

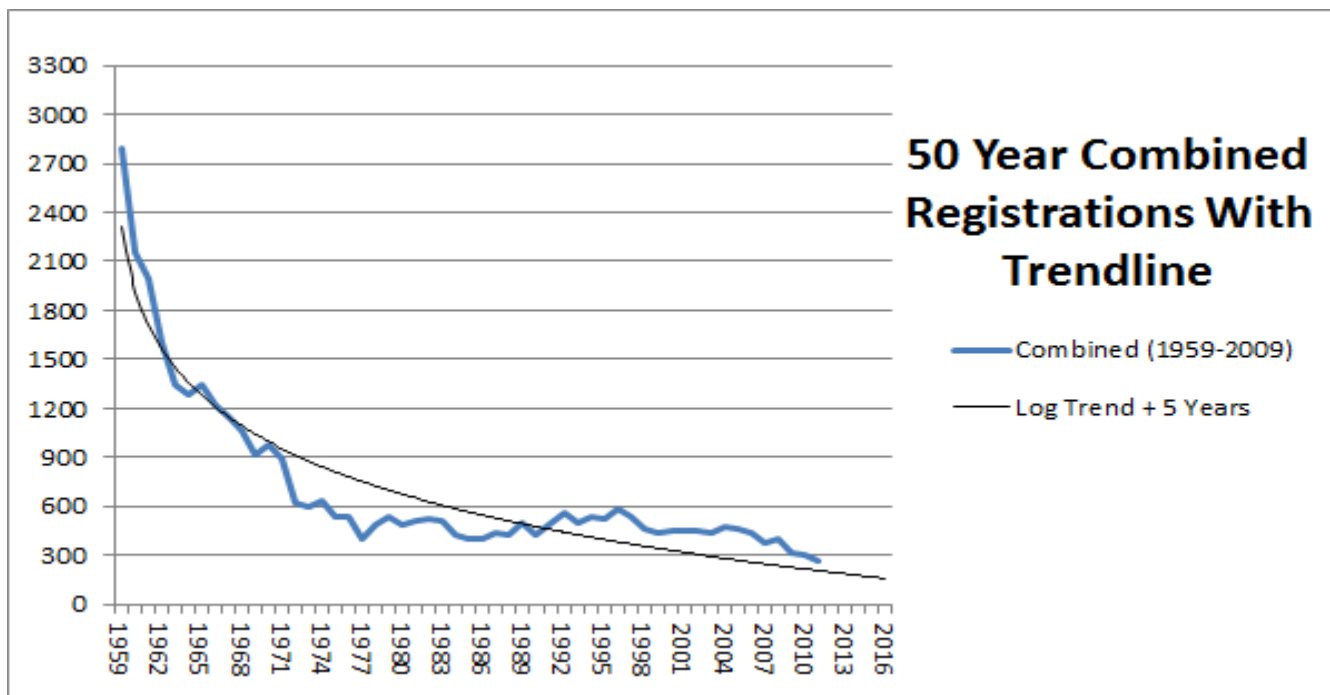
Critical Mass: A Population in Crisis

By Carolyn Horowitz (Rustic Lane)

Did you know that the Manchester Terrier's year over year registrations in the United States have fallen by 88% since 1960? Too long a timeframe to wrap your head around? Consider this: The number of Manchester Terriers registered each year by the AKC has fallen by 55% in the last 15 years alone. That represents a loss of thousands of individual dogs, dozens of breeders and a good deal of genetic diversity.

How did we get here? Why is it a problem? What can we do about it? In this issue, Carolyn Horowitz explores the statistics and their meaning for today and the future.

A few years ago, I was fortunate enough to view statistics on AKC registrations compiled by Muriel Henkel (Wil-Mur Manchester Terriers). I was shocked at the picture the numbers painted. In the bevy of figures contained in the spreadsheet in front of me, I saw a story of the dramatic rise and fall in popularity our breed has seen since its official introduction in the United States more than 125 years ago.



