Few rise to the international level, but equestrian sports such as these that are physically and mentally challenging and based on a long working relationship with one horse appeal to many in the recreational world. The past twenty years have seen large increases in most equestrian activities, but sports that test brains—training, skill, and strategy—not just beauty have seen some of the steepest rises (Table 13).

Show Horses

Every horse is potentially a show horse if whoever happens to use

the animal pays the fees to enter a competition, even if it is only an egg-and-spoon race with twelve-year-old competitors. On any given weekend, spring through fall, and maybe throughout the winter, too, hundreds of thousands of horses and their handlers/riders/drivers are going round and round in dusty rings, being judged, getting pinned or shown the gate. Others are testing their limits on challenging cross-country jumping courses or in polo arenas; cutting cattle, roping calves, racing cloverleaf patterns around three barrels; or having their endurance tested in all-day judged

Table 13
Selected Competitive-Sport Association
Memberships over Two Decades

	1985	1995	2005
U.S. Equestrian Federation* (multidiscipline oversight)	45,238	62,000	87,050
U.S. Pony Clubs (youth horsemanship education)	8,999	13,000	11,800
American Driving Society (international discipline)	850	2,500	3,016
U.S. Trotting Association (harness racing)	55,075	35,196	24,650
U.S. Dressage Federation (international discipline—English)	18,543	40,000	33,044
U.S. Eventing Association** (international discipline—English)	8,346	10,900	13,800
National Cutting Horse Assoc. (competitive cattle work)	14,363	11,500	16,000
National Reining Horse Association (international discipline—Western)	2,050	7,000	13,000
American Endurance Ride Conference (international discipline—100-mile contests)	2,000	5,050	6,570
Total	155,463	178,146	208,930

* Formerly American Horse Shows Association.

**Formerly U.S. Combined Training Association.

Note: Members of all international disciplines who compete in their sports must also be members of the USEF; therefore, yearly totals include duplicate counts for those sports.

Sources: EQUUS (1995); EQUUS (2006).

trail rides. The AHC 2003 directory listed forty horse association and event organizers that sponsored more than 10,500 competitions attracting in excess of ten million class entries.

Not all of these organizations provided their counts (AHC 2003). And countless tiny shows are put on by riding stables as a goal/reward for the students or to bring in outside participants and make some money from entry fees. Many organizations mount elaborate multiday shows each year, with income that sometimes goes to charities. Most sport-specific groups and larger breed registries/associations encourage participation and ownership by sanctioning restricted shows; recording results; and creating point systems, futurities, jackpots, and the like to heighten competition and motivate continued participation, often culminating in days-long national championship events.

The cost for a local riding-school show might hit \$50 a day; the big-time competitors can spend tens of thousands for a show season, and that's not counting the horse. Traditionally, showing in the English disciplines has been done for the sole tangible reward of a ribbon, if one was lucky enough to get pinned, and the pride in one's superior horsemanship. Western competitions and some jumping events sweeten the pot with cash winnings, usually derived from futurity money collected from breeders early in their prospective competitors' lives, then two or three years' worth is paid out in big bucks to the top finishers in the event. The AQHA, a huge corporate operation sponsoring, among other things, 2,500-plus approved shows and events annually attracting close to ten thousand entries, oversees the collection, investment, and disbursement of an incentive fund, based on points earned during recognized competitions. Between 1986 and 2003 the fund distributed \$43,690,096.14, and many

millions more are currently invested for the 2006–2011 funds (AQHA 2004).

Only a small fraction of U.S. horses are full-time show horses, but they, in particular, are at risk because of all that cash. The outlay of huge sums of money to participate and/or the prospect of winning immense payoffs puts a must-win cast on a competition originally intended to improve the breed through comparative evaluation. As showing was conceived, the stallion who got the blue ribbon or whose offspring won the trophies had more mares brought to him, and the quality of the stock improved to everyone's benefit. But competition for cash and acclaim rarely improves human nature, and the horses involved can bear the brunt. In the 1990s, for instance, hunter-jumper trainers were killing horses for insurance money (*Chronicle of the Horse* 1998), and for decades, despite laws specifically banning the practice, Tennessee Walking Horses' trainers have "sored" the horses' forefeet and legs to cause them to move in an extreme fashion that wins the big prize.

