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## On Selection, Traits and Inheritance

by Jill Moore & Monty Sloan

After talking to some people lately I have heard about a few misconceptions about wolf and hybrid breeding and inheritance.

One of these misconceptions is that once a line or family of wolves has been in captivity for several or more generations that it (or they) become naturally more tame or "domestic," without the benefit of selective breeding for this trait. This is not necessarily true.

There are many lines of wolves in many different facilities around the country. Some lines have been in captivity for thirty or forty years or more. The behavior exhibited by these wolves is no different from a wild wolf just taken into captivity. A few examples of these are the wolves at the Brookfield Zoo, the ones which were at the Philadelphia Zoo and the wolves at Wolf Park (some of which descended from wolves at the first two facilities.) These wolves are still WOLVES. Their behavior has not been altered by generations of captivity. They have not been selectively bred for temperament. The Brookfield wolves are not hand-raised nor are breedings arranged by humans. Although the wolves at Wolf Park are hand-raised, breedings are also not arranged. Our main pack has been in existence for twenty years. The behavior exhibited by these animals is still wolf behavior and can be quite intense.

Because we are a research facility interested in studying wolf behavior we don't set up or prevent breedings in our research pack. We simply observe and take notes! After visiting many different lines of wolves around the country and having the Park visited by other wolf researchers and comparing notes, we can see no differences of note in these wolves as compared to wolves in the wild or at other wolf facilities. In fact, resident behavior specialist Monty Sloan says our wolves - the ones sired by our current alpha male Chinook - are "graduate level wolves". That is, they are very intense.

There are, however, exceptions to this. Two examples we've seen are wolves from Bear Country, a drive thru wildlife park in South Dakota, and wolves descended from animals at Gabe Davidson's fur farm in Minnesota. Neither of these places purposely bred for specific temperament or traits, but it seems that the more high strung wolves, ones less adapted to being able to cope with the specific life provided at these facilities in captivity, didn't live as long or reproduce. At Bear Country the 40 acre drive through enclosure in which the wolves live has over 100 black bears in it. As you may guess, between the bears and the cars, this is more stressful for some wolves than for others. In the past, some wolves have escaped and the seemingly rapid turn-over of animals at this facility suggests that animals that could not adapt to such a life did not stay there very long. The wolves at Gabe Davidson's are mainly raised for their pelts in tiny little pens barely large enough to move around in. The breeding animals are kept in small dog-kennel type runs. I doubt animals which are hard to handle are around long enough to reproduce. Although it may not be a

conscious decision, wolves bred at these facilities are selectively bred for captive situations. Once again, remember this does not mean these animals are domestic. They may be a little less intense than other lines of wolves, they may be easier to socialize than other wolves, but we have met many and would not consider them "safe" or "dog-like" by any means.

As a contrast here is an example of the variability of wolf personality types. Several years ago at Wolf Park we raised four wolf pups for Grassmere Wildlife Park in Nashville, TN. We got two grey pups, a male (Beorn) and a female (Annicha), which were not from the same litter. These came from what is now the Wildlife Science Center (WSC) at Carlos Avery Game Farm in Minnesota. This facility does biomedical and physiological research and is home to some wolves which were wild caught but were not able to be released. Also housed there are wolves which are several generations removed from the wild. Annicha's mother was one of the wild caught ones. Neither pup was far removed from wild stock. The other two pups were black males, again not litter mates, from Bear Country. Their names were Bristol and Maui. The pups from WSC were older than the Bear Country pups and we were afraid the WSC pups would be too rough on the BC pups. The opposite was true. The BC pups were less easily startled by outside stimuli than the WSC pups and did not react as strongly. When introduced, the cautious WSC pups ran and actually hid from the less reactive BC pups. The smaller BC pups quickly took over as the more dominant puppies. This would make sense as the breeding wolves at Bear Country would likely be animals less stressed by the environment. These puppies were all raised by the same group of human puppy parents at Wolf Park and were handled the same way. As the pups matured Beorn stood out as a rather obnoxious little guy. Of the four he took the most work to "teach Manners."

We have kept in contact with these four wolves. We visit one to four times a year. Bristol became the alpha male, Beorn the beta and Maui the 3rd ranking male. Annicha is alpha female by default. The personalities of these four differ greatly. With people Bristol is rowdy but will roll over for a belly rub. He will stay on his back longer than any wolf I know. As the alpha male, he does test people for dominance somewhat, but is easy to temp into submission for a belly rub. Beorn is still quite obnoxious with people. In the past he was very rough, hard-mouthed and any effort to suppress him resulted in an explosion of fussing and twittering and hard mouthing all at once. Bristol's dominating him helps squelch some of this, but Beorn is still known to "Be-ornery." Maui turned out to be very shy with most people. He will frantically greet those who raised him, Wolf Park volunteers who are comfortable about meeting a new wolf, but has never allowed himself to be touched by anyone else. Annicha is very low key with people, really no human testing at all. She makes Maui's life miserable though with her constant harassment of him. There seems not to be



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much consistency to the adult personalities of these wolves as compared to their ancestry. The only time their ancestry becomes evident is during a stressful event. For example, a couple year ago their pen was expanded. Heavy equipment digging trenches, workers putting up new fencing, right outside the wolves pen. The two from WSC had to be kept mildly sedated to prevent them from overheating trying to get away from the workers and their machines, the shy Maui just laid a few feet away from the noisy equipment and watched while Bristol was standing up on the fence "seeing what he could do to help!"