The fact that registrations have decreased did not come as any great surprise to me. It is no secret, after all, that American Kennel Club (AKC) registrations have fallen in most breeds. The AKC actually stopped publishing the number of dogs or litters registered each year by breed and now publish only generic “rankings”, likely to stem some of the predictions of the AKC’s impending doom. And, of course, there are a number of reasons why overall registrations have fallen, not the least of which is the fact that the AKC’s requirements for kennel inspections, DNA identification of stud dogs used more than seven (7) times, and random evaluations of parentage have caused large-scale commercial breeders to go to alternative, for-profit registries. Cultural changes affecting how dogs are viewed in society, increasingly urban lifestyles, changing attitudes toward spay and neuter – the list of reasons for falling registrations goes on and on. Additionally, fewer pet owners see much if any value in registering dogs that will ultimately be used for neither breeding nor competition.

But the numbers in front of me spoke to more than that. In the face of what many consider to be a crisis in terms of the future of the AKC, it would be easy to discount the fall in registrations in Manchester Terriers as being nothing more than part of a larger trend. The decline in Manchester Terrier breed popularity in the United States, however, started well before the larger decline in AKC registrations. Ours wasn’t just a decrease in the number of dogs being registered, it was an out-and-out population crash. And it has continued to creep up on us little by little for decades.

While this decline has been a cause for alarm amongst long-term breeders for the better part of a decade, recent trends are particularly alarming and suggest the breed may already be at an unsustainably low population level.

Let’s Rewind: How We Got Here

As a breed, the Manchester Terrier has an interesting—if somewhat convoluted—worldwide history. Understanding registration figures requires understanding the historical forces at play, so let’s take a moment to put the numbers in context.

As we all know, the Black and Tan Terrier has a history that long pre-dated dog shows and kennel club registries. By the late-1800s, distinctions were being drawn between very small dogs (sometimes called Toy or Miniature Black and Tan Terriers), usually defined as weighing under 7 pounds, and the larger Black and Tan Terrier, who at that time were defined by varying weights ranging from 10-20 lbs (Stonehenge, 1887; Rawden Lee, 1894; Black and Tan Terrier Club of England, circa 1893) . Interest in organized dog shows was increasing at roughly the same time, and so it came to pass that by the time the American Kennel Club was formed in 1886 the Black and Tan Terrier and the Toy Black and Tan Terrier warranted separate entries in the newly formed and opened stud books. The first Toy Black and Tan Terrier was recorded in the AKC studbook in 1886 followed in 1887 by the first Black and Tan Terrier.

The AKC and our own pedigree records tell us that interbreeding between the two breeds was common in North America during this period, something that isn’t surprising when it is considered that in the country of origin (the United Kingdom) the Black and Tan Terrier actually remained a single breed until the 1920’s. It was only at that time that the Kennel Club divided the Manchester Terrier and the Miniature Black and Tan Terrier (renamed the English Toy Terrier (Black and Tan) in 1960) into two distinct breeds. Since then, the two breeds have been kept largely separate in Europe, with the exception of licensed interbreeding as part of efforts to save the Manchester Terrier when its population crashed following the Second World War.