Shows can have a wider-reaching negative effect on all horses produced for a particular competitive style even if they don't ever enter a show ring. Judging standards originated to define the ideal type for that breed's conformation and way of moving, all based on a particular job the horse would be expected to carry out in real life. Yet as the blue ribbon, rather than the functional performance, came to be the ultimate concern, breeders produce what judges will pin, and when judges select for extremes, such as the Tennessee Walking Horse's exaggerated "big lick" gait, the quarter horse's bulging muscles atop trim, tiny feet, or the Arabian's wild-eyed "animation," the nonfunctional or antifunctional winning characteristics spread through the breed. Drugs, devices,

and abusive training techniques are used when the characteristic, such as the "big lick" and the quarter horse's automaton-like showing movement, proved impossible to develop through genetics.

Racehorses

Although six registries conduct some sort of racing program for their breeds, Thoroughbreds, Standardbreds, and Quarter Horses are historically the pari-mutuel contenders. Appaloosas, Paints, and Arabians do most of their running at small venues, such as county fairs in the West. Internationally and in this country, Thoroughbreds, originating four hundred years ago in England, are the prestige runners, whose Triple Crown races—at the least, the Kentucky Derby—most Americans would recognize. Harness racing (Standardbreds were so named because they had to trot or pace to a certain time standard to be entered into the registry regardless of their parentage) grew out of this country's democratic, agricultural heritage, which continues strongest in the Midwest, and Quarter Horse racing, though originally contested on East Coast main streets in Colonial times, evolved in the West with cowboys pitting their stock horses against each other in sprint races.

When men and their horses gather, it seems, racing is inevitable. Betting is, too, and throughout the twentieth century, horseracing was the one legal outlet for the betting urge, at least in states that allowed pari-mutuel meets. Until the 1980s, horseracing was the most popular sport of all in terms of attendance. Only at the end of the century did state governments begin permitting other forms of legalized gambling and, by then, too, broadcasting was offering a ceaseless parade of faster-moving spectator sports for everyman's entertainment. Racing has been in decline for about twenty years. Since 1990 Thoroughbred races run annually in North America

(approximately 90 percent of them in the United States; 10 percent in Canada) declined steadily, from 79,971 to 57,495 in 2005, and the number of North American Thoroughbreds starting in races those same years went from 89,716 to 72,780 (The Jockey Club 2006). Steeplechasing, in which Thoroughbreds race over jumps on longer cross-country courses, has actually enjoyed some growth during this same period, probably because of the festival-like ambiance cultivated in the country settings. The thirty-nine steeplechase events run in twelve states in 2006, during primarily spring and fall seasons, paid out a total of \$4.5 million in purses (NSA 2006). Quarter Horse racing, mostly run in the West, has also suffered substantial declines in races and starters since 1990, but the recent trend is somewhat upward (AQHA 2004). Harness racing has been in free fall for years, as witnessed by the deep membership drop in the U.S. Trotting Association (USTA), the Standardbred registry to which breeders, owners, trainers and drivers must belong (Table 13).

The horses of the racing world are exceptional athletes when bred well, trained intelligently, and managed carefully. They are also subject to stress-related illnesses, such as ulcers, from their unnatural lifestyle, and to stress injuries when not well trained or if there's a misstep during the all-out gallop. The prime years for a runner are ages three to five. Most stallions with outstanding race records in their three-year-old campaigns are retired to stud immediately afterward. Insuring such animals against a fatal or life-threatening injury, such as that suffered by Kentucky Derby winner Barbaro during the 2006 Preakness Stakes (Bloodhorse.com 2006), is extremely expensive and the loss of breeding income from such an occurrence makes the risk too great to bear. The everyday runners who fill the lower-level "claiming" and "allowance" categories of races

week after week just keep on going for as long as they bring in an occasional check. After that, they may recycle into the recreational or show world. With fewer races being offered, U.S. Thoroughbreds ran, on average, only 6.5 races in 2005 (The Jockey Club 2006). Racing appears to be nearing its finish line, at least as the prestige sport of the equestrian world.

What Becomes of U.S. Horses?

