

By 30 days old baby rabbits are out and about and weaned

THE YEAR OF THE RABBIT: SUMMER

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Photo: G. Sparschott

The previous instalment ended in mid-Spring at the peak of the breeding season with 90% of the females pregnant, many for the second or third time that year. Pregnancy lasts 30 days and during the last few days the female digs a short, gently sloping tunnel with a rounded bowl at the end, either within the warren or under a bush or grass tussock. She lines the nest bowl with grasses and fur plucked from her belly and flanks, making her look rather unkempt! The litter consists of two to four kits which she will clean of afterbirth, nurse and then simply leave, blocking the tunnel entrance with earth as she goes.

Many species are born looking like miniature adults; fully furred, can see and hear and are very mobile within a few hours of birth. These are called precocial and include sheep, pigs, horses, cows and the rabbits' cousins the hares. In contrast, rabbits are altricial and are born in a foetal-like state; naked, blind, deaf, with tiny legs, long body and a large head. Most small mammal species including cats, dogs, mice and rats are altricial and display the Shelter system of parenting. This is where the mother spends most of the first few days with their newborn

young, often as much as 90 percent of the time, keeping them warm, nursing them frequently, stimulating them to urinate/defecate by gently licking their anus and defending them from any threat.

Home alone

However, rabbits are different and have evolved an alternative strategy known as Absentee Parenting. As its name suggests this is characterised by a notable absence of the mother, or any other adult caretaker. As far as we know only the rabbits and Tree Shrews (*Tupaia*) look after their altricial young in this way.

Clearly for the rabbits it has proved to be very successful and biologically cost-effective. In terms of energy the costs of pregnancy are less when the young are born altricial rather than precocial. Rabbits have further reduced rearing costs by expending very little time and effort on directly tending or defending their nestling babies. Rather they have evolved indirect, energy efficient ways of protecting their young and the young have also evolved special adaptations to this way of life.

On leaving the nest burrow the female carefully plugs the entrance with earth. This helps keep out any rain and maintain a constant ambient temperature in the burrow. Also, it makes the burrow entrance less visually obvious and reduces any scent of the nest escaping that might attract a predator. The mother will spend the next 24 hours eating, socialising and sleeping. Whilst there is some variation, on average a female rabbit only returns to the nest once every 20 - 24 hours to nurse her babies. She does not spend time cleaning or cuddling up to them. Instead her visits are brief and to the point. She will open the entrance, enter the tunnel and travel down to the nest. There she will adopt a nursing position standing over the nest and arch her back and suckle those kits that attach to her nipples. Unlike dogs, cats, mice and rats, a rabbit mother will not help those who do not find a teat nor retrieve any who are in the wrong part of the nest. After about three minutes she will stop letting down any more milk and will simply leave. Any kits that hang on too long will get dragged up the slope of the tunnel and will fall off en route. Their mother will not help them back to the nest, but will leave them to find their own way back or get chilled and die trying. However, assuming the tunnel is dry and they do not get cold, the

abandoned kit will find its way back as all rabbit kits will naturally move down a slope in these early days of life, and it is down at the bottom of the sloping tunnel that the nest is located.

Poor kits I hear you say, lacking a true mother's love! Maybe so from our human point of view, but not so from a rabbit's perspective. Indeed, rabbits have evolved some other special abilities in their young which mean they are more than able to cope with this form of parenting.

Whilst their mother is away, the babies snuggle down into the nest material so it completely covers them in soft warm fur, the grass base and walls providing a supportive mattress. Kits are unable to keep their body temperature stable without the warmth of the nest and each other, but are able to detect temperature changes to within 0.1°C. This means they seek to lie near their warm siblings and avoid cold, dying or dead ones. The huddle of nestlings is characterised by a gentle 'bubbling' motion as kits on the cooler outside of the group work their way to the centre only to shortly be moved over by the same siblings they recently displaced from this preferred spot. About an hour before their mother is due to return all the kits make their way to the top of the nest, just in the right place to grab a nipple and dinner! After having been fed all the kits urinate / defecate together on the nest surface before burrowing back down into their snugly heap, warm and replete. This simultaneous elimination means that the surface material can dry in the tunnel air and the body of the nest stays dry. As explained earlier most altricial species depend on their mother to lick them in order to eliminate urine and faeces. Being altricial and able to eliminate without stimulation seems to be a feature unique to the absentee parenting system. The kits also have a little trick up their sleeve should they be threatened to become someone's dinner. If disturbed they all push rapidly up through the nest, like a jack-in-the-box, in a concerted effort to scare the intruder away. Sadly, it is not that effective as many a stoat or fox can testify.

Growing times

Over the next four weeks the kits change beyond recognition. From birth they can recognise the scent of their mother. By a week old they are covered in a short coat of fur, and can hear, but their eyes do not open until they are 10 days old. In the third week they become quite mobile and start exploring the tunnel, nibbling the grass bedding and their mother's droppings, thereby acquiring important gut flora. In the fourth week the female only loosely packs the entrance when she leaves, encouraging them to start to explore the outside world. By 30 days old they are out and about and weaned, after all, their mother has made another nest stop and nest and has a new litter to nurse. The newly emerged kits will spend the next few weeks close to their mother as she shows them the ways of the world, what to eat, how to keep alert for danger, the layout of the warren and the who's who of their extended rabbit family.

In the next instalment we will look at this process of growing up as the summer proceeds to wind down towards autumn from mid-June to mid-September.



Rabbits have evolved an unusual caring strategy known as Absentee Parenting