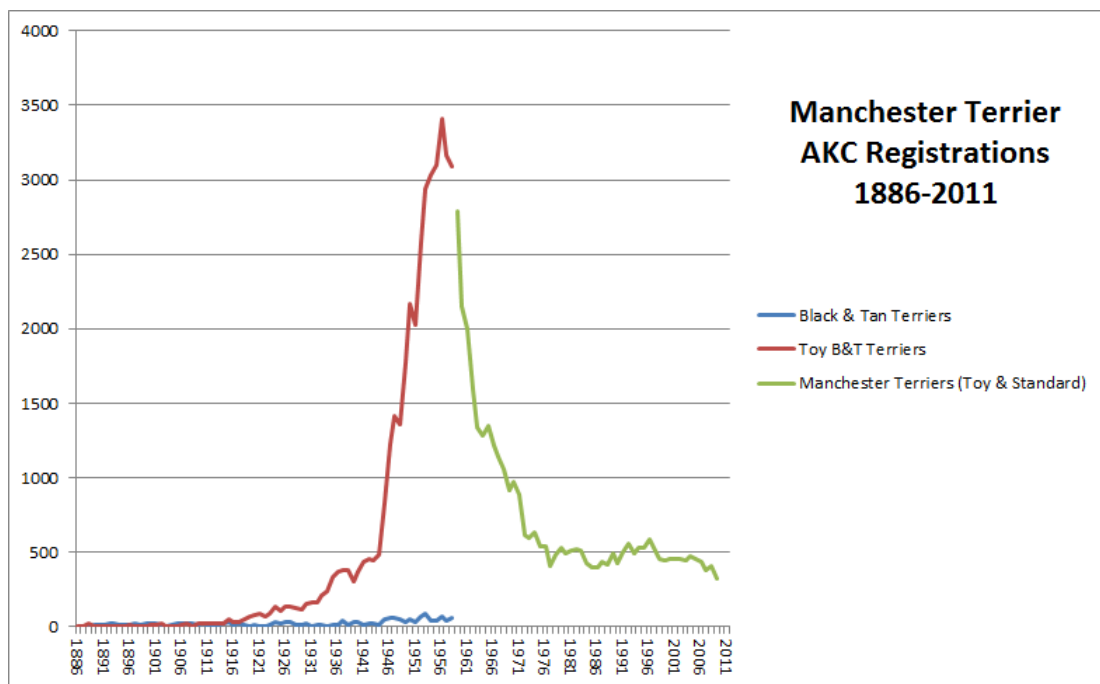
Back in North America, the Manchester Terrier Club of America was formed in 1923, bringing with it a change in name for the breed. Meanwhile, the Toy Black and Tan Terrier Club, formed in 1934, remained a distinct entity until 1958. During this period, interbreeding continued to be acceptable between the two breeds in North America despite their status as separate breeds.

The Registration Picture

With this info in hand, let's look at what the numbers for this period tell us. During the 'formative' years of the breed(s) in North America, registration statistics reflect a period of growth for both Black & Tan Terriers and Toy Black and Tan Terriers. Though their names would not change until later, for ease of discussion I will refer to them as Toy and Standard Manchester Terriers.

Toy Manchester registration numbers gradually increased from the 1880s to 1945 at which point the breed exploded in popularity nearly overnight. In 1944, there were 486 Toy Manchesters registered by the AKC. In 1945, that number jumped to 834. By 1950, annual registrations had more than doubled to 2,166 and they increased by another 75% by 1956, peaking at 3,407. In the span of a decade, the number of Toy Manchester Terriers registered each year had more than quadrupled.

During the same time period, the registration trend for Manchester Terriers was strikingly different with fewer than 1,700 Manchester Terriers registered in total between 1887 and 1958. Registrations for the larger Manchester during this period peaked at 71 dogs in 1953. By the late-1950s, with the Manchester Terrier Club of America now defunct, the breed was without representation at the AKC (a club essentially made up of clubs and not of individual members, as is the case for some other registries). To remedy the problem, the AKC suggested the two breeds be combined into one for registration and representation purposes. In the show ring the breed would be presented as two varieties – Standard and Toy – continuing to show in their respective groups. This change was affected in 1958 at which point the Toy Black and Tan Terrier Club became the American Manchester Terrier Club. 1958 was the last year separate registration statistics were maintained for the two



former breeds, with 55 Standards and 3,090 Toys registered.

The Decline

As quickly as the Toy had gained popularity in the post-war decade, the combined MT lost popularity during the next. After peaking with registrations totaling 3,476 in 1956, MT registrations declined by a staggering 72% to 976 by 1970, a net loss of 2,500 dogs per year!

If we assume a 10-12 year lifespan, the MT population nationwide likely peaked at between 25,000-30,000 live, registered dogs around 1960. By 1970, that number would have declined to 14,000-18,000 and again by 1980 to 6,000 to 8,000.

Combined MT registrations bottomed out temporarily in 1986 at 397 dogs registered but recovered to 583 dogs in 1996. But, the recovery was not to continue. Between 1996 and 2006 registrations slowly drifted down to approximately 450 dogs a year with the overall population stabilizing at around 4,000 to 6,000 registered, living dogs at any given time.