U.S. horses are as mobile as the country's human population. As with the majority of people, horses rarely grow up and die where they were born or even in their hometown. Unlike much of the pet population, which moves into human homes at weaning time and remains with the same people throughout the rest of their lives, horses tend to go through a series of owners. The serial ownership of horses occurs not just because they are produced and dealt in as valuable commodities. Once they get into the equestrian pipeline, multiple factors cause them to move from owner to owner:

- The animals' size and management requirements restrict where they can live. Even though a great many horsepeople do arrange the rest of their lives around the keeping of horses, not all owners can take the animals along when they must relocate.
- As owners' interests change, horses are traded in for new models or dispersed when the hobby/business is abandoned. This happens commonly with youth involvement, indulged by nonparticipating parents for the interest span or dependency of the child, then dissolved upon college attendance or independent living.
- Personal or financial pressures force owners to give up some

or all of their horses against their wishes.

- The animals become physically incapacitated and no longer fit for the intended purpose, or they are too unruly or dangerous for the current owners to handle.
- Their special caretaking needs become a burden, particularly with the aged or those with chronic health conditions.

The NAHMS survey gathered data on the comings and goings of the resident populations of commercial, work/ranch, and recreational establishments studied and found that in the previous year, just 13.4 percent of the animals permanently left those operations (USDA 1998). Table 14 ranks the destinations of the departed animals by percentage of the surveyed population and converts the percentages to head counts based on a current national population of 10 million. Table 15 does the same for the reasons the respondents gave for dispersing the animals.

In the years since the study was done, dispersal patterns have probably remained consistent. Economic forces have not been sufficiently negative to cause owners to liquidate or trim their herds for financial reasons. The most likely change in these percentages would be an increase in the number of horses sold privately for business profit to accommodate the rise in registered foal production since 1997. Assuming the study results are a true reflection of the larger world, today's horses change ownership, aside from commercial transactions, almost four times more frequently because of owners' personal problems or, considerably less significantly, for financial reasons, than because of the horses' shortcomings. That only 10 percent of horses changed ownership because of temperamental difficulties, physical problems, and old age combined must mean either that the country's equine population is

Table 14
Destination of Permanently Removed Equidae on Surveyed Operations, by Percentage and Equivalent Count in Today's National Population*

Destination	Percentage	2006 Number
1. Sold to private party	55.0	737,000
2. Moved to another facility	17.5	234,500
3. Sold at public auction	13.3	178,220
4. Removed for other reasons	9.7	129,980
5. Given away to private party	2.5	33,500
6. Donated to charity/research	1.1	14,740
7. Sent direct to slaughter/ slaughter buyer	0.8	10,720
8. Stolen	0.1	1,340

*Based on 13.4 percent permanently relocated in ten million population.

Source: USDA (1998).

Table 15
Reasons for Permanent Removal of Equidae from Resident Operations, by Percentage and Equivalent Count in Today's National Population*

Reasons	Percentage	2006 Number
1. Business profit	52.0	696,800
2. Situation change (e.g., owner, children moved, owner illness)	34.9	467,660
3. Temperament problem	4.5	60,300
4. Aged	3.3	44,220
5. Too expensive to keep	2.6	34,840
6. Lameness/injury	1.2	16,080
7. Problem with horse not otherwise listed	0.9	12,060
8. Reproduction problem	0.6	8,040

*Based on 13.4 percent permanently relocated in ten million population.

Source: USDA (1998).

just about perfect or the country's owners are pretty willing to stick with their horses for worse as well as better. The latter is the likelier explanation, given the volume of equine business attended to in university veterinary clinics in 2005. As reported to Veterinary Medical Databases (VMDB), a central database for clinical data contributed voluntarily by the nation's 27 veterinary schools, 16,441 horses received diagnosis/treatment at six institutions in 2005 (D. Folks-Huber, personal communication, March 24, 2006). If the visitation rate applied across all schools, that would be 75,600 equine medical visits for generally expensive and/or more heroic healthcare measures than most horses ever require.

Horses who are sold in this country have had three possible destinations:

- new residences, the majority in noncommercial operations,
- slaughter in three U.S. plants (which were closed in 2007) for human consumption overseas;
- export to other countries, some as performance or breeding stock, but the majority for slaughter either in Canada or Mexico.

Reports from USDA, the oversight agency for both animal imports/exports and slaughter inspection, indicate that approximately 10,000 purebred breeding animals are exported each year, but a much greater number—approximately 1 percent of the U.S. equine population in recent years—leaves the country intended for human consumption. In 2004, 111,500 horses met this fate, 60 percent exported as horse meat and the rest live to neighboring countries for slaughter there (Table 16).

