

Reading **PART 2**

- A. You are going to read an extract from a newspaper article. Six paragraphs have been removed from the extract. Choose from the paragraphs A—G the one which fits each gap (7—12). There is one extra paragraph which you do not need to use.

Improving the Sound of Cities

An expert in sound engineering argues for a better approach to issues relating to noise in our cities

I went on a "sound walk" in London in spring last year. Thirty people meandered down backstreets, and along major roads. For two hours, we tuned into the city's soundscape. I had not expected to hear birdsong on a backstreet close to a noisy main road, and I was surprised to find I enjoyed the sound of a lock banging against a bike frame as a cyclist rode by.

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But will we like what we are then able to hear? All those annoying sounds currently masked by traffic noise, such as humming ventilation systems and music escaping from pubs and restaurants will become more audible. It's time to work out how we want cities of the future to sound. So how easy is it actually to do this?

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However, human response to sound is complicated and relying on traditional measurements of volume is not that helpful. Noise maps also show the problem with the traditional approach. Worldwide, engineers have used expensive computers to generate maps of the sound environment. These look so much like pretty, coloured road maps that some researchers joke it would be cheaper and quicker to colour in a map, using red crayons for busy roads and blue for quiet backstreets.

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More importantly perhaps, this map ignores significant issues such as the noise my neighbours make. This cannot

be included because there are no databases showing where inconsiderate people, such as players of loud music, live. Moreover, it is impossible for such a map to take a listener's perception into account: it is, for example, possible that my line of work has made me overly sensitive to noise.

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Yet noise is still not high on the political agenda, in spite of reliable estimates that 54 per cent of the UK's population live in conditions exceeding daytime sound levels prescribed by the World Health Organisation - 55 decibels for steady, continuous noise.

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Some researchers aim to do this by setting up focus groups, going on sound walks, trying to capture the emotional response to sound. Others persist with computer algorithms to model people's reactions, gathering extra data, such as the listener's age and gender, to use in the algorithm to redress the inadequacies of the decibel.

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Once we have lessened the noise, though, what do we want to hear? The Positive Soundscape Project has given us pointers. This unusual interdisciplinary research came out in favour of what seems contradictory: a "vibrant, calm" soundscape. In fact, this makes good sense. A City thrives on vibrancy, so an urban square needs to have a sense of activity: the barista making coffee, the clack of high heels on the pavement, or snatches of conversations from passers-by.

- A.** In the past we used to research urban soundscapes in a straightforward way. We'd calculate street noise in decibels, then canvass public opinion and combine the two. I might play a couple of city noises I had recorded and ask subjects to say which sound was more annoying. Since all that researchers wanted to know was the relationship between noise levels and people's reactions, we tended to treat our subjects rather like lab animals.
- B.** Fortunately, this may not be quite as awful as it seems because another problem with decibel measurement is that it does not differentiate between "negative" and "positive" sounds. Take the sounds made by a fountain in a town square or happy children in a playground — either of which might exceed permitted sound levels. Increasingly, scientists have been pressing for these positive sounds to be considered within urban design alongside more traditional noise-control approaches.
- C.** If we acknowledge that urban sound has an aesthetic, which I believe it does, we urgently need to know what governs it and then how designers can work with it. Similar to that of the visual world, it will be built on a complex understanding of cultural theory, sonic art, cognitive and social psychology, engineering, physics and the relationship between them.
- D.** Despite these problems, the crude noise aps we make drive policy. Advocates argue that they have been vital in making politicians take noise slightly more seriously. This must be a good thing: noise has many negative effects, ranging from sleep disturbance to increased levels of stress hormones and reduced performance in schoolchildren.
- E.** As an acoustic engineer, I found this walk a real ear-opener. Urban design is only really concerned with abating noise made by public transport or industry: the subtle and interesting sounds that can enhance cities are overlooked. With the internal combustion engine on its way out, though, the acoustic fog created by cars, buses and trucks will finally lift and other sounds of the city will emerge.
- F.** As the complexity of these models grow, so does my feeling that there must be a better way consider a small, relatively quiet, urban square an acoustic oasis. To design such spaces. traditional engineers quieten intrusions from traffic. Buildings and walls, for example, can be used to block out the sources of noise.
- G.** Take my house. It appears on a sound map with a decibel value of between 60 and 64.9 decibels. Even with a PhD in acoustics I struggle to interpret this. How can the complex way sound varies during the day and between the seasons be meaningfully summed up by a single number?

