

# Patterson's Page: The Continuing Story

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**I**t is important that all beekeepers, even raw beginners, learn the 'basics'; for these see <http://www.dave-cushman.net/bee/basics.html> and the life-cycles webpage <http://www.dave-cushman.net/bee/lifecycles.html>. You need to know what is normal in a colony, so you can spot what is different and therefore a potential problem. I have seen far more colonies than most people, so it is easier for me, but one of the benefits of a teaching apiary is to pass on knowledge and experience; another is to give members the opportunity to see more colonies than the few they may keep at home, so that they learn quicker. The discussion at the teaching apiary with the group of three, who were quite inexperienced, showed them that a certain level of knowledge is needed, firstly to detect a problem and secondly to understand what had happened to create it so you can think of a solution.

We inspected the colony fully and identified two kinds of queen cell. Emergency cells, correctly spotted by one in the group, which was impressive considering they had no bees yet and others, which had to be swarm or supersedure, because they were built on wood of the top bar, therefore had not come from existing larvae. The two queen cells close together are most likely to be supersedure see <http://www.dave-cushman.net/bee/queencells.html>. It is unreliable to guess what they are by their position, as is often stated. As I was suspicious about the supersedure cells we opened them. Both were dud, the contents had died soon after 'turning', which they do after about eight to nine days, making it impossible to tell when the eggs were laid. There are two things that should ring alarm bells:

- In normal circumstances where a queen has not been removed by the beekeeper there should not be two different kinds of queen cells, as the workers are getting two different messages. If the beekeeper removes the queen and some queen cells, the bees usually build emergency cells if they have larvae young enough to do so, but the queen had not been removed.
- Queen cells are sealed for about seven days, which is shorter than the eight to nine days that worker brood is unsealed. If the colony had swarmed, there would have normally been at least one emerged queen cell.

Worker brood in the 'pink eye' stage is about fourteen days old, so the queen stopped laying within a day of the previous inspection. I know it is easy to think the queen may have been killed at that inspection, but there are at least three reasons why that is unlikely:

- The queen was obviously seen at the previous inspection, because it was noted she was clipped and marked. If seen, I am sure she was carefully returned to the brood box.
- The queen cells. If the queen had been killed there would not be supersedure cells, unless she had only just laid in them and they had not been noticed at the earlier inspection.
- At least one queen cell should have emerged.

Are you getting near a solution yet? If not, go back and think it through again. I think the clue is in the emergency cells. Although variable, they are usually started within about 24 hours of a queen

going missing. Bees usually build them on larvae that are four to five days old from the laying of the egg if they are available, although they can use larvae that are up to two days older if there is nothing else. This means that from the bees starting to build them to emergence is around eleven days, which is three days less than the fourteen days since the queen had stopped laying, so there is at least a three day gap that needs explaining. In my view this is probably one of the 'Queen Problems' (see <http://www.dave-cushman.net/bee/queenperformanceproblems.html>) that I have been trying to highlight. I have seen very similar situations on many occasions recently, whereas, before the 'problems' started occurring, I cannot recall such things happening.

I believe it was a case of a 'disappearing', as I describe on Dave Cushman's website link above. It looks as if the queen had stopped laying instantly, then stayed in the colony for perhaps three or four days, so the bees still recognised they had a queen. She then 'disappeared' and the bees built emergency cells, hence the delay of about three days. It is possible there is an added complication in that occasionally queens take up to four days longer to emerge than they should. What may be confusing is that normally when the queen is missing and there is a full complement of swarm or supersedure cells, i.e. the beekeeper has not removed any, the bees do not normally build emergency cells.

It is only conjecture, but this case shows why I believe there may be problems with pheromones. There appeared to be little wrong with the laying of the queen. The brood and egg laying pattern was good, there were no drones in worker cells and there was no reduction in egg laying, as you often get with a failing queen. She seemed to stop laying instantly. I am not a scientist, but my guess is that something told the bees there was a problem with her, so they reduced feeding her, then perhaps pheromone production ceased, they did not recognise her as a queen, so stopped feeding her altogether and she starved. What is interesting is that the supersedure cells must have contained dead contents (I suspect this is a different issue) for at least four days and the bees had not detected it, otherwise they would have torn them down.

I hope you have been able to follow this. It is quite complicated and you will not find it in books, but is an issue that can face any beekeeper. As a beekeeper you must be able to know what should be happening in a colony, then spot a problem. The automatic cutting out of queen cells that is done by many beekeepers would have left this colony without the chance of raising a queen. It is much safer to assess the situation on the way out, deal with it on the way back, because that is when you know what you need to do. In this case I made a few mistakes. I am not making excuses, but on a busy afternoon I had five groups to deal with, all of which had interesting issues. I missed photographing the queen cells, I did not look on the floor to see if the dead queen was still there and I did not check the ages of the emergency cells. Even experienced beekeepers make mistakes and we all learn by making them.