Since 2006, registrations have further declined with only 265 dogs registered in 2011 of which only a portion will be available for breeding. I personally, for example, registered two litters in 2011 totaling nine (9) puppies. Of those puppies registered, only five (5) are intact -- three (3) of whom reside at my home. While I do not have definitive figures from the AKC, based on my own experience as a breeder and the rate at which 'pet' puppies are spayed/neutered by puppy buyers, I would be surprised if more than 100 of the Manchester Terriers (Toy and Standard combined) registered in 2011 are intact and carry "Full" AKC registration. At the current rate of decline in annual registrations, the population of Manchester Terriers in North America could fall below 2,000 total dogs -- intact, altered, of breeding age, beyond breeding age, etc. combined -- within 5 years.

Contributing Factors

As I mentioned above, there are any number of both internal and external factors affecting the population of the breed in the last 125 years. The rise following the Second World War, for example, could have been a reflection of the general post-war boom, which wasn't limited just to babies but to suburban life in general -- and what says suburbs more than a family dog? Fresh from war, Americans also had leisure time like never before and many chose to spend it indulging in the luxury of showing dogs.

But why such a dramatic decline after a rapid rise? The overall decline of large kennels may have played a role or perhaps the tiny toys of the time were a fad. It's also possible that combining the breed(s) and changing the name caused a 'branding' problem confusing the public as to whether the smaller variety were 'toys' or 'terriers.' Maybe the increase in intervariety breeding following the breed's unification in 1958 brought undesirable changes in size or temperament to the formerly popular Toy. Or possibly breeders weren't interested in wrestling with the conformation challenges associated with the rebuilding process as Standard breeders attempted to use TMTs to bolster their numbers while struggling to maintain or reestablish breed type and Toy breeders dealt with large ears, dramatic changes in type and fluctuations in size. Certainly the timing of the turnaround in popularity has to be questioned as combined registrations for the two dropped from 3,145 in 1958 to only 1,059 10 years later.

More recently, the AKC's introduction of "Limited Registration" in the 1990s, which allows a dog to be registered but not used for breeding or shown at conformation shows, may have been a contributor though it is difficult to tell as Limited Registrations were never distinguished from "Full" registrations in the annually published statistics. Limited Registrations aside, societies' support of spaying and neutering pets has grown

News Release from The Kennel Club

Genetic research may help to save 25 Dog Breeds at risk of extinction

LONDON (February 28, 2012)—Native dog breeds at risk of extinction could be saved by new research by the Kennel Club and the Animal Health Trust, which will help breeders to tackle high levels of inbreeding that can reduce fertility levels.

The preliminary findings released from the research, being conducted at the Kennel Club Genetics Centre at the Animal Health Trust, show how many dogs with different genomes are contributing to the various breed populations (estimated effective population sizes). The level that is thought to be sustainable is 100 but many breeds will fall under this number, which can lead to a loss of fertility.

Five breeds under 30

Five breeds that have so far been shown to have estimated effective population sizes of under 30 are the Irish Red and White Setter (28), English Setter (27), the Manchester Terrier (20), Lancashire Heeler (25) and the Otterhound (29) – which are on the Kennel Club’s list of breeds at risk of extinction because their registration numbers are so low. Changes in fashion have meant that these breeds have declined in popularity and a simultaneous reduction of the gene pool has led to a loss of fertility in many of them.

Caroline Kisko, Kennel Club Secretary, said: “There are 29 native breeds at risk of extinction, partly because they have fallen out of fashion but also because as their numbers decline so do their gene pools...we want to use science to help breeders look at other solutions which might include out-crossing, importing dogs from abroad and using a wider variety of stud dogs. With the latter we will be adding a new function to our Mate Select service that will tell breeders how many times a particular dog has been used at stud and whether it is advisable to use him in the future.

Sarah Blott, a geneticist at the Kennel Club Canine Genetics Centre at the Animal Health Trust who worked on the research, said: “Pedigree dogs have many advantages because we know their ancestry. This means that we can predict the way that they will turn out, from how big they will grow and their exercise needs to the health problems they might face, enabling breeders to DNA test the parents before they are bred from, none of which is available for dogs of mixed ancestry.

“But we also have to use this knowledge to find ways to improve genetic diversity, as a loss of genetic diversity can reduce fertility and increase the risk of diseases surfacing. Of course, it is not a quick fix to improving dog health. Some of the most genetically diverse dog breeds may suffer from health issues, just as many of our endangered breeds are healthy, so breeders need to take many factors into account, including health test results, available on our online Mate Select, in order to ensure healthy gene pools in the future.”

