



Left: an oil sand excavation site in the Alberta forest, Canada. Below: the edge of the site – and the lush forest beside it



REPORT BY JONATHAN GREEN
PICTURES BY XXXX XXXXX

This used to be a vast Canadian forest, until the petroleum giants discovered the world's third-largest oil field lay beneath it. Now it looks like this – and the locals are dying. Welcome to...

Through the blur of the Cessna's propeller I can see a vast forest stretching to the horizon – 2.5 million square miles at the top of the northern hemisphere that's home to 140,000 species of plants, wildlife, insects and micro-organisms. The Canadian forest in Alberta is second only to the Amazon in size. It's critical in absorbing the Earth's mounting deposits of carbon dioxide and carbon. Over 500 First Nation Indian tribes have lived and hunted here for thousands of years.

Suddenly a smell of sulphur begins to infuse the cockpit. Abruptly, the trees stop – where once stood towering spruce and conifer are now lifeless sand dunes. Then the landscape turns a sickly black, like a giant, dark bruise spreading over the planet.

This is Tarmageddon, and here, deep below the forest floor is the third-largest oil field in the world – 173 billion barrels of recoverable oil. 'I'm always blown away by how immense this place is,' says the pilot. Giant trucks, as tall as three-storey buildings, labour across the blackened landscape below, plundering sand full of bitumen from strip mines. A line of trees stands near the mines, waiting to be culled as the mine spreads. Tall chimneys bleed waste burning gases into the atmosphere.

It takes two tons of 'oil sand' to produce just one barrel of bitumen oil, which is then refined into petroleum. Around 1.7 million barrels of oil are produced a day here. The oil companies, with British support, hope to increase that seven-fold in coming years.

But according to environmentalists and some British politicians, this is the dirtiest oil anywhere in the world. Up to five barrels of water are needed to extract every barrel of oil. Worse still, a gallon of petrol produced from oil sands releases three times as much carbon dioxide as conventional oil. ▶

TARMAGEDDON

► The plane banks left as we fly over an oil-production facility bordering the Athabasca River, which flows north to the Arctic. A number of pipes flow into earth-banked tailing ponds, which contain the highly toxic byproducts of the extraction process. The ponds cover more than 30 square miles. Locals claim that evaporation from the ponds results in acid rain and that the toxins seep into water-supplies.



Up Highway 63, busy with heavy industrial traffic, it's a four-hour drive from the teeming oil boomtown of Fort McMurray to the small town of Lac La Biche. Here, Crystal Lameman, a Beaver Lake Cree Indian and activist, is fighting to save her community from encroaching oil companies, many of them British. The Beaver Lake Cree's traditional territories cover an area the size of Switzerland and contain 30 per cent of all tar sands production. That is set to triple.

Lameman recently returned from a trip to London to spread awareness for her cause. The Beaver Lake Cree Nation filed a lawsuit in 2008 against the Canadian and Alberta governments for letting oil companies destroy the Cree's ancestral lands in their hunt for oil. They cite 17,000 infringements of their treaty rights.

'The Queen said she would protect us and our homeland,' says Crystal. 'We are now going back to the Queen to ask for her help. They colonised us here. The oil companies are just the last line of that process in completely wiping us out.'

We drive up into the Beaver Lake Cree First Nation Reservation to meet Crystal's 80-year-old uncle, former chief Al Lameman. Along the way Crystal points out small signs that show exploration areas earmarked by Husky Energy, a partner of BP. The area is being mined using a less damaging form of extraction than open-cast mining. Long swaths are cut through the landscape, along which oil companies detonate explosive charges to find oil reserves. From the air you can see square holes cut in the forest where engineers blast steam into the ground to force the oil to the surface. Some scientists and environmentalists, however, say that the method poisons underground aquifers.

'About 20 years ago I said to all the other elders that one day we would have to pay for water, that it might come in bottles,' says the former chief, Al Lameman. 'They all laughed at me. We are surrounded by lakes and water, they said. Now look. The lakes and rivers are drying up. And we pay for water from bottles.' He slumps a little. 'We had a hard time adjusting when they put us on the reservations.'

The northern reaches of Canada are directly on bird-migration paths so that several times a year the air is thick with flying formations of ducks. 'The ducks don't land here any more, or if they do in far fewer numbers,' says Lameman. 'When we eat them they taste different. The animals are smarter than us. They have left.'

When the oil companies started to speculate, Lameman says the locals were offered inducements to keep quiet. 'They would say, 'We will give you \$100,000 for a new playground or community centre,'" he says. 'I told them no.'

