



thinking inside the BIOSPHERE

Dr Matthias Hammer is the founder and managing director of Biosphere Expeditions, a unique operation that combines serious science with adventure and exploration. To find out what makes him tick, we took him off road for a singletrack interview in the saddle...

STORY + IMAGES Pat Kinsella

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For someone who thinks they have just broken their hand, Dr Matthias Hammer is in good form. "This is great!" he shouts. "I'll be doing much more of this."

"This is mountain biking. And this is the first time Matthias has tried it."

Biosphere Expeditions is a non-profit making, award-winning outfit that combines adventure travel, scientific research and conservation-focused voluntourism under one unique umbrella. It currently runs wildlife research operations in eight countries – Oman, Honduras, Portugal (the Azores), Spain, the Altai Republic, Slovakia, Namibia and Brazil.

Matthias is here researching three potential projects in Australia, involving turtles in WA, small mammals in SA and echidnas on Kangaroo Island.

In his native Germany, Matthias is something of a celebrity – a 'go to' man for TV and radio shows when they want an authority on eco issues or adventure tourism. It's not hard to see why – he looks like Action Man and has a CV that leaps from sportsman to soldier, scholar to scuba diving instructor, biologist to businessman.

In his teens, Matthias rowed at an international level for Germany. He then joined the army (special forces) rose to the rank of officer and saw active service. Despite loving army life, he had another calling – to be a biologist. He left the forces, did a degree at Oxford in England and then a doctorate at Cambridge.

"After my studies, I was looking for a way to keep doing what I loved," he recalls. "One day I had an epiphany. I'd already taken scientific research expeditions to the Amazon, and I'd learnt leadership and people management in the army – why not start a company running scientific tours? And so I did."

It's this sense of adventure and willingness to follow his passions that has enabled Matthias to build a successful international company. It's also what has led him to come mountain biking with us, and to bust his hand up.

At *Outer Edge* we believe that, in order to do a profile on someone, you have to get them out on a mission. We're an adventure mag not a fashion rag, and interviews over coffee isn't our bag.

Biosphere has a similar outlook. All projects, from tracking snow leopards in the Altai to monitoring lynx numbers in Slovenia, involve a

combination of serious science (data recorded about threatened species is carefully collated and published) and hands-on adventure. With pursuits ranging from off-road driving to scuba diving, they are not trips for the activity-shy.

And so we find ourselves on a camping trip in Victoria's Otway Ranges, combining an initiation to the single track MTB trails of Forrest (for Matthias) with an introduction to Biosphere practises (for me) and some general 4WD fun in the mud.

Despite his greenness, Matthias embraces the mountain bike tracks at Forrest with characteristic gusto. After warming up on the gentle Yaugher Superloop, he indicates that he's after something more challenging. So I steer us into Marriners (a black run).



The singletrack sweeps through a peachy series of S bends, rolling us around numerous beautifully bermed corners, before coming to a near vertical drop-off down a sudden gully. "Get your bum off the back of the seat for this one," I shout over my shoulder. "You need to get your weight as far back and as low as pos..."

I look around to witness one of those slow motion stacks that take an age to comply with the laws of gravity. Dr Hammer is going over the handlebars in a way that suggests he's trying to prove Dr Newton wrong.

Initially he's more worried about his bike, but as we set up our Snowgum tents that evening, he begins to think he may have

broken a bone in his hand (something he later confirms). At the time, though, he's straight back in the saddle and off around the track.

When we hit the pie shop afterwards, I discover that Matthias doesn't eat meat or fish. This is an ethical choice. He constantly makes reference to undernourished cattle as we drive, and talks about life measured in a currency of planet's worth of emissions.

"If people take a look at my carbon footprint, with flights and 4WD transport, it doesn't appear pretty," he says. "But overall, my impact on the planet's health is good. I work in conservation and, even if we only touch a few lives, we make a real tangible difference to those people."

He explains how Biosphere always employs local people on the ground, and place great emphasis on education, not just for their clients, but also for the communities in the places they touch.

"If you're telling someone they can't shoot a predator they think is threatening their animals, you have to give them a reason why, and offer a good economic alternative – such as tourism," he says.

"Remote, rural communities are incredibly stuck in their ways, even if those ways are no longer working. That's as true here in Australia as anywhere else."

Matthias keeps a pair of flash looking Swarovski binoculars close to hand all the time, and notes down each new species of bird he spots in a book – the habit of a born biologist.

By a riverbank, he takes me through the process of setting up a camera trap – one of the methods Biosphere use to capture information about the endangered species they monitor. It's a brilliantly simple system, with the animal simply triggering the camera and getting their mug shot taken as they pass by. Water sources are an excellent place to set them up, as all creatures need to drink, but nothing much is moving around in the rain tonight.