Without reliable national equine population counts through previous decades, it is difficult to determine earlier slaughter percentages with any accuracy, but it is safe to assume that a much greater percentage of U.S. horses was sold to

slaughter for human consumption at the end of the 1980s and early 1990s than is the case in the current decade. That was a peak period in exports of metric tonnage of horse meat (1 metric ton equals 2,205 pounds, and horses average 400 pounds of dressed meat, meaning 1 MT equals approximately 5.5 live horses) and for live nonpurebred animals as well (Table 16).

Following the reduction of slaughter capability in this country through the closing of plants in Texas and Illinois, live shipments for slaughter, presumably all to Mexico and Canada (ocean-going shipment for slaughter horses is banned and air freight for live animals would be prohibitively expensive) have increased. Yet export numbers had been quite variable as of 2006 throughout the previous thirty years, reaching the lowest count of

10,284 head in 1984, with a portion of them exported as breeding and performance stock, after 66,886 live horses had been exported just three years before (USDA 2006a; FAO 2006). In the first quarter of 2006, almost 1,300 live slaughter-bound horses entered Mexico from New Mexico and Texas (USDA 2006b), projecting a total of 5,200 by year's end. Canada, with four horse-slaughtering plants, was expected to process at least five times that number of U.S. animals imported live (Dudley 2006), though previous years' total exports would indicate well more than 25,000 U.S. horses are processed in that country (USDA 2006a; FAO 2006).

The bulk of the U.S. horses remaining within the country are old, by equine standards, when they die. The NAHMS study found that the death rate of horses resident on

the surveyed operations during three twelve-month periods was 2 to 2.5 percent. Adding some statistical wiggle room with a "confidence interval," the study determined that in any given year, 1.5 to 3 percent of American horses die either of natural causes or euthanasia in the following order of likelihood (USDA 1998):

- age twenty or older,
- between birth and 6 months,
- between five and twenty years of age,
- between six months and five years of age.

As with the human population, the very old and the very young are most at risk for fatal health conditions. Foal deaths mostly went unexplained at the earliest stages, with a host of genetic and perinatal complications that could prove fatal. During the suckling stage, however, respiratory conditions

Table 16
Twenty-Year High- and Low-Point Periods,
U.S. Horses Sold to Slaughter

Peak Years, High	Metric Tons Horse Meat	Equivalent Number Horses	Live Exports for Slaughter*	Total Horses
1990	55,373	304,551	73,686	378,237
1991	48,284	265,562	81,994	347,556
1989	59,000	313,482	29,350	342,832
1988	51,864	285,252	18,063	303,315
Total				1,371,940

Peak Years, Low	Metric Tons Horse Meat	Equivalent Number Horses	Live Exports for Slaughter**	Total Horses
2002	8,094	44,517	38,540	83,057
2003	8,861	48,735	42,932	92,667
2001	11,940	65,670	35,993	101,663
2004	12,085	66,467	45,039	111,506
Total				388,893

*Slaughter exports calculated by subtracting 10,000 from total exports reported as the approximate number of performance and breeding animals included.

**Actual numbers, USDA (2006a).

(often called “foal pneumonia”) were the most common cause of death, followed by injury/wounds/trauma and leg/hoof problems. The elderly population contributed the single greatest cause of death afflicting the entire population—“old age” at 22 percent—but the next most common mortal conditions were colic (18 percent) and injury/wounds/trauma (14 percent), which affect horses of all ages. According to this study, 64 percent of the horses dying of old age were euthanized, most commonly because of weight loss and the inability to ambulate, while the remainder died on their own with-

out human intervention. When applied to current estimated population of 10 million, the study’s mortality figures would translate to between 150,000 and 300,000 “at home” deaths annually, the preponderance of which would be at age twenty or over.

The equine digestive tract and locomotion systems are the biggest problems during the lives and in the deaths of U.S. horses, according to the NHMS survey (Table 17). Both systems are subject to management practices far removed from the species’ innate biology, which is predicated on near-continuous grazing and moderately strenuous

movement and rarely duplicated in modern domestication and use.

How Are U.S. Horses Faring?