Out-crossing strategies

The Kennel Club will be talking to breed clubs about introducing out-crossing strategies, where one breed is introduced into another breed. This dramatically increases genetic diversity and the great-great grandchildren from the original matings will be recognised as pedigree dogs.

Ideal Populations How Big Is Big Enough?

The Kennel Club's recent study concluded that the Manchester Terrier has an effective population of 20 dogs — but what does this mean and why should we care? Here are a few definitions to help explain how the effective population represents overall breed health and viability:

Effective Population

A measure of how many individuals are contributing genetically to the population. Increased inbreeding means lower effective populations as the number of unique individuals falls. Small effective populations suggest significant inbreeding and loss of genetic diversity which inevitably lead to reduced resistance to cancer and disease, issues with reproduction (i.e., smaller litter sizes, higher infant mortality), decreased longevity, and higher frequency of inherited disorders. The UK study analyzed pedigree data for the past 30 years.

Minimum Viable Population

The smallest possible size at which a biological population can exist without facing extinction. Many conservationists estimate the minimum number of individuals required to maintain a viable population at 100 with levels below 50 defined as critical. Estimates of the Giant Panda's worldwide population range from 2,500-3,500 with an estimated effective population of 50-60 individuals.

exponentially, meaning that in addition to falling registrations overall the proportion of the actual population capable of producing offspring is also likely significantly smaller.

The Challenge

Whatever the reasons, ultimately, the breed has declined sufficiently in registrations that the number of Toys and Standards, combined, is in the bottom third of all registered breeds. Because many (if not most) breeders choose to breed only within their chosen 'variety,' the effective number of dogs available for breeding is actually much smaller than the breed's overall ranking would indicate.

It is impossible to estimate what proportion of the dogs registered each year are from 'Toy' or 'Standard' breeding, however show and stud book entries would seem to indicate more Toys are registered than Standards. Regardless, even if all of the dogs registered each year were from the same breeding pool (i.e., TMTs or SMTs), the numbers would still be considered alarmingly low. This poses a unique set of challenges.

First, small numbers cause issues in terms of genetic diversity. Problems associated with inbreeding suppression and popular sires (i.e., smaller litters, shortened lifespan, increased rates of cancer and autoimmune issues, decreased disease resistance, etc.), while still disputed by some, are founded in hard science.

Second, beyond the implications of such small numbers on the sustainability of the population genetically, we also lack the 'critical mass' of dogs necessary to sustain the breeder population.

What exactly do I mean by that? Well, there are now so few Standards outside of California, a few clusters in Texas and the Pacific Northwest that designated specialty shows cannot draw a 'major' entry in the classes let alone local shows. In Toy Manchesters, making 'majors' has become more and more difficult even if it is still far easier to find competition in the 'Toy' ring. In fact, a review of the 2012 Schedule of Points for the AKC tells us that District 9 (California and Arizona), is the only district out of 15 where Standards require more than the bare minimum number of dogs entered. Even so, that only applies to 4 and 5 point majors. There is not a single dog show in the US that requires more than four (4) dogs or bitches to make a major in Standards. By contrast, Toys are above 'minimum' in six (6) of 15 districts. Given the AKC point schedule is determined based on statistical analysis of entries, it is a pretty objective measure of the relative health of a breed or variety relative to the number being shown. As we don't have any appreciable population outside the show

community, this should be concerning.

The lack of competition breeds its own problems. Consider, for example, how difficult it is to sell a ‘show/breeding prospect’ to someone who has virtually no hope of achieving a championship without flying 2,000 miles to a National Specialty or winning groups. In a breed that has been maintained largely by the show fancy for more than a century, not being able to finish the championship on a dog is very discouraging to new owners. The result is that it is very difficult to interest and ‘recruit’ the next generation of MT breeders – particularly, I would guess, SMT breeders.