'The creator gave us the environment to look after. The land is sacred for us.' In the Indian religion, Mother Earth is imbued with powerful spirits – and animals, trees, and even rocks have spirits. 'The most sacred of these is water,' says Lameman. 'The source of all life. Without this we have nothing. Now they are poisoning the water, the lakes are drying up and they are taking land all around us, thousands of square miles.'



'WE'RE NOT AGAINST OIL COMPANIES, WE'RE AGAINST POLLUTION. THE LAND IS SACRED FOR US'

The huge machines ripping into the earth are seen by the Indians as an attack on their homeland, their religion and their race. 'This is just another form of colonisation,' says Lameman. 'They forced us on to reserves, then they sent us to residential schools where we could not learn our language or our culture any more and now they are finally taking away the land.'

The following day we drive out to visit mining sites deep in the woods, once the traditional hunting grounds of the Beaver Lake Cree. The sites are ringed by heavy security and high guard towers to keep out unwanted attention. One facility belongs to Devon Energy, a partner of BP. 'We're not against the oil companies,' says Lameman, 'but we are against pollution and destroying the environment upon which our lives depend. The money is overpowering these people. They take it and run. Once all the oil is gone they will run back to London or New York. All we are saying is that we would like to sit down and talk. There must be a way to do this where the

in one of the world's biggest freshwater deltas. The tiny outpost of wooden homes and a couple of simple churches was established as the centre of the trapping and fur trade in 1788. Today, it's home to 800 people, a mixture of Indians and the descendants of settlers. 'The Europeans used to come and offer the trappers small presents to get them to hand over their furs,' says one resident. 'Now the oil companies come and offer us free pens and little bags. The exploitation continues.'

But the devastation of the environment is a more recent development. Fishermen started to notice problems with their catches – fish with large heads and small bodies, lesions, boils and oversized jaws. They tasted of oil. When they boiled river water it left brown sediment in the kettle.

A report, 'Does the Alberta Tar Sands Industry Pollute?' in the *Open Conservation Biology Journal* found increased mercury in walleye fish, higher than Canadian health recommendations, and levels of hydrocarbons that are known to cause cancer. The

Clockwise from main picture: the Syncrude Aurora oil sands mine north of Fort McMurray, northern Alberta, Canada; protestors demonstrate against the UK's proposal to reclassify fuels produced from oil sand (also called tar sand); former chief of the Beaver Lake Cree tribe, Al Lameman; the Syncrude plant; a scarecrow near the plant, which it's hoped will stop migratory birds landing on the toxic sludge; one of the polluted tailing ponds



report stated: 'Elevated levels of mercury and arsenic in the local fishes are a concern.' It concluded: 'Arsenic is a known carcinogen linked with human bile duct, urinary tract and skin cancers, vascular diseases and Type II diabetes.'

The report confirmed what visiting doctor John O'Connor had been finding for several years. 'I started to notice a very high prevalence of rare, aggressive cancers,' he tells me. 'These cancers can be linked to petroleum products.' O'Connor is revered as a hero in the small community. The doctor went public in 2006 as a whistle-blower and was immediately attacked by the Alberta government. An independent study was done by Alberta Health Services. A peer review analysis of the report was then carried out by the National Resources Defense Council, which found a 30 per cent increase in cancers in Fort Chipewyan. Leukemia and lymphomas had increased threefold and bile duct cancers seven fold.

Beatrice Gladue, a native Beaver Lake Cree Indian, welcomes me into her modest home, set high on stilts deep in the forest. She used to share the home with her husband, Al, her childhood sweetheart, and had two children. 'What can we do?' ►

► she sighs. 'The oil companies have millions of dollars. How can we fight them?'

Al used to be a bus driver for the local community. All the schoolchildren knew. In May 2007 he began to have pains in his stomach and problems sleeping. Beatrice noticed his skin was a bluish tone. And his eyes were beginning to turn yellow. Soon after he was diagnosed with the extremely rare and aggressive bile duct cancer. For months he underwent painful treatment and each time he returned home with tubes protruding from his stomach. 'I wanted to hug him at night,' says Gladys. 'But the saddest thing was that I couldn't because of the tubes. It was too painful for him.' Al died on January 7 this year.