Look hard enough in any community in the country, and you can find individual horses, ponies, or asses in distress of one sort or another. You may not have to look very hard at all in some places, but the nationwide indicators disclosed in this examination reveal the resources and capabilities for providing our equine population with better-than-adequate care. The equine species’ fence-straddling situation—half livestock, half companion animal—has produced a mix of benefits not available to the “either-or” species. Horses are commercially valuable enough to earn agricultural-research funding from government sources that aren’t available to purely pet species. At the same time, the emotional attachments formed between many owners (and not just recreational owners exclusively) and their horses assure a greater sensitivity to equine well-being than generally develops between livestock keepers and their animals. The larger American culture is also more inclined to hold horses in higher regard than the food species and invest them with somewhat more gravitas than the lap-pet set.

Basic Management and Handling

Horses today are well-served by their half-and-half status only when they’re maintained true to their nature, as neither feed animal nor pet. Some of the original nutritional research performed on horses in their new role as recreational creatures in the 1960s chose the same goals for feeding programs that applied to feeder cattle: grow ’em big, and grow ’em fast, getting the most inches and pounds added on in the shortest

Table 17
Prevalence of Equine Health Conditions by Percentage of Operations Affected*

	Conditions Affecting Foals Under Six Months, Percentage Operations With Foals	Conditions Affecting Equidae Six Months and Older, Percentage All Operations Surveyed
Digestive/Diet-related problems:		
Colic	2.7	13.6
Diarrhea/Other digestive	13.4	2.8
Overweight/Obese	1.2	4.5
Chronic weight loss	0.7	2.7
Total Digestive	18.0	23.6
Injury/wounds/trauma	12.7	17.9
Leg/hoof problems	2.8	16.0
Respiratory problems	3.6	6.3
Eye problems	1.3	7.4
Skin problems	1.5	6.0
Reproductive problems	1.8	3.2
Behavioral problems	0.1	1.7
Neurological problems	0.3	1.6
Generalized infection	0.6	1.1

*Adapted from USDA (1998).

time for the fewest dollars spent (Ensminger 1969). When you're aiming to get a young steer to market, that approach seems to have no consequence because the steer won't live long enough to go through all the stages set up by the nutritional program. With young horses, particularly easy gainers like quarter horses and superathletes like Thoroughbreds, the results are ruinous. Most immediate are serious digestive upsets, such as ulcers and colic, but also, according to recent biologically based behavioral studies, the lifelong compulsive oral behavior called "cribbing." Worst of all, overfed youngsters often suffer developmental bone diseases, sometimes requiring euthanasia because the condition is not reversible and the animals will never be sound and comfortable for as long as they live. Horse owners are still learning the hard way about this nutritional truth. "Pet-fed" horses get too much of too many good things provided by too-loving owners and suffer obesity and all the attendant problems (except for heart disease) that human beings experience. Horses have the additional difficulty of not being able to take excess weight off their feet by sitting down, and their soundness and mobility, the most essential ingredients in equine well-being, are compromised.

Feeding and nutritional problems are just one manifestation of a cluster of common conditions that can be labeled diseases of modern excess. An excess of horses crowded into a small area increases parasitism, infectious-disease outbreaks, injuries, and stress symptoms. The excess isolation experienced by horses kept solo out of their owners' ignorance or excess transportation for excess participation in competitive events can sicken and possibly kill horses. As witnessed by the good survival rate of U.S. horses, however, the ever-adaptable equine species appears to have adjusted well

enough even to care that isn't always in its biological best interest.

These animals have also been subject to a genuine revolution in handling and training, which is particularly interesting because it arose among Western horse handlers, primarily associated with "breaking" horses in a tradition of animal handling based on domination, intimidation, and outright fear. In the past twenty years, a cottage industry of "horse tamers," able to connect with, gentle, and climb aboard an unhandled horse in a few hours, using no equipment other than body language and possibly some simple props makes the rounds of the country teaching ordinary horse owners how to "join up" (Dorrance 1994; Roberts 1997; Miller, Lamb, and Downs 2005). A lot of what sells is the theater, but for horses, the recognition and development of communication techniques derived from their own "language" has made training a lot more understandable and easier.