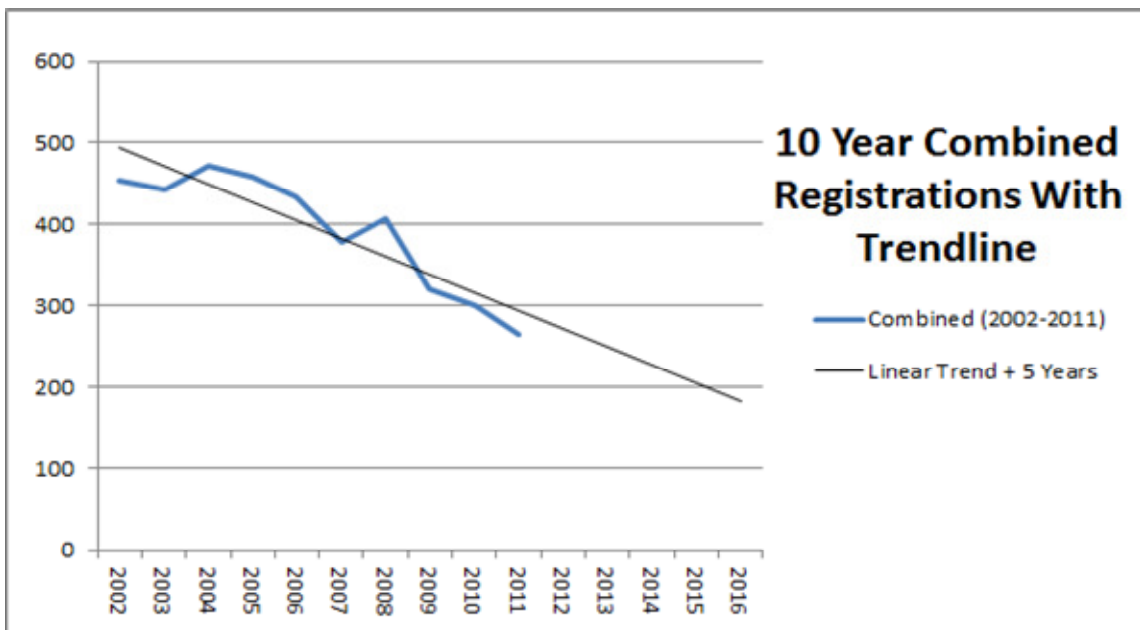
The lack of critical mass is further seen in the struggle to find dogs to breed to. As a breeder, I don’t want to breed to a dog I have not seen in person or only glimpsed across a ring at a specialty. The process of finding a quality dog with a compatible pedigree that is also ‘geographically desirable’ is frustrating, tiring, and can be prohibitively expensive. Ultimately, the logistics and expense of shipping dogs or semen combined with the ‘he looks nice in the picture, but I’d sure like to put my hands on him’ uncertainty of breeding to dogs at a distance are not for the faint of heart.

Bottom line: the harder it is for people to show, finish, and breed dogs, the less likely it is they will do so. The loss of dedicated breeders along with register-able, breed-able dogs can only accelerate unless we, as a community, take action.

Solutions?

In my opinion, there is no magic bullet that will solve the population crisis we face, but rather a collection of initiatives that must be undertaken.

It has been suggested, for example, that the genetic issues associated with small numbers of dogs can be addressed through imports from outside North America where the Manchester Terrier and the English Toy Terrier (Black and Tan) are still separate breeds. The difficulty for Standard Manchester Terrier breeders is that the population in the UK, and assumably in most of Europe given their dogs came from the UK relatively



recently, is itself in crisis. A recent study by The Kennel Club has established that the Manchester Terrier in the UK has an effective population size of only 20 dogs. That means that despite higher numbers of registered dogs, the genetic diversity of the population is the same as if they were breeding only 20 individual dogs – a situation that the KC has publically expressed concern about. Meanwhile, many ETT breeders have imported North American Toys into their lines over the past decade. So, the value of imports is questionable overall although it may help in the short run.

Longer-term, we need to avail ourselves as a community of all of the knowledge science, population genetics and management of endangered species has to offer us. Although it may sound flippant, our breed does in fact qualify as an endangered species according to almost all conventional definitions and we need to start viewing them as such. There are proven strategies for measuring diversity, monitoring health and maximizing the resources available to us. A worldwide population analysis along the same lines as that conducted by the Kennel Club would go a long way to telling us exactly how much diversity our population currently has. An international haplotype study may also be useful in helping us maximize the diversity of genetic factors affecting immune health and disease resistance.

