



## Life cycle of the wolf

The wolf's breeding cycle starts as early as November/December with courtship between the alpha pair. Hormone levels in both sexes start to rise in preparation for the breeding season in February/March when the females are in estrus (heat). This phase of the breeding cycle is called pre-proestrus and can precede estrus by up to 2 months. Wolves only breed once annually and always at the same time of year. This is to coincide with feeding the cubs in spring on the young from herbivores which are easier to catch and in abundance. Proestrus begins with the onset of bloody discharge from the vulva. The female at this time will actively body rub, paw and chin rest on her mate and stand in front of the male presenting her rear end to be sniffed. The male will be constantly near her and will scent her and her urine. Estrus is the phase when copulation occurs and the female is fertile. It is noted that the female will 'stand' for the male with her tail averted. This change in behaviour is a sign that the female has come into the estrus phase. If inattentive, she will paw, rub, straddle or even mount the male. When mating successfully, the male will give a few rapid pelvic thrusts in which ejaculation occurs before becoming tied with the female. The tie can last for up to 30 minutes or more, in which time the male and female remain standing or lie rear to rear with the male having dismounted by raising one leg over the female's back. The total number of copulations varies greatly between different pairs as can the time the female is receptive. During metestrus high levels of progesterone are maintained even if pregnancy does not occur.



The gestation period is between 60 – 63 days. If not already established, the den site will be chosen and both females and males may help to dig it out. This activity has been seen in all the adults and the yearlings in a pack. Den sites are typically near water as the female will need plenty while producing milk for the cubs. Sandy buffs are favourite sites with tree roots protecting the roof from collapsing and the entrance from being dug out but caves, crevices or holes under trees are also commonly used. Den sites tend to be well inside the pack's territory to prevent invasion from the neighbouring packs.

Cubs are born near the end of April – middle of May to take advantage of a glut in food with the birth of herbivore offspring. The cubs remain under ground for the first 3 weeks. The rest of the pack provides non-direct care of the cubs by defending the den site and providing food for the alpha female.

Cubs go through 4 developmental periods starting with the neo-natal stage which is from birth to their eyes opening at about the 10 – 14 day mark. At first the cubs show little resemblance to wolves. They are dark in colour but can have white markings on chest or even feet. They are pug nosed with weak legs that cannot support them, making them appear to be swimming around. However, they are strong enough to paddle the female to stimulate milk production and they quickly grow powerful, sharp claws that can wrack a human arm. They are blind and deaf with their ears curled over



against their big, round heads giving them a pug like appearance. They instinctively know to huddle together for warmth, sleeping on top of each other, often rotating in the pile. At this stage the cubs show little more than a set of reflexes: to warmth, suckling, nuzzling and elimination, but growth and development are rapid. Even at this early time cubs start to vocalise with whimpers if cold, hungry or isolated and cries if hurt. At this time they are unable

to eliminate for themselves, this is stimulated by the female licking the genital region and consuming the urine and faeces to keep the den clean.

The opening of their eyes around the 10<sup>th</sup> to 14<sup>th</sup> day marks the start of the transition period where the cubs start to become more coordinated and begin to stand and walk. At first they only explore the den before coming back to the comfort of the other cubs that still sleep in a pile. Eventually at about 3 weeks of age they start to show an interest in the outside world by coming to the den entrance to look out briefly before seeking the safety of the den again. It is about this time when their ears open at around 21 days old.

Soon they start to emerge from the den and can be seen playing, lying, eliminating and nursing around the den entrance. At this stage smell and touch are their strongest senses but in the transition stage, the other senses begin to develop rapidly along with their size and muscular coordination. From about 3 weeks they will start to sort out the hierarchy within their own litter mates. This can take a couple of weeks but by about week 5 the hierarchy within their litter is determined.

The socialisation period begins around 20 to 24 days after birth and it is now that interaction with the rest of the pack really begins. It will be another 2 weeks before they spend long periods outside the den but care can now be given by all members of the pack and solid food is starting to be ingested. At about 3 – 5 weeks of age the cubs are big enough to suckle from their mother while she is standing and feed on average every 5 hours. At about 5 weeks they are coordinated and strong enough to move rapidly away from predators into the safety of the den or to get out of bad weather. They can also follow adults for short periods of time although if changing den sites the females of the pack may carry the cubs if they are lagging behind.

Between 5 to 10 weeks the cubs grow rapidly. All sensory systems are developed and solid food can be ingested although they do not have the bite power to cope with large pieces of meat yet. They continue to suckle although less frequently, dropping to about once every 10 hours by week 9 or 10. At this stage the cubs are inquisitive and eager to learn. Their stamina also grows daily and activity is prolonged between rest periods. The cubs from 10 weeks are less dependant on milk and take to greeting any adult returning to the den site with muzzle licking and squeaking until food is regurgitated. Cubs will also be offered meat and are strong enough to be led to carcasses to feed. Cubs are also known to cache surplus food at this time for leaner days when adults do not bring back enough food.

This is a period of rapid growth and development, it is also a time of bonding and recognising family members which is essential for later in life to identify safe and non-safe wolves.

Play is important in learning social interaction and hunting. Play fighting is common and rough.

By about 8 to 10 weeks, they start to move around more with the pack and get left at rendezvous sites while the rest of the pack goes hunting. The survival instinct of “run first, find out what spooked you later”, is still strong and is a very effective form of defence. Also around this age, cubs are known to start chasing fast moving small animals, and mousing with a stiff 2 legged jump is often observed. These early hunting behaviours seems to be hard-wired into wolf cubs as cubs hand reared by humans have also been observed in this activity.



At 3 months the cubs are classed as juveniles. They are full of energy and are likely to follow adults away from the den / rendezvous site or go off exploring on their own. Cubs as young as 4 months can accompany adults out on the hunt but it will be awhile before they start to take an active role. This is a time for honing skills and building strength. Growth is still rapid and excessive exercise does not appear to be a problem for developing joints as it is for young dogs.

At 4 – 6 months of age the cubs regularly go out on the hunt with the adults and by 9 months will already have the skill to take down small prey. Cubs at this age have been



known to disperse from the family group but juveniles can stay until up to 3 years and some may remain in the family pack for life. Often, as a group or individually, they may go off for short periods. Another theory for dispersal is hunger. When the next litter is born the following spring the

alphas may horde the majority of food for themselves and the young, driving the juveniles to disperse or starve.

By 2 years old the juveniles are approaching sexual maturity. Some may start to disperse in the hope of meeting other dispersing wolves and setting up new packs. Others may stay within their family unit and since their puppy licence is now expired, will enter into the subordinate adult structure within the pack.

By 3 years the wolves are fully mature. The males especially become extremely dominant and this is seen regularly among captive socialised wolves that become increasingly difficult to handle, or to introduce to new people. Adult wolves are intelligent, good problem solvers and resourceful. Hunting strategies can change through trial and error and complex behaviours are seen in winning or stealing food from other individuals. They have been proven to have long memories, recognising individuals they grow up with years later or remembering past injustices. This is essential in the wild as dispersed family members may return to their original pack in the winter to hunt in larger numbers when hunting is difficult due to weather conditions. We as humans have bred the dog to remain very puppy like as an adult, this behaviour stops in a wolf very early. In captive wolves a marked difference in their attitude and demeanour is seen around the 7 - 9 month stage.

Life in the wild for a wolf is tough, and many do not survive their first year. Lack of food, disease, death by humans or other predators, and injury are some of the major hazards to avoid. Many more wolves die when they disperse due to being killed on roads or shot. 6 or 7 years is probably the average life span for a wild wolf although in captivity they can survive up to 16 years plus.