Health Care

With twenty-seven U.S. university veterinary clinics and numerous privately owned equine hospitals operating in the country, plus several thousand practitioners specializing in the species, diagnosis and treatment practically as sophisticated as those of their human counterparts are available for horses everywhere, if their owners care to seek them out and pay for them. U.S. horses don't die en masse from plagues, thanks to research attention paid to equine diseases, primarily those also affecting human beings and those with significant economic implications, and strict monitoring of animal health status. Equine infectious anemia (EIA), a blood-borne disease with some similarity to AIDS in its mechanism and resilience, caused several large fatal outbreaks in the United States in the middle of the twentieth century. With the advent of a screening

tool—the Coggins test (so named for its developer and now required for all equidae being transported to events, sales, and across states lines)—national and state agriculture departments could identify and isolate or destroy carriers as the only means to eliminate the incurable disease from the horse population. In 1972 the infection rate, mostly inapparent carriers, was 3 percent of the horse population; in 2004, only 333 samples from 2,013,376 horses were positive, an infection rate of .017 percent (Cordes and Issle 1996; USDA 2006c). The destruction of seemingly healthy positive reactors was and is a hardship and aberration to the people who care for the individual animals, but elimination of a once intractable killer and waster of horses may result in a greater good. It's unlikely that such medical measures could ever be taken to eradicate the similar feline leukemia, for instance, partly because USDA funding does not apply to companion species but mostly because pet owners would not allow test-and-destroy practices.

A more positive approach to horse health occurs when new disease threats receive rapid responses in prevention. When Potomac horse fever, a severe diarrheal condition with often fatal secondary effects, was first recognized in central Maryland about twenty-five years ago, the veterinary establishment saw only variations of already named conditions. Only with great pressure from frightened and frustrated horse owners did the scientific community begin to study the disease for cause and treatment. The cause is still not entirely understood, but the infection was eventually recognized to be a national problem, and a vaccine was developed several years after the outbreaks began. The most recent "new" equine threat, West Nile virus, arrived by airline via a mosquito "hitchhiking" from south Europe in 1999. Development of an equine vaccine began

almost as soon as the regulatory community recognized the threat to both horse and human, and the fatality rate dropped considerably in horses beginning in 2004. The difference in response had much to do with the zoonotic capabilities of the West Nile virus, but also can be attributed to commercial and recreational horse owners having become a block of educated consumers who demand responsive health care for their investments and their recreational partners.

Disaster Management

The Mississippi's Great Flood of 1993, the West Coast's perpetual wildfire dangers, Hurricane Andrew's devastation of south Florida in 1992—natural disaster is always looming somewhere in this country.

Andrew was the first time a killer tropical storm threatened a large recreational horse population. The lessons learned at the time in protecting, identifying, and reuniting animals and owners initiated community and veterinary efforts to develop coherent disaster plans for managing the domestic animal population along with the human population. When the megastorms Katrina, Rita, and Wilma hit in 2005, equine organizations, including the American Association of Equine Practitioners (AAEP) and breed associations, provided assistance, and rescue and animal-protection organizations from other areas moved in to stricken areas to assist. The National Conference on Animals in Disasters, held in the Washington, D.C., area in June 2006, included a session on large-animal issues in disasters (The Humane Society of the United States 2006) for horse and livestock owners/responders.

Horse owners who care to learn have every opportunity to become expert in all horse-care and management areas, and many amateurs do just that. USDA's agricultural extension service, working within the

Land Grant university system, is the longest running educational institution regarding large-animal husbandry. More recently, equine veterinarians and their professional organization, the AAEP, have incorporated formal healthcare and management programs into their practices along with the standard horse-side discussions. Equestrian magazines are generally a source of reliable medical and management information, but the Internet is now a primary information and advice-seeking resource for horse owners, as well as a sale barn, stable-aisle chat site, and equestrian soapbox. The following sites offer a sampling of opportunities for electronic community and commerce available to riders and owners.

<http://chronicleforums.com/Forum/>

<http://source.bloodhorse.com/thehorse/>

<http://www.equisearch.com>

<http://www.horseweb.com/>

<http://www.netequine.com/horses-for-sale>

Humane Treatment

The ready accessibility of equine information and equestrian communication provided by the Internet is, in fact, probably the primary motivating force in a groundswell of action taken on behalf of horses and their welfare. Twenty years ago, only two national equine-welfare efforts had been organized: one to oppose soring of Tennessee Walking show horses and the other to protect wild horses and burros. Today, a few more equine-protection groups operate on a national level, but the real revolution is the appearance, since the mid-'90s, of hundreds of mostly small, independent efforts focused on what are often called "unwanted horses" within their region. These organizations, approximately 300 of which have attained Internal Revenue Service (IRS) tax-exempt status, as listed on IRS Publication

78, attack the problem of "unwantedness" in several ways:

- taking in equidae, through legal action and/or owner relinquishment, and placing them in new, permanent private homes
- taking in equidae by the same mechanisms and placing them in permanent sanctuaries
- purchasing animals in the pipeline for slaughter, at either auction or another stop in the supply chain, and reselling them to good homes at cost
- serving as brokers, of sorts, between owners/trainers with horses, mostly from the track but sometimes specific breeds, to dispose of and potential buyers, leaving the transaction to continue between those parties.