The downpour makes for a damp camp that night, but it's perfect for some off-road action the following day. Matthias was taught to 4WD by the German special forces, and he passes on his skills to expedition members during trips.

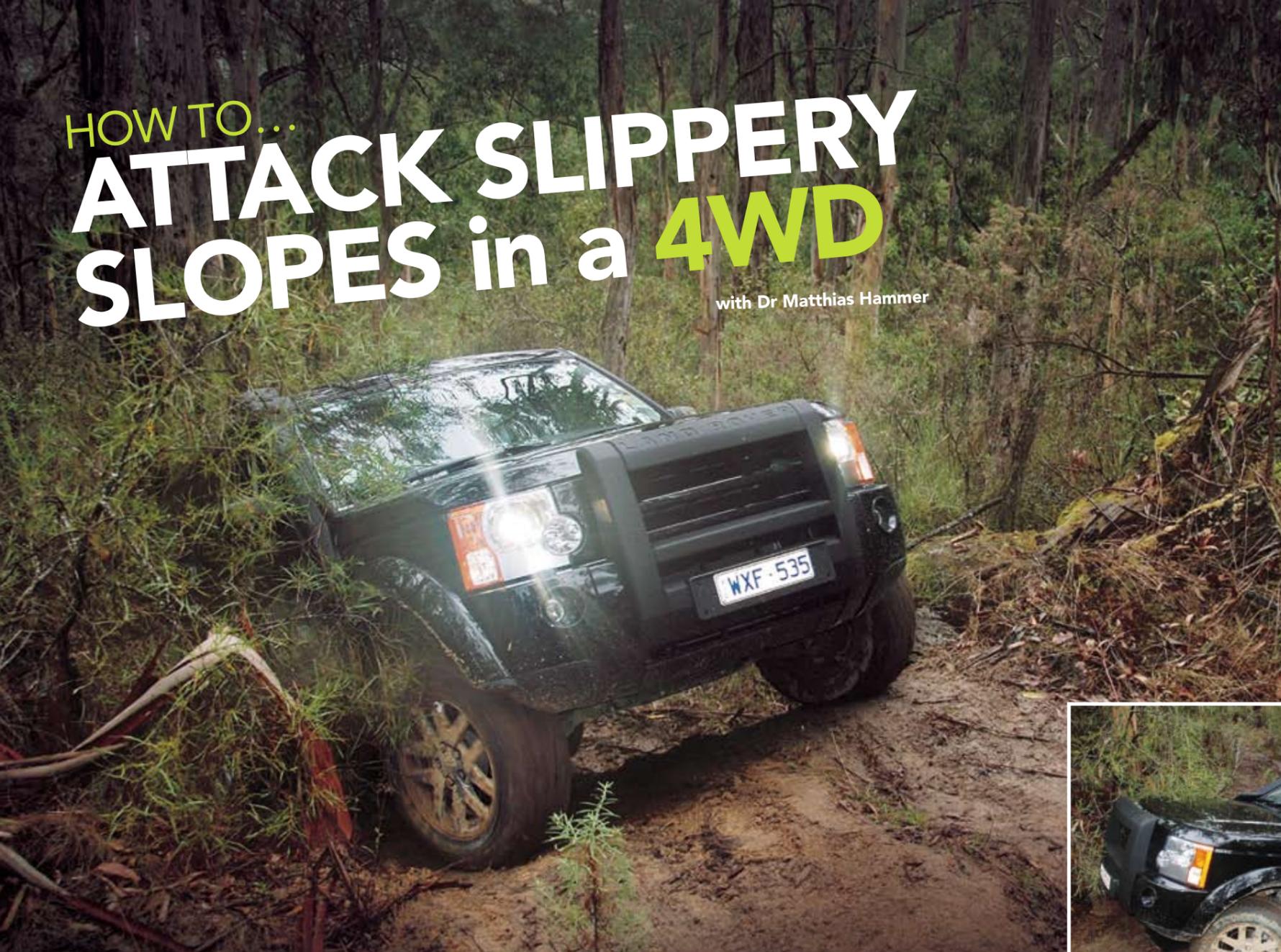
He puts me in the driving seat of the Biosphere wagon, a latest model Land Rover Discovery, and the roles are reversed from the previous day. The hills of the Otway Ranges are bloody muddy, but I'm in good hands, even if one of them is slightly broken.

For more info on Biosphere Expeditions, see biosphere-expeditions.org.

For 4WD tips on driving through mud, see the following page.