Down near the lake Alice Rigney sits in the window of her home looking out over the river wearing a scarf to hide her hair loss from chemotherapy. Alice has breast cancer. She's a bright, thoughtful and kind woman who taught Dene, the native Indian language, at the local high school. She grew up in a large Indian family of 16. Her father lived off the land, hunting, fishing and trapping. Her mother made all the children new moccasins and clothing from buffalo hide. 'What saddens me most,' she says, 'is that my grandchildren will never experience what I experienced growing up here. The tailing ponds from the mines are right by the river. It's seeping into the water. Our people never used to get ill. My parents lived until they were 90. Now people get diabetes, have heart attacks, develop Lupus, a lot of diseases that we never heard of. People used to get colds and the flu, but nothing like what we get now.'

Alice says that no one in the community has any recourse. 'You never see a politician here,' she says. 'There aren't enough of us here so no one cares what we think. What's in store for us? Who knows?'

Fort McMurray is Canada's sand oil boomtown. It's stuffed with roughnecks coming in from all over the world to make it rich. There is one woman for every 20 men. Aside from the Casino there are two strip clubs and a multitude of bars to cater for off-duty oil workers. In among the stores offering tax advice are drug-testing clinics, which the oil companies use to ensure that their workers are not drunk or high at work. Drug use is rife.

In The Keg bar I meet Justin, a Houston oil executive working for a company that cleans the polluted water that's a by-product of the oil extraction. He has little time for the environmentalists and the Indians who claim the oil is ruining their homeland and causing cancer. 'It's green,' he says. 'It comes out of the ground. So do the chemicals. Maybe when we start importing chemicals from Mars they'll have something to complain about.'

He says the oil companies are offering economic opportunities. 'I met one woman on this trip who earns \$70 an hour for cleaning down the buses that transport the workers,' he says. 'She sends her kids to college with that money. Where else could she earn money like that?'

The following day I drive out to the oil facilities. From the ground the smell of chemicals is overpowering. And the tailing ponds are vast, stretching as far as the eye can see. It's like the lifeless surface of some uninhabitable alien planet. The air is punctuated by the artillery-like booms of propane guns that are to scare birds off the ponds so that they do not land, and die.

Recently the European Union tried to label the oil sands as a dirty fuel because of the increased emissions but amid intense lobbying from the Canadian government and oil companies the vote ended in stalemate.

In many ways, the Canadian oil sands are a futuristic vision of hell. I remembered what Al Laneman told me: 'The creator is angry. Everyone is going to be sorry for what they have done. A day of reckoning is coming. And it's going to affect everyone on the planet. It will make no distinction for religion or creed. Something is going to happen.' ■

Stand-ups who deliver



Don't care about this summer's sport? Then why not check out comedian Rhod Gilbert's pick of the funniest acts you can see on stage



1. DANIEL KITSON



He might look like the sort of bloke you'd cross the road to avoid, but this comedy livewire is famous for his adventurous stand-up routines. It's impossible to know what to expect from him. He might do an extended routine about the workings of a pigeon's brain – or a meditation on love and death.

TELL US A JOKE 'At school I was always the last to be picked for the football team. It always came down to me or the bench.'

RHOD SAYS It didn't come as a surprise to me when Kitson was voted greatest UK comedian of all time by his peers last year. His name is always the first to pop into my head when I'm asked who's the best.

2. HARRIET KEMSLEY



The kooky-looking newcomer's sharp and surprising dissection of sexual and social mores is belied by a shy, shambling and highly effective persona.

TELL US A JOKE 'I live on the border between Shoreditch and Hackney. You can tell which side someone lives by asking them if they're allergic to gluten. Everyone in Shoreditch is allergic to gluten. Nobody in Hackney has ever heard of it.'

RHOD SAYS Takes on some fairly risky subjects and succeeds through sheer strength of character. Harriet's been doing stand-up for little more than a year and she's already won awards. I can't wait to see her at Edinburgh this year if only to find out whether the buzz is justified.

3. PAUL FOOT



Looking like a deranged professor, brainbox Foot, with his trademark madcap haircut, studied maths at Merton College, Oxford. Like Spike Milligan, he draws the audience into a surreal world.

TELL US A JOKE 'Sudoku puzzles? What's the point? You see people on the train spending an hour trying to get the correct numbers into the grid. Why don't they write any old numbers down? I mean, no one checks.'

RHOD SAYS He has you roaring with laughter even before he's arrived with his ten-minute offstage announcement. In that ten minutes he's given me more laughs than most people manage in an entire show.

4. LLOYD LANGFORD



Looking like he ought to be propping up the bar in a run-down Port Talbot boozer, the Welshman is the voice for Elvis in the new series of TV's *Fireman Sam*. Excels at sharp topical jokes but is equally funny when taking about mice or clingfilm.