Education efforts aimed at ensuring all breeders understand the fundamentals of how to apply principles of population management to their individual breeding programs are also a must (think stud dog management to avoid popular sire syndrome, breeding more bitches fewer times, etc.). Investing in a few tools to assist us would also not go amiss – even a simple mechanism to allow breeders to share information about stud dogs they may have available would be helpful. I have often felt like an amateur sleuth trying to figure out what males are even out there as choices -- we can't assume everyone (or anyone!) knows a dog even exists. These strategies cannot work in isolation; we must also ensure that we have enough breeders and puppy buyers to maintain a sustainable population of MTs. This is a very real and very serious challenge, particularly as some areas of North America face additional pressures from legislative changes, spay and neuter laws and cropping and docking bans. Finding ways to educate the public about the breed in a smart way is critical and we can't, as breeders, automatically discourage everyone who says 'can I buy' and 'I might like to breed' in the same sentence.

In North America, changes in the show ring may help attract breeders as well, particularly if they are aimed at increasing the number of dogs competing. The most logical solution would be to eliminate the varieties altogether and allow all MTs to compete in the same ring with divided open classes similar to the Daschund. That way a 'Standard' could stand a reasonable chance of finishing its championship in areas where there were few other Standards but adequate numbers of Toys to make majors. The breed standard for both varieties is the same with the exception of size and ear-style, so there's no reason a judge shouldn't be able to evaluate dogs fairly. Having one ring in one variety group would also allow the AMTC to hold National Specialties and support entries at the major terrier shows such as Montgomery or Great Western that do not draw substantial MT entries today. I recognize, however, that this is a drastic step and one that is not likely to find much traction in North America.

Other changes that could be considered would be changing the size division between Toy and Standard. At present, dogs weighing 12-14 pounds are, by and large, being dumped from the population regardless of their quality or value because they are too large to compete as Toys and too small to be truly competitive as Standards. That is not to say 12 to 14 lb toy-bred dogs can't finish championships — it is worth noting, in fact, that without the current 'toy-bred' dogs shown as Standards, there would be virtually no points much less major entries in the Standard ring outside of California. Dogs in that size range, however, are still used less frequently for breeding because they are over the current size limit for Toys, and many Standard breeders would

never consider using such a dog in their breeding program. If Standard breeders are uninterested in using this size range with regularity, the ranges could be adjusted to up to 14 pounds and 14-22 pounds. This would be even more workable if Toy Manchesters could also be shown with all ear types. In fact, any changes made to increase direct competition between the two varieties would be positive as they would provide cause for "Standard" and "Toy" breeders, owners, and exhibitors to work more closely together. Stronger competition can only raise the bar on quality within the breed while greater cooperation and exchange of ideas within the fancy can only serve to strengthen breeders.

The above are only a few suggestions representing the dozens of steps we could take to help remedy the problem we are facing. They are not meant to be prescriptive so much as to represent the kind of brainstorming we need to do. Figuring out what to do and actually implementing a few of these projects will require direct and prolonged discussions across the breed and I believe leadership must be taken by our collective national breed clubs. This is not an issue facing members of the American Manchester Terrier Club, the British Manchester Terrier Club or the ETT (B&T) Club individually, it is a problem facing all of us worldwide and it is time that discussions began in earnest at an international level.

At the end of the day, the joint, long-term goal within the fancy must be the protection and preservation of the breed. That goes hand-in-hand, however, with the preservation of a strong community of dedicated, reputable breeders.

Carolyn Horowitz breeds Manchester Terriers under the Rustic Lane prefix in Lakeland, Florida. A corporate controller by profession, Carolyn holds a degree in economics with a concentration in mathematics and has a strong interest in canine genetics.

Think It's Too Soon To **ACT?**

- The number of Manchester Terriers registered each year in the United States has decreased by 42% since 2005, and 54% since 1995 !
- Low SMT registrations forced breed unification in 1958 with average annual registrations of only 52 from 1949-1958 compared to 2700+ Toy Manchester Terriers. In 2011, only 265 Manchester Terriers were registered total — Toys and Standards combined.
- A study released in February 2012 concluded that the Manchester Terrier in the United Kingdom has an effective population of only 20 dogs — the lowest number among the 38 high-risk breeds studied. This despite registering an average of 130 puppies per year.