- B. You are going to read an extract from a newspaper article. Six paragraphs have been removed from the extract. Choose from the paragraphs A—G the one which fits each gap (7—12). There is one extra paragraph which you do not need to use.

Learning about Black Bears

Most of us are afraid of meeting a bear in the wild. Lynn Rogers certainly isn't. Find out more about this unusual man below.

OK, I'll admit it - I'm scared. I've been walking for two hours through a spooky forest in northern Minnesota with bear biologist Dr Lynn Rogers, following the beeping radio signal of a female black bear and her three cubs. It's a hot July morning and the bugs are beginning to hit us hard.

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Lynn has been interested in bears since childhood. He grew up in what Midwesterners call the 'Northwoods' — a huge band of mixed forest that sweeps across the northern states of the USA. As a child he also heard many scary stories about bears, but as he spent more time outside he began to question these tales.

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After leaving college over 40 years ago, Lynn began studying bears for the US Forest Service. At that time little was known about their biology. Unlike their polar and grizzly cousins, black bears prefer dense forest and so are hard to observe in the wild.

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For an incredible two decades, he persisted with these standard methods, until one day, he'd had enough and made a momentous decision. He decided to move away from convention and he made it his aim to try to work directly with the bears.

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One of the assumptions that has long been made by wildlife managers is that feeding bears makes them aggressive towards humans. So a lot of time and effort is spent trying to keep bears out of campsites, and if they won't stay away then they often end up shot.

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Bear experts warned him that it was both wrong and dangerous to do this. But, over time, some bears learned to associate Lynn's voice with food and allowed him to approach to within a few metres of them. After more than a year of fighting convention in this way, he finally gained the trust of a few bears. They even allowed him to feed them by hand and stroke their fur. Then once they'd had a few handfuls of nuts from him, they'd ignore him and behave naturally.

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As a result, he has begun to paint the first accurate and intimate portrait of the life history of these animals. For the first time, a scientist has been able to directly observe bear habitat use, language, social relationships and individual personalities.

- A.** It takes only a few hours in Lynn's charismatic, bear-like company to understand why he found this goal easier to achieve than most other people would. He puts it down to the fact that he was aided by the remoteness of his study site and the fact that his nearest boss was more than 350 km away. So he was able to break with conventional approaches without interference.
- B.** Getting bears used to his touch eventually allowed Lynn to fit radio-collars on them without using tranquilisers. Working against the advice of most bear experts, he had achieved what no other human had dreamed possible. He had earned the trust of wild bears and so won the first ringside seat from which to observe their natural behaviour.
- C.** As we go deeper into bear territory, I realise that Lynn resembles the bears he studies. His huge frame moves silently through the forest, aided by hands as large as paws. As he listens to the bear's signal with an antenna, he grunts and murmurs in a deep, gravelly voice.
- D.** Yet this wild bear, One-eyed Jack, who had no reason to be friendly to humans, silently allowed Lynn to stroke his fur and touch his claws while investigating his wounds. That moment spoke volumes about both Lynn and the true nature of black bears.
- E.** When he started in that job, Lynn did what all other bear scientists did: he tranquilised the animals at their dens or in traps and fitted them with radio-collars. Once a bear was collared, the only data that he could collect, via an aircraft or vehicle, was its position. The bears would not allow anyone to approach them in the forest. As Lynn says, "After many years of research, all we had were dots on maps.
- F.** Lynn decided to test this 'golden rule' and began taking food into the forest when looking for his collared bears - the ultimate no-no. He'd follow their signs, get as close as he dared and then leave a pile of nuts for them.
- G.** He found that animals that had a reputation for being dangerous ran away from him, while gentler ones could be tempted to take treats from his hand. These early experiences made a lasting impression and he decided to become a bear biologist.

