Colour change in a bat, perhaps caused by trauma?

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On 11th June 1985, two badly injured pregnant noctules *(Nyctalus noctula)* were rescued by the Porthcawl RSPCA, from a 13 year old boy who apparently had taken the bats from their roosts. The bats were taken to the local 'bat expert' who, with the help of a vet, unsuccessfully tried several times to glue and splint broken forearms. At the end of June one noctule gave birth and though the bats were eating well, their health was deteriorating. It was decided they should be sent to us for treatment.

At 3am on 4th July, we collected the three bats from Peterborough railway station after their 15 hour rail journey. The adults each had one broken forearm and were rather nervous, often biting when handled. The fractures were severe with broken ends projecting through the skin. The membranes were highly oedematized which had clearly restricted the blood circulation. One bat appeared to have early signs of gangrene.

On 6th July the bats were taken to Leslie Helliwell (a vet in York with special interest in the welfare of bats), who after 2 days, operated on the lactating female to remove the wing. This was successful and the bat reared her young, which eventually learned to fly.

The wing of the second female (named Prunella) was still in a reasonable condition and after careful cleaning Leslie considered the forearm could be saved by pinning. However, as the birth of her baby was imminent, surgery was deferred until July 15th - 4 days after the birth of a male (Ben). The other mother and baby remained with Leslie who agreed to look after them.

From that time Prunella and Ben continued to thrive. Although remaining nervous for a time they soon became tame and Ben was eventually taught to fly. Unfortunately Prunella's forearm did not heal properly, possibly because the broken ends, exposed for such a long time, had died. The pin remains in the forearm to give it some rigidity and to enable it to be used for moving around. The wing cannot be extended, hence flight is impossible, however, she seems happy though sometimes frustrated at not being able to fly.

Throughout July the adult bats had the sleek golden fur typical for noctules, but on 5th August a 5mm blackish patch was noticed in the dorsal fur on Prunella's neck. A week later the patch had grown to about 10 x 8 mm and two small patches each about 5mm appeared on the dorsal fur close to the tail. A further week later the bat's head and neck was covered in almost black fur and another 8 small patches had developed on the dorsal fur. By the 25th August the patches had joined up, leaving golden patches in between, giving a brindled appearance, and all the fur had changed by the 29th August. Though the coat was still sleek and shiny like a normal adult's, in only 25 days it had turned from golden to almost black - similar to but appearing darker than the juvenile bat.

Why should the colour change so dramatically and in such a short space of time? Could it have been the combined trauma of being caught, having the broken forearm, attempts to treat it, much travelling by rail and car, giving birth and surgery? One would imagine that if this had been the case the other adult bat might have shown similar signs of colour change, especially as it had actually lost a wing, but this did not happen.

In 1985 I cared for 8 noctules. Unfortunately only one was released to the wild. This bat, an adult female, dropped from the roof of Upwood Church, Cambridgeshire, during a service, in May. Weighing only 15 grams it was weak and close to death. Bob Stebbings attempted to feed meal worm extract and water to the bat continuously for nine hours, before it showed any signs of reviving. Further intensive feeding and care brought its weight up to 30grams in 2.5 weeks, when it was released in the grounds of the church where it was found.

The next four bats from Wales, I have already mentioned.

On 25th August, two juvenile females were found by Bob Stebbings, abandoned in a bat box, at Cannock Forest. From forearm measurements they were estimated to be the equivalent of 14 and 18 days old and they were considerably underweight. Their membranes were dry and scaly with open sores, and their bodies were covered in mites. They appeared not to have fed for several days. These features are indicative of animals close to death. It took many hours over three days to pick off all the mites, during which time the bats had to be coaxed to feed and drink, and they gained little weight. Eventually they regained their appetite, but although they grew fat and strong, their forearms did not grow, which shows the growth had been inhibited due to the period of starvation. These young bats could not be returned to the wild. Releasing them would probably result in them starving to death because they had no knowledge of where to roost, or on what to feed, or how and where to catch it.

An eighth noctule, an injured adult male, was received in October 1985. It was fat and ready for hibernation. It had been hit by a fishing rod which broke its humerus close to the proximal joint. This break could not be repaired. The bat showed little sign of pain and has never been aggressive, even when the young bats climbed over the broken limb.

All five bats lived together amicably until November, when the two males were placed in a separate cage.

To date none of the bats has shown any colour change such as that shown by Prunella, who is darker than the juveniles. Nothing seems to have been published about this phenomenon and we await Prunella's next moult to see if normal adult colour returns.