In the grand scheme of things, 400 grass-roots efforts intervening in cases of ten or twenty unwanted horses annually can't make much of a dent in the number of slaughter-bound animals, for instance, let alone all of the neglected and misused horses in the country. Rescue efforts can improve the quality of life for animals in their immediate vicinity, but the burnout rate has to be high. From the web site descriptions, many of these efforts begin as personal missions, with no long-term sources of income to pay for rescued horses' basic needs month in and month out. Ryerss Farm for Aged Equines, the country's longest running large-animal sanctuary, has an endowment to maintain the facility but still charges a lump sum of several thousand dollars for horses to enter the facility, then solicits donations for the continued upkeep based on expenses of \$15 a-day (Ryerss Farm 2006). For concerned but not rich rescuers to rely on uncertain volunteer labor, donated supplies, and cash donations while tending to ill, starved, difficult animals, with more needy ones always in the pipeline is a stressful life that most people cannot withstand indefinitely, no matter how strong their

will to help. Additionally, the mere existence of Good Samaritans in an area tends to encourage less responsible animal owners to dump their problems for the rescue to manage.

Results of a small, informal survey of these grass-roots rescues showed a very similar set of motivations behind the dispersal of horses to rescues as applied for the dispersal of horses in general, described in the NAHMS survey. Horses came to rescues not necessarily because they were treated cruelly, or at least intentionally so. They were generally not irreparably damaged goods, either physically or mentally. The weak links were mostly on the human side: ignorance of proper care, personal and financial difficulties, or failure to properly train the animals. Good intentions and love of horses without accompanying management capabilities are as likely to move horses into rescue facilities as is pure commercial greed.

The larger issue is balancing the pressures of horse ownership, both commercial and recreational, that arise from keeping a large species in a shrinking and increasingly costly world.