HOW TO... ATTACK SLIPPERY SLOPES in a 4WD

with Dr Matthias Hammer



WHEEL RUTS

If the track is wet, drive with the wheels in the ruts to reduce the likelihood of slipping sideways (be aware that this may expose the underside of the vehicle to possible damage). If the track is dry, straddle the ruts to reduce the chances of catching the bottom of the vehicle.

GEARING

Approach steep hills in 'Low Range' and, in a manual, select the highest practical gear – if the gearing is too low the vehicle may be prone to wheel spin, retarding forward progress and damaging the track; if the gear chosen is too high the vehicle will simply stall. In an auto, just select 'Drive' and let the vehicle manage the gear selection. In some auto vehicles you can use the command shift mode to ensure that the vehicle takes off second gear, thus reducing wheel spin.

SPEED

Appropriate approach speed depends heavily on the surface you're tackling, the ability of the vehicle and the attitude of the driver. As a rule of thumb: go as slowly as possible and only as fast as necessary. Keep up enough momentum to maintain the vehicles forward progress, but not at the cost of passenger comfort, or creating wheel spin.

TYRE PRESSURE

When travelling off road, tyre pressure is commonly reduced to increase traction. Lower pressure allows the tyre to deform over rocky terrain, thereby reducing wheel spin and softening the ride. In a Land Rover Discovery 3, normal road pressure is 33psi front and 36psi rear. In heavy mud you would change that to 24psi front and 30psi rear.



For 'How To...' skills videos about 4WD, MTB and a host of other outer activities, check out outer-edge.com.au



Biosphere Expeditions MD, Dr Matthias Hammer, learnt his 4WD skills in the German army, and now teaches expedition members how to drive all around the world, from the Tatra mountains in Slovakia, to the savannahs and wetlands of Africa, the winter wilderness of Poland, the sands of Ukraine and the Altai mountains in central Asia. After all that, the mud of the Otway Ranges isn't a problem.

The basis of all good 4WD behaviour is sound risk assessment combined with a good working knowledge of the capabilities of the vehicle and the driver.

Risk assessment should take into account all of the following:

- The safety of all the occupants of the vehicle
- Minimising the impact of the vehicle on the environment
- The potential for damage to the vehicle

If conditions are too dangerous, always take an alternate route.

Prior to attempting any steep ascent or descent, the driver should get out of the vehicle and familiarise themselves with the terrain. Look for any part of the track that may impede the progress and consider the following:

- The condition of the track surface – is it wet or dry, rutted or rocky, are there any tree roots?
- The vehicle's approach and exit angles – is the front or rear of the vehicle going to hit anything?
- The ramp over angle – is the underside of the vehicle going to get hung up on anything as it passes over the top?
- Are there any wheel ruts on the track?

trouble shooting

Slipping

If you find yourself sliding when ascending a muddy hill, try moving the steering wheel half a turn from side to side, so the edge of the tread on the tyres can contact the edges of the ruts and assist in traction. Cycle the accelerator on and off, to allow the wheels to gain traction. It's a good idea to carry traction mats to place in front of the tyres that are struggling for grip. When descending a slippery hill, engage Hill Descent Control if your vehicle has it. If not, reduce your speed as much as possible without allowing the wheels to skid, by selecting a low gear. If you do skid, release the brakes and allow the wheel speed to match the vehicle

speed (it may even be necessary to accelerate). Remember: at all times continue to steer toward the bottom of the hill.

Becoming Grounded

Some vehicles, modern Land Rovers included, will sense they're grounded and will automatically raise the air suspension to clear itself. If your 4WD doesn't have this capability, then secure the vehicle as best you can by engaging low range, applying the handbrake, and chocking the wheels. Grab a long handled shovel and try to remove as much road material as possible from under the area of the vehicle that has struck the surface. Alternately, you may try to jack

each wheel separately and pack enough material under each wheel to eventually raise the vehicle. Both methods are slow and tedious, so try to avoid the problem in the first place.

Overheating

Most modern 4WD vehicles are up to the task of traversing any type of terrain without overheating, however this is dependent upon how they're driven. Steady progress up a steep hill should allow the vehicle's cooling system to keep up, if the temperature gauge does start to rise then rest the vehicle on flatter spots, such as a drainage mound. This will allow you to start again with a minimum of fuss.

Remember...

These tips and facts will help you get up a slippery slope in an Australian rainforest, but there is no generic answer to the myriad of challenges you might encounter in a 4WD – every situation needs to be judged on its own merits. For example, if you hit an obstacle on the African plains with a pride of lions hanging out nearby, the safest approach may well be not to get out of the car and do a recce!

If you're keen to try some serious 4WD under the guidance of professionals, and in the context of a genuine scientific expedition, check out what Biosphere has to offer at biosphere-expeditions.org.