- C. You are going to read an extract from a newspaper article. Six paragraphs have been removed from the extract. Choose from the paragraphs A—G the one which fits each gap (7—12). There is one extra paragraph which you do not need to use.

Getting a head start

Journalist and keen amateur runner Adharanand Finn travels to Kenya to join some of the world's best runners as they train.

There's a quiet knock on my door. I roll over and look at the time on my phone. 4:40 am. I swing my legs out of the bed. I haven't slept that well. The bed was comfortable enough, but I was missing my pillow. I ended up wrapping my towel in a sheet, but it wasn't quite the same.

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I'm spending two days in an elite training camp here in Kenya. The best of the country's athletes usually live and train in camps like this one. We leave through the gate just before 5 am and walk under the stars to the main road. Athletes stand around in the shadows not speaking while we wait for a bus to come for us.

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Just before 6 am the bus stops on a lonely dirt road in the middle of nowhere. We stand around like early morning workers about to start a shift. A thin, sickle moon hangs in the sky as an orange glow starts to seep in from the east. It's a beautiful, still morning.

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That is just what I need too. The coaches agree and I run over to join them. A few seconds later we're running, gently at first. Kenyans are brilliant at slowly cranking up the pace on long runs so you almost don't notice you're getting faster. We keep going, without speaking, our feet pat patting, the miles passing as the day rises into the sky.

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Behind me I hear the motor of the bus. As it passes me the side door slides open. The coach grins at me. "You want a ride?" he asks. It's a beautiful idea. I leap in through the door and sit down on a long empty seat. "You know," he says, "It is very high up here." He's giving me an excuse, which is generous of him.

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Once we're all back at the camp, the athletes are in chirpy spirits. The day's work is done. All that is left now is to rest. Tea is served by the cook, but hardly anybody eats anything. For those who are hungry, like me, there are slices of dry, white bread.

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Yet some of these athletes are wealthy men. A row of large, shiny 4x4 cars are parked just inside the gate like a dealer's showroom. They all own houses and farms elsewhere, often more than one. But they choose to live an almost monastic life here, with running their daily practice. There is a belief that those who choose to train at home and live a more normal life, will lose their edge. And with so much competition in this one tiny corner of the world, edge is something that once lost, is hard to get back.

- A.** Eventually it pulls up and the door opens. Sleepy faces peer back at us. It is already full and there are about ten of us waiting outside. Somehow, we all squeeze in, with people sitting on each others' laps, or standing bent over, heads squashed against the ceiling. I manage to get a window seat and peer out at the passing verge as the driver cranks up the skipping Kalenjin music. Nobody speaks.
- B.** However, the Offer of a lift was for his benefit too and was more of a command than a question. The support bus has to keep moving from the back of the group to the front, handing out drinks, giving out times and offering encouragement. The further behind I get, the harder that is to do. But it's OK. I've done enough. In fact, I'm exhausted.
- C.** A young man of barely 20 with a big smile asks me how far I will run. Most of the runners are planning to run 38km, which is almost a marathon. The bus will follow us handing out water and giving us our time splits every 5km.
- D.** It's still dark outside, so I switch on the harsh strip light. A small, bare room. My clothes piled on a white plastic chair. My trainers on the floor. I sit on the edge of the bed for a moment, trying to wake up, but it's cold so I start to get dressed. In ten minutes we have to leave.
- E.** At about 17km the men come past us. First the sound of rushing feet, like something sprinting up from behind. Then they go by, their stride strong, their shoulders leaning forward, little puffs of dust kicked up by their feet. The women are getting away from me now too.
- F.** The camp is a strange mix of frugality and wealth. As well as washing their own clothes and shoes in buckets of water, the athletes sleep in small rooms and sit on the floor or on plastic garden chairs. After the run I ask where the showers are. I'm pointed to a cold tap and a pile of buckets.
- G.** We seem to be waiting for something, I realise. "What's going on?" I ask one of the other runners. "We're waiting for the ladies," he says, nodding over to the road where three women are standing holding their watches, getting some last-minute instructions from the two coaches. "They get a 10 minute head start."