The properly socialized animals which I have met which were descended from Gabe Davidson's were friendly and out-going for the most part. Some are quite rowdy actually and although many act as though they have never met a stranger, they still will test people quite thoroughly to see what they can get away with. However, we met one though which was a rescue. He had spent the first nine months of his life in a 2 foot tall by 4 foot wire cage at the fur farm. (This how the wolves there are raised until they are killed for their pelts.) He is about five years old now. Although when younger he was okay with the person who rescued him he will try to attack this person now and also rushed visitors. Keep in mind that a non-handraised unsocialized wolf would usually flee from people at any chance it could get. Gabe Davidson has been around for quite some time, perhaps forty years or more. It is my guess the wolves he has now were descended from some of the more handleable of the early ones.

Overall the wolves we have met that came from or descended from Bear Country or Gabe Davidson's Fur Farm do show slight variances from other wolves we have worked with, but the word slight must be emphasized. The BC wolves tend to be more laid back and less reactive to any of the "weirdness" that captivity may inflict on a captive wolf. The Gabe Davidson animals simply seemed easier to socialize and had the tendency to be more out-going.

At Wolf Park we estimate it would take two working human lifetimes, or about eighty years of VERY CAREFUL SELECTIVE breeding to create a line of wolves which would approach domestication. A study was done with foxes in which the animals were bred for traits associated with domestication. The resulting animals began to show less "fox-like" appearance such as floppy ears. This occurred over many generations while selecting for behavioral traits rather than physical characteristics. If this would hold true for wolves, that wolf-like appearance that so many breeders seem to want, and often back-cross to pure wolves to maintain, might also be lost. Actually we already have domestic wolves. We call them dogs.

Kidding aside, to get a really good overview of wolves try to meet as many as possible. If you only meet one or two animals or lines you don't get to see the great variance in appearance and behavior. The same is true of wolf hybrids. Look also at lots of examples of the dog breeds which go into creating hybrids. When I first became interested in hybrids I began to

look at all the dogs to which I was exposed. (I worked in a pet store which sold pure and mixed breed puppies, did dog training, attended dog shows and so on.) Contrary to what "hybrid experts" will tell you, all the dogs I looked at (several thousand over the years) have pre-caudal or "scent" glands on their tails. In wolves as well as some dogs and hybrids these glands are functional. The dogs also all have some webbing between the toes. Wolves and most dogs have the same number of teeth which is forty-two. Some short muzzled dogs have less. Wolves don't have pink noses (in spite of the fact that several books and calendars have published photos of a pink nosed hybrid which they call a wolf...) Arctic wolves and other white wolves have black whiskers. I have seen wolf eye color vary from a fairly dark brown to light or pale gold to green with almost a hint of blue, but never the blue which may be seen in Siberian Huskies. Another common misconception is that all grey phase wolves have black tail tips. While they typically do when young, many fade and get a varying number of white hairs as the animal ages. Some wolves even have a number of white guard hairs in their tail tips when young, however this is not the distinctive white tip a husky may have.

One other phenomena that has been widely discussed by many hybrid owners is that the more generations an animal is from a wolf the less wolf-like it tends to be. It does not seem to matter what the percentage of wolf it is. For example the fifth generation half wolf is generally expected to be much more dog-like than the first or second generation half wolf. This has become widely accepted, but no mechanism has been described to explain it. In the few research papers published on canine hybridization and in our personal experience, in each litter of hybrids there will be some animals which are more wolf-like and some which are more dog-like, even if it is only a slight difference. This includes first generation crosses with pure wolf and pure dog. Since we all know how difficult it can be to live with a more wolf-like animal, we can all understand that many people give up their animals, especially the more difficult ones. Many of these are euthanized. It stands to reason that the more dog-like a hybrid is the better it's chances are at survival as a pet as well as into adulthood to reproduce. We also all know that female dogs, such as malamutes, usually have larger litters than female wolves and dogs can have two litters a year. Wolves have only one. Also, male dogs are fertile year-round. Male wolves are only fertile from late November at the earliest to early April at the latest. Hybrids fall somewhere in the middle. The more dog-like hybrids also tend to have a greater number of puppies in one litter and like dogs can have two litters a year. The result of this is that there are a great many more dog-like hybrids produced and available than there are more wolf-like ones. The dog-like hybrid is more adapted to living in human society. Both sub-conscious selective breeding and the natural tendency of animals that are naturally better "fit" to survive in their environment both contribute to create animals which make a better "pet" and accordingly be overall more dog-like.

One other important concept to remember when breeding wolves, hybrids or any animal is that the offspring get all of

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their genes from the mother and father. I have found it very interesting in working with all the animals at and from Wolf Park and seeing all the similarities (and differences) in related wolves. I do not condone breeding, but if it must be done select **ONLY THE VERY BEST OF PARENTS!!** You will not get nice puppies from parents with less than favorable temperaments. Too often we see people breeding a wolf or a wolf hybrid or even a dog based mostly on the animals looks and conformation. They breed an aggressive, or shy animal and don't think twice about what temperament the pups may have. As for anyone purchasing a puppy, get to know the parents, if possible older littermates as well, and if you don't like they way they behave, if you don't like the way the breeder must keep them, then look somewhere else. If the animal has to be kept in an outdoor escape-proof pen, or is aggressive, or thinks children are "munchies" you have to remember that even though learning plays in important role in creating these "problems" some animals are much more genetically predispositioned to acquire or exhibit bad and even dangerous traits.