

layers of his writing and reveal as much craftiness as craft. Her careful study of La Fontaine's cunning art adds a technical dimension to Calder's urbane, engaging guide. Together, these books help to explain why his *Fables* are still unmatched in

subtlety and charm. Florian (1792) preached, Joel Chandler Harris's Brer Rabbit cosied up to folkdom, and James Thurber (1940) was too knowing by half. Ambrose Bierce's definition of the fable ('A brief lie intended to illustrate some important truth')

is suitably ironic, but the most Lafontainian of fabulists is probably T.F. Powys (1929), whose feyness sugars wickedly dosed pills. Yet even he fell into the trap which La Fontaine studiously avoided: he drops home-truths from a position of moral sup-

riority. La Fontaine lets us know that he is no better than the rest of us, a grasshopper who wrote his way from rich to poor, and an ant who stored up not material things but the contents of a wise and civilised mind. □

## Diary

**I**N WINTER there is only one road open to traffic in Yellowstone Park. As it moves east to west through the wide valleys of the Park's northern range, it crosses the territories of a number of grey wolves. The wolves live in packs – family groups – consisting of a dominant breeding pair and their subordinate offspring. The breeders ('alphas') and a few of their subordinates ('betas') are radio-collared so that we can monitor their movements. Every day during winter I drive along the road and snowshoe the adjacent hills checking for signals, triangulating locations and, with a bit of luck, observing the wolves.

A light snow is falling this evening and the temperature is teetering around -30°C. I have two visitors with me, and forty minutes into our drive, I get my first blip. It's No. 21. He's the alpha male of the Druids – with 27 animals, by far the largest and most conspicuous of the Yellowstone packs. We drive a little further until the signal strengthens, then pull over and scan the horizon. The Druids are about a mile away, easy to see through the telescope. Spread out on a ridge, they are just beginning to stir.

In the past, wolves ranged all over the North American continent, but by 1930 they had been exterminated everywhere in the US save for a small area in northern Minnesota. The last wolves in Yellowstone were shot in the 1920s by the National Park Service. The animals were so vilified that even wildlife campaigners advocated their removal, although some later changed their minds after they came to understand the importance of predators for maintaining the ecosystem, and suggested that wolves should be reintroduced. In 1973 the grey wolf was protected under the newly passed Endangered Species Act; and in 1995, after twenty years of litigation involving environmental, hunting, ranching, state and Federal interests, 14 wolves from three different packs were live-trapped in Canada and released in Yellowstone. Seventeen more followed the next year. The population has now grown to nearly two hundred. Wolves were also reintroduced in Idaho, and it is hoped that a continuous population will be established, reaching from Yellowstone, through Idaho, into northern Montana and all the way to Canada.

The Druids have just woken from their afternoon sleep and are stretching and greeting each other with licks to the face. They gather excitedly in a huddle and, after a brief show of nuzzling and tail wagging, break into a long-drawn-out group howl. Having announced their presence, they take off at a trot, looking purposeful. Wolf No. 106, a beta female, leads them through the snow. They are travelling west across a ridge. A few of the pups, oblivious of the need to conserve energy, fall into a game of

kill the carrier: a group of black and grey pups are chasing No. 224, a jet black male with a white chest patch, who has a large white bone dangling from his mouth. Darting in and out of the rest of the pack, two greys finally catch up with him, pin him to the ground, and wrest the baton from him. The adults, meanwhile, ignoring the pups, continue in stride with 106. As they head out of sight, we climb the hill to our west in order to pick up their trail again.

In the old days, before 1995, Yellowstone's elk, moose and deer were troubled only by an occasional coyote or mountain lion. Their populations flourished, and people began to worry that the land was being overgrazed. Conventional food web theory has it that landscapes will appear 'green' or 'barren' according to the number of levels in the food chain. Mary Power, an ecologist at Berkeley, carried out some research on an Oklahoma stream system with a three-level food chain: green algae at the bottom, grazed on by minnows, which in turn were preyed on by bass. Power tethered a bass to a string and then measured the density of algae within and beyond its reach. In the semi-circle within reach of the bass, the water was a murky green: outside the arc the water was clear. By preying on the minnows, the bass allowed the algae to bloom. In their absence, minnows thrived and ate the algae, turning the water clear. Scientists have wondered for years whether a terrestrial predator like the wolf, preying on elk and deer, could have an equivalent effect on the landscape. If wolves were reintroduced to Yellowstone would its grasslands fill in with trees?

Twenty minutes later, from the top of the hill, we have a bird's-eye view of the wolves as they approach the Yellowstone River. When she gets to the riverbank, 106 hesitates and waits for some of the others to join her before crossing. They plunge into the icy water two at a time and all we can see is their backs. They get to the other side, shake off the water and take off at a sprint.