Literature Cited

- American Horse Council (AHC). 2003. *2003 Horse industry directory*. Washington, D.C.: AHC.
- American Horse Council Foundation (AHCF). 2005. *The economic impact of the horse industry on the United States*. Washington, D.C.: AHCF.
- American Quarter Horse Association (AQHA). 2004. Show statistics. 2004 AQHA Annual Report. <http://www.aqha.com/pressroom/index.html>.
- American Veterinary Medical Association (AVMA). 2002. Veterinary market statistics. <http://www.avma.membshp/marketstats/>.
- Bloodhorse.com. 2006. Bernadini takes Preakness, Barbaro injured. www.bloodhorse.com/articleindex/article.asp?id=33651.
- Bureau of Land Management (BLM). 2005. Herd area statistics, FY 05. <http://www.wildhorseandburro.blm.gov>.
- . 2006. Fact sheet on the BLM's management of wild horses and burros. <http://www.wildhorseandburro.blm.gov>.
- Chronicle of the Horse, The. 1998. Final insurance fraud defendants have their day in court. *The Chronicle of the Horse*, May 29, n.p.
- Clancy, E.A., and A.N. Rowan. 2003. Companion animal demographics in the United States: A historical perspective. In *The state of the animals II: 2003*, ed. D.J. Salem and A.N. Rowan, 9–26. Washington, D.C.: Humane Society Press.
- Cordes, T., D.V.M., and C. Issel, D.V.M., Ph.D. 1996. *EIA, equine infectious anemia: A status report on its control*. Riverdale, Md.: U.S. Department of Agriculture. Animal and Plant Health Inspection Service.
- Dorrance, T. 1994. *True unity: Willing communication between horse and rider*. Sanger, Calif.: Word Dancer Press.
- Dudley, W. 2006. Horse slaughter ban could lead to more neglect. *The Alberta Express*. Alberta, Canada: January 31. <http://www.agcanada.com/custompages/>.
- DuTeil, K. 1992. The elusive recovery. *Equus* 181: 36–37.
- Ensminger, E.M. 1969. *Horses and horsemanship*. Danville, Ill.: Interstate Printers and Publishers, Inc.
- Equine World Records. 2006. <http://www.ultimatehorsesite.com/info/worldrecords.html>.
- EquiSearch.com. 2006. <http://equisearch.com/>.
- Equus Magazine*. 1989. Adjusting production. *Equus* 145: 61.
- . 1990. Production patterns. *Equus* 157: 61.
- . 1991. Production jumps and slumps. *Equus* 169: 38.
- . 1994. Trends at a glance. *Equus* 205: 30–31.
- . 1995. Trends at a glance. *Equus* 217: 28–31.
- . 1997. Trends at a glance. *Equus* 241: 102–103.
- . 1999. Trends in breed registrations. *Equus* 193: 64.
- . 2000. Trends at a glance. *Equus* 277: 56–57.
- . 2004. Trends at a glance. *Equus* 325: 44–45.
- . 2006. A decade of change. *Equus* 339: 42–43.
- Food and Agriculture Organization (FAO) of the United Nations. 2006. <http://faostat.fao.org/fastat/serveiet>.
- Hause, Eric. 2006. The Corolla wild horses. <http://www.coastalguide.com/packet/thecorollawildhorses.shtml>.
- Humane Society of the United States, The. 2006. National Conference on Animals in Disaster 2006 conference schedule. http://www.hsus.org/hsus_field/hsus_disaster_center/national-conference-on-animals-in-disaster-2006/ncad06_schedule.html#Wednesday_May_31_2006.
- Kilby, E. 1989. Progress...and pain. *EQUUS* 145: 58–64, 106–109.
- Kirkpatrick, J.F. 2005. The wild horse fertility control program. In *Humane wildlife solutions*, ed. A. Rutberg, 63–75. Washington, D.C.: Humane Society Press.
- Loch, W., and J.W. Massey. 2006. Horse breeding arithmetic: 2 + 2 = 1. Univ. of Missouri Extension. <http://www.muextension.missouri.edu/explore/agguides/>.
- Milicia, J. 2004. Rapid growth brings change to Amish community. *Dover-New Philadelphia (Ohio) Times Reporter*. May 7. <http://www.timesreporter.com>.
- Miller, R., R. Lamb, and H. Downs. 2005. *The revolution in horsemanship: And what it means to mankind*. Guilford, Conn.: The Lyons Press.

- National Park Service. 2003. Assateague's wild horses. Assateague Island National Seashore. <http://www.nps.gov/asis/horses.htm>.
- National Steeplechase Association. 2006. <http://www.nsa.org>.
- Palmer, L.L. 2004. A grandfather's tales of wild horses come true. *Seattle Post-Intelligencer*, December 18. <http://www.seattlepi.nwsource.com>.
- Roberts, M. 1997. *The man who listens to horses*. New York: Random House.
- Ryerss Farm for Aged Equines. 2006. <http://www.ryerss.com>.
- The Jockey Club 2006. *Factbook*. <http://www.jockeyclub.com/factbook>.
- U.S. Census Bureau (USCB). 2000, est. 2004. State and county quickfacts. <http://quickfacts.census.gov/qfd/>.
- U.S. Department of Agriculture (USDA), Animal and Plant Health Inspection Service, Veterinary Services, National Animal Health Monitoring System. 1998. *Equine '98 study*. <http://www.aphis.usda.gov/vs/ceah/cahm>.
- _____. 1999. 1999 U.S. equine estimates. <http://www.nass.usda.gov/>.
- _____. 2002. Census of Agriculture. http://www.nass.usda.gov/Census_of_Agriculture.
- _____. 2006a. Foreign Agricultural Service (FAS). BICO Import Commodity Aggregates. Live horses. <http://www.fas.usda.gov/ustrade/>.
- _____. 2006b. Market News Service (MNS). <http://www.ams.usda.gov/lsmnpubs/txHorse.htm#reports>.
- _____. 2006c. National Animal Health Reporting System. <http://www.aphis.usda.gov/vs/ceah/ncahs/>.
- Western Horseman. 2006. Advertising rate card. http://www.westernhorseman.com/ad_rates/index.shtml.