TELL US A JOKE 'What do you call a deer with no eyes? No eye deer.'

RHOD SAYS I wouldn't necessarily recommend him as a flatmate. When I moved in with him he hadn't done any cleaning in eight years. The place was absolutely disgusting. Thankfully, he's a much better comedian than a flatmate. He's got the brain of a hare and the diction of a tortoise. He sounds as thick as mince but happens to be incredibly bright.

5. HUMPHREY KER



With a face that belongs in the window of a 1950s barber shop, the Eton-educated Ker won a comedy award for Best Newcomer for his show *Dymock Watson: Nazi Smasher*. Specialises in character-driven lunacy.

TELL US A JOKE 'Why did the scarecrow win the Nobel Prize? Because he was out standing in his field.'

RHOD SAYS The writing and the delivery are so beautifully honed that you find yourself completely gripped. His *Dymock Watson* show made me think of one of Michael Palin's *Ripping Yarns*. But Ker brings his own distinctive touch to it. It's tailor made for radio, but he makes it work brilliantly on stage. It's one of those shows that you will feel the need to go back to again and again. It's that good.

6. GREG DAVIES



Top Welsh stand-up, who stands 6ft 8in tall and has size 13 feet, he excels at telling anecdotes about his dotty family life in a casual, avuncular manner that's spiked with devastating wit. Best known for his roles as the imperious dried teacher Mr. Gilbert in *The Inbetweeners* and Greg in *We Are Klang*, he looks like Rik Mayall in a fairground mirror.

TELL US A JOKE 'What do you call cheese that doesn't belong to you? Nacho cheese.'

RHOD SAYS We first met on a beginner's comedy course in 2002 when we were both starting out. Like all the best anecdotalists, Greg's got a fabulous eye for detail. He can be very rude but, to my mind, never offensive. It takes me months to write a show. It would take Greg a day.

7. STEVE HUGHES



A former thrash metal drummer, the Aussie relocated to Manchester and is now one of the most in-demand comedians on the circuit. He'll talk about being robbed at machete point, then go into a routine about the revolving doors on intercity trains.

TELL US A JOKE 'I used to live in Ireland, which is very strange if you grew up somewhere the size of Australia. There's blokes Down Under that could mow Ireland!'

RHOD SAYS He's a man who sees conspiracy everywhere he looks. He's got a singular take on the world and he's incapable of being dull. Even if you don't agree with all his theories, he'll make you think – and I can guarantee he'll make you laugh. All great comedians create their own world, and while Hughes' world isn't the cosiest place to call home, it's always worth a visit.

8. JOSIE LONG



A real-life Minnie The Minx from *The Beano*, who's been performing stand-up from the age of 14, she treads a line between knockabout fun, satire and moral outrage.

TELL US A JOKE 'Madonna walked into a florist and said, "I'd like to buy some flowers, please." "Orchids?" "No, I'll just have the flowers."'

RHOD SAYS I just love her world view. She's quite left-wing and, while she makes me laugh, I also find myself agreeing with much of what she has to say. She's not your typical angry comedian. Though she's railing against injustices, she does so in an endearing way.

9. STEWART LEE



Lee first made his name as half of radio duo Lee & Herring, and has emerged as a wilfully unconventional solo stand-up.

TELL US A JOKE 'Most Americans do not own passports. They're not a curious people. If you were to lock an American for 60 years in an empty underground bunker which contained nothing but a woolly tea cosy, the American would not even be curious enough to be tempted to see if the tea cosy would make a serviceable hat.'

RHOD SAYS He ploughs his own furrow and is masterful at what he does, but you can expect a lot of uncomfortable silences. He often goes out of his way to make the audience feel awkward.

10. LEE MACK



A former Pontins blue coat, he makes fast-moving observations about life that everyone wishes they'd thought up themselves. But nobody's mind works quite like Lee Mack's.

TELL US A JOKE 'He's a hypocrite, that Stevie Wonder. "Ebony and ivory, live together in perfect harmony." Well that's great, Stevie. But what about the Chinese?'

RHOD SAYS Comedy ideas arrive fully formed in Mack's brain at such a pace, it's frightening. It's like he's got a disease that makes him funny all the time, which makes him an incredibly live comedian – but I'm not sure I'd want to be inside his head. ■

Rhod Gilbert's Work Experience Series 1 & 2 is out on DVD tomorrow

TURN OVER FOR BRITAIN'S FUNNIEST FEMALE IMPRESSIONIST