- D. You are going to read an extract from a newspaper article. Six paragraphs have been removed from the extract. Choose from the paragraphs A—G the one which fits each gap (7—12). There is one extra paragraph which you do not need to use.

Two Journalists and the Butterflies of Britain

Independent journalist Michael McCarthy reports on a new book about butterflies which has made a remarkable impression on him.

It's not often that you're brought up with a start, right at the beginning of a book, but here's an insight from the first page of a new volume on butterflies which did that for me. "For most of us," writes the author, "butterflies are bound up with childhood."

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That was certainly the case with me, in a hot August long ago, when I was seven and my brother was nine, and we had been sent to live with an aunt and uncle as my mother was ill and my father was abroad.

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Every morning when I was let out to play, I would run up to it and gaze up at these dazzling creatures and long for them, and perhaps because of the time in my life when they appeared, something in me has longed for them ever since.

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Early last year, Patrick, now a feature writer on a well-known daily paper, decided to bring his own enthusiasm to a climax by seeing every species of British butterfly in a single summer, and his book, *The Butterfly Isles*, is the narrative of this undertaking.

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We were aware of each other's activities, but we never actually met, although we saw several species in exactly the same place. Reading his book, I realised how close our paths came to crossing: I saw the large blue, for example, at Green Down in Somerset on 15 June, and he saw it at Green Down on 16 June; and I saw the Lulworth skipper at Lulworth Cove in Dorset on 23 July and, once again, he saw it in the same place the following day.

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His account of all these is beautifully written and enormously entertaining, full of curious pieces of butterfly lore; I for one certainly did not know that you can tell the sex of a small tortoiseshell by tossing a stick gently in its general direction if it's a male, it will rise up to attack the stick. (Patrick calls it -the playful dog of the butterfly world.")

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For this, the influence of his father, an ecologist, is responsible: the enthusiasm he inspired in his son proves stronger than mere fashion or peer-group pressure. But it becomes clear as the story unfolds that he gave Patrick much more than just his passion for butterflies; ultimately, the book is about that: it is a splendid and accomplished account of all of Britain's butterflies. but it touches something deeper as it is a tribute from a son to his father, thanking him from the heart for a very special childhood.

- A.** And here's an extraordinary thing. At the same time as Patrick was doing it, so was I. The chances of two journalists deciding, simultaneously but entirely independently, to pursue every British butterfly in a single summer must be infinitesimally small, but that's what happened: I wrote a series for this newspaper about my own search, and we invited readers to join in what we called 'The Great British Butterfly Hunt'.
- B.** In the front garden two doors away was a buddleia bush, and that August it was crawling with the bright quartet of late summer British butterflies — the red admiral, the small tortoiseshell, the peacock and the painted lady: glittering in their colours.
- C.** I have known since I was a small child, in a way you can think just plain silly, that butterflies will always have significance in my life.
- D.** But it is more personal aspects of his search which give depth to the book, such as his personal struggle between wanting to be cool and wanting to pursue butterflies, which he worries is extremely uncool, certainly for someone of his generation. Eventually the butterfly-desire Wins out, even to the extent of bringing himself to use binoculars and risk the ultimate horror of Looking Like a Nerd.
- E.** The new book's author, Patrick Barkham, encountered his butterflies at a similar time in his life but his attraction to them was founded not in the absence of parents but in their presence: he inherited his father's love for them. Maybe "inherited" is the wrong word, as it was not something passed on in the genes, but rather by his father's enthusiasm, companionship and friendship for his small son, who accompanied him on butterflying expeditions.
- F.** I felt the shock of recognition in reading that, and even more in the sentence that followed: "Many of our earliest and most vivid memories of a garden, a park or flower will feature a butterfly, and perhaps, our little hand trying to close around it."
- G.** We eventually met not long ago and laughed about it ("it feels like we spent last summer in a parallel world," he said) and as you might imagine, I was fascinated by his account in *The Butterfly Isles*. He did better than I did, for although we both managed to see in one summer all 58 species which breed regularly in Great Britain, he went over to Ulster to see the one which makes the total 59 for the United Kingdom as a whole.