



Galapagos

Which tortoise dropped that?!

VOICE OVER

The tell tale signs of the volcanic origins of Santa Fe are littered all around. For most of the year the island is parched, desert like. Three months can seem a long time in this sort of environment. It's the sort of research you need to pace yourself for.

The marine iguana is something of a curiosity. It's the only iguana in the world that lives by and in the sea. And it's only found on the Galapagos archipelago.

Iguanas probably arrived on these remote islands on rafts of vegetation and adapted to the local conditions. Some, like the land iguana on Santa Fe, adapted to eating the cactus pads. The marine iguana has adapted to eating the seaweeds on the rocks close to the shore but foraging for this food has caused them a number of problems. As they are cold blooded, and the sea is cold, they must warm up in the sun before going down to the sea to graze on the algae. The chilling effect of the sea means they must rest up for the day, warming up, passively digesting their food, with the males indulging in the occasional bit of territorial skirmishing, or having ticks picked off them by a ground finch.

Until the next foraging excursion, the chilling effect of the sea is apparent in the effort that they have to make to get back onto the land. After a long excursion, holding on to the rough lava blocks and climbing to safety, is visibly draining. But how draining? What is the measurably impact on the animal?

With a simple strain gauge, the animal is pulled off the rock. Correlate this against its weight, and body temperature at the time of the experiment and you have an index of stamina.

Martin Wikelski

That's five kilos exactly.

David Robinson

But there's one problem with this experiment. If all the iguanas he can catch are hot from basking in the sun, how can he measure one as if it's just come out of the sea? Improvise. A nearby tidal pool, used a playground by sea lions, is a convenient place to bring the iguana down to a low temperature. But you have to shift the residents for a while. Another index is speed. Time trials for iguanas. They take significantly longer periods to run the course when they are colder. It's as good an index of performance as you need. What's more the experiment is conducted so close to where the animals live, the disruption to their lives, always a problem in the experiments on animals, is minimised.

Beatrix Schramm

I will put this here if you can drop off there...okay.

VOICE OVER

Beatrix needs a check on whether the sex hormones collected from the faeces are a reliable indicator. She periodically takes a blood sample from her tortoises. This week it is the turn of a large male, called 'Chico', a procedure which I am lucky enough to help with.

Beatrix Schramm

ometimes we have to change the arm because it's the same with us. Some veins are good on one side and some are very bad so we try the other side. So you can see here this part, and these line going from there to this tendon. Here is a tendon, from the muscle and we following this line, going in this small hole. Here is the vein line going up there, and so we try to find this vein. You can't just feel it, so you have to following these lines, that's the best. But

nevertheless, sometimes it's difficult to find it, sometimes not at all. I got it. You see. When you got it, it's just a few seconds, and then you have it. Muchas Gracias Chico. Si, Por Favor. Yes. Now we have to be very fast. This is a heparin tube. Thank you very much. So this is a heparin tube. And afterwards I will centrifuge it. I will centrifuge it for about five to ten minutes. We only need the blood plasma inside so we will throw the blood cells away and in the blood plasma there are the sexual hormones and these we need.