A mile to their west, a herd of elk, some two hundred of them, are huddled together, gazing in the wolves' direction. As they draw close, the wolves flank the elk, approaching them at different speeds. The elk begin to run. The Druids dash in and out of the herd, causing the elk to splinter into small groups. After about ten minutes of fits and starts, seven wolves have focused on a group of five elk. They are about half a mile away now, coming towards us. No. 21, the alpha male, running parallel to an elk, jumps sideways and grabs hold of its back leg. A grey wolf, possibly 106, follows suit and grabs the other back leg. Two more wolves join in, one on a front leg, one on the neck. The elk is dragged to the ground and the other wolves run in. A coral of wagging tails surrounds the elk. The feeding frenzy has begun. In the distance another group of Druids has taken down a second elk.

The interaction between wolves and their environment takes place on many time-scales. It may take between ten and a hundred years for their contribution to the greening of Yellowstone to be felt, while an elk can be eaten in a matter of hours. Grizzly bears, black bears, coyotes, bald eagles, golden eagles, ravens and magpies are all common visitors at wolf kills and compete with each other for the often generous remains. Before wolves were reintroduced, carrion was abundant at the end of severe winters because many elk would starve to death, but it was relatively scarce at other times or if the winter was mild. Now, with wolves hunting all year round, carrion may be less available at the end of harsh winters but more abundant throughout the year. What will the overall effect be on these species and what effect will they, in turn, have on the food chain? Might the increased availability of carrion in autumn be a boon to grizzly bears preparing for hibernation, or will the relative lack of spring carrion following severe winters be a bust for hungry bears coming out of their deep sleep? Will wolverines, which depend heavily on winter scavenge, come back to Yellowstone, where they have been scarce for the past century? How will this affect avian communities like eagles and ravens, which depend on carrion in the winter, or songbirds that feed on carrion beetles in summer? And if the severity of the winters is so important, how is global warming likely to affect the system? My role is to collect data and feed them into mathematical models in order to shed light on these large issues.

After a day in the field I take my visitors to the local bar. Cooke City, Montana, nestles among the Absaroka Mountains along Yellowstone's eastern border. As it has only sixty permanent residents and lies at the end of the longest dead-end road in the US (outside Alaska), one might imagine it to be a sleepy mountain town. The day-and-night screeching of snowmobiles soon erases that fantasy. With its steep mountains, abundant snow and lax regulations, Cooke is the snowmobiler's mecca. So while 'city' might seem an odd designation for a town of sixty people, it's actually quite appropriate given the air quality and the noise. Snowmobiles burn a gallon of oil for every 25 gallons of petrol, producing about a thousand times more pollution than a car. But the closest law enforcement agency is more than a hundred miles away, and so it's best not to get into fights.

Not everyone wanted the wolves back. Worries about livestock depredation, an ingrained fear of the animals (everyone knows what happened to Little Red Riding Hood) and distrust of the Federal Government all helped to provoke local opposition. So far, ranchers' worries have been largely allayed by the activities of Defenders of Wildlife, an environmental group which early on set up a system of compensation for lost livestock and offered rewards to ranches that

allowed wolves to den on their property. Recently they have been giving hay to ranchers with grazing allotments near known wolf dens in order to minimise chance encounters between the livestock and the wolves, and have helped to install alarm systems to scare the predators away. And despite the dire predictions, no children have been killed. (There isn't a single documented case of a wolf killing a human being in North America.) In the meantime the ranching industry has survived with scarcely a blip and the wolves have brought in millions of dollars of tourist revenue to local businesses.

We sleep over in Cooke City and at dawn the next day visit the kill site from the previous night. The Druid pack has left and the scavengers have picked the bones clean. A cow and calf by the look of it; perhaps the mother stayed too close to her calf while it was being chased. Even if we hadn't seen what happened it would be obvious that the two elk didn't die of natural causes: the bloodstains on the snow would have told us. Had they starved to death their blood would probably have congealed before the scavenging. We take an incisor, which will be used to age the cow, and a three-inch section of bone marrow: most mammals begin to metabolise marrow when they are starving – a lab analysis will reveal the percentage of fat, thus indicating the animal's overall condition. This cow, it turns out, was old and starving. Wolves tend to target the weak: most of the animals they have killed this winter have been calves and old cows.

I discovered the intensity of local feeling about the wolves at the Blue Goose saloon in Gardiner, Montana, on one of my first nights at the Park. A local woman at the bar asked me what I was doing in Yellowstone, so I told her I was here to study the wolves and their associations with scavengers. Her expression became less friendly and she asked me what I thought of the wolves being in the Park.

'I think it's great,' I said. 'It's good for the ecosystem and in the long run it should benefit the economy.'

'Oh, my God,' she said. 'I can't believe it. Don't you know that wolves are breeding with all our dogs?'

'That's very unusual,' I said, surprised.

'Well, they are, everybody knows it and it's no wonder, them both being descended from dingoes.'

'Are you sure about that?' I asked. 'I had the impression that dingoes were domestic dogs brought over to Australia by aborigines.'

'I can't believe you're a biologist and you don't even know that,' she replied. After a pause she looked inquisitively into my eyes. 'You voted for Clinton, didn't you?' she blurted.

Nowadays I say I work with ravens.

**Chris Wilmers**