Frogs' End

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There's a global mass extinction occurring, the world is losing up to a quarter of all it's frogs, toads and salamanders. Here in Australian 8 species of frog have gone extinct in the last 20 years. The mystery of our disappearing amphibia has been baffling scientists for years. But a team of Australian scientists lead by Dr Gerry Marantelli has been desperately trying to piece together what's been causing the extinction. They've uncovered a bizarre chain of events, which begins with the discovery of a fungus called chytrid. It attacks the skin and kills the frogs. They've found how the fungus is spread as infected frogs hitch a ride all round Australia in cases of bananas. Finally they've discovered how the fungus came to Australia. Believe it or not, they think it was all because of a human pregnancy test. (full transcript...)

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Full Program Transcript:

Narration: This is the high country in the Kosciusko National Park, and frog expert, Dave Hunter is searching for the Southern Corroboree frog.

Dave Hunter: Can you see any frogs there
Jasper: No
Dave: Any tadpoles? Check around the rocks... I often find them amongst the rocks. Can you see and frogs down there?
Jasper: No
Dave: No tadpoles either?
Jasper: Only a spider web.

Dave Hunter: Last year at this particular site there were about 30 corroboree frogs and then this year when we came back during the breeding season there were only five.

Narration: It's part of a disturbing pattern - frogs and other amphibians are going extinct at an astonishing rate. In Australia, eight frog species have disappeared in just 20 years. And it's the same story worldwide. Not since the fall of the dinosaurs have we seen this scale of mass extinction.

Gerry Marantelli (Herpetologist): What we're losing is a group of animals that have been crawling around the terrestrial part of this planet for longer than anything else. Four hundred million years. They watched the rise and fall of the dinosaurs. We're losing them right now and what we might be seeing now is the fall of the amphibians.

Narration: So how did it come to this? Scientists used to think the cause of the frogs disappearance was global warming. But herpetologist, Gerry Marantelli, is part of the team that's finally pieced together the bizarre true story. It begins four years ago, when Gerry first realised his frogs were losing their skin.

Jonica Newby (Reporter): So is he showing any signs?

Gerry Marantelli: No, well when they, when they get sick, if you were to rub their skin a little bit like this, you'd finish up with bits of skin on your fingers and this one, the skins not falling off very readily although that might be a little bit of it there. Ah usually at that stage they've only got a few days to live.

Narration: Gerry and his colleagues discovered the frogs were being killed by a strange fungus called Chytrid.

Jonica Newby: So what does it do to them?

Gerry Marantelli: Well what it ultimately does to them is the Chytrid fungus eats the Keratin out of this frog's skin. The Keratin is one of the key components of the frog's skin. We don't know whether the Chytrid in its process of digestion releases a toxin which kills the frog or whether the damage under the skin is simply enough that the frog can't breathe and drink anymore, which are the two key functions of the skin in a frog so either way it's …

Jonica Newby: Either way it sounds horrible.

Gerry Marantelli: Damaging the skin. It's a pretty horrible death yeah.

Narration: By 1998, they knew the problem was a disease. But how was the disease spreading so quickly in the wild. Gerry's first clue came from a childhood memory.

Gerry Marantelli: My uncle drove fruit trucks and he got frogs in bananas and I was the only one of the little kids that ran out at the time who took any interest in living things so I had these pet frogs that I used to gather up from his banana trucks and keep pet frogs.

Narration: Gerry wondered – were infected frogs hitching rides around the country in boxes of banana's? He decided to survey local fruit shops – and discovered an astonishing 50,000 frogs travel via bananas every year! What's more, when they're found, most of them are set free back into the wild. If they were infected, it was more than enough to spread a chytrid epidemic.

Gerry Marantelli: Just like people travelling the world in planes and spreading SARS or any other of the modern epidemics that was exactly what was happening with frogs. They were hopping a lot further than they normally do with the help of people and bananas.

Narration: So they had the disease and the means of transmission. That left the big question – where had the fungus come from in the first place? By 2001??, the final clue was emerging. Frogs around the world were dying. But one country's frogs seemed unaffected. In Africa, the frogs seemed to be immune to the fungus. So had the chytrid disease come from Africa? Late last year, they finally put their finger on the surprising answer. They'd found the chytrid carrier.

Jonica Newby: Wow, so this is the Typhoid Mary of amphibians.

Gerry Marantelli: I guess it was and they were Mary's because it was only the females that were shipped all over the world.

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Narration: This is the African Clawed frog. And the reason it was shipped to Australia? Believe it or not, in the 1930's this frog was used as a pregnancy test for women.

Jonica Newby: I'm surprised that these were actually used as pregnancy tests.

Gerry Marantelli: Well its no different to the modern pregnancy tests.

Narration: Just like today' pregnancy tests, back then they used samples of women's urine. The urine sample was injected into this frog. If the

woman was pregnant, her hormones caused the frogs ovaries to start producing eggs. This was the first form of pregnancy testing - so popular, the frog went worldwide. But, what no-one realised was that the African Clawed frog was carrying the Chytrid fungus.

Narration: No one's sure how or when it got out of the lab, but by the mid nineties, it had spread as far Kosciosko, where Dave Hunter fears the Southern Corroboree frog could be its latest victim .

Jonica Newby: So what are we looking for now.

Dave Hunter: So we're just coming over to have a look at a male nest site, which I flagged up during the breeding season, so during January when the frogs breed the male would have created a nest site within this bank next to the pool and that's where we would have called to try and attract a female and hopefully if he was successful there will be eggs.

Jonica Newby: Oh you found one.

Dave Hunter: Yep, so they make the nest site within the vegetation and there's the Corroboree frog eggs.

Jonica Newby: Oh well that's encouraging isn't it.

Dave Hunter: Well its encouraging in that there's some material that we can use for the captive breeding program, but monitoring nest sites in the wild hasn't been too promising in that there is extremely high levels of mortality and despite finding quite a large number of egg clutches in some sites, the adult population numbers are still continuing to decline so.

Jonica Newby: What does that mean are they going to go extinct?

Dave Hunter: Without a doubt, they'll go extinct in the wild.

Dave Hunter: Yes it is, its very devastating to me being up in the mountains... here is synonymous with also seeing that frog and yeah I don't think I'll ever be able to return here and not feel a very major loss if the frog isn't also in this habitat.

Narration: It's now estimated chytrid will wipe out 25% of all the worlds frog species. It's hard to believe this devastation was brought by, of all things, a box of bananas and a pregnancy test.

Gerry Marantelli: It's amazing that that simple action, you know the needs of people to know whether they're pregnant spawned this entire catastrophe potentially for frogs globally. But you know, that's just the tip of the iceberg We move so much content around the world that we will continue to see new disease arriving in new places, and we're going to see a lot more of it before we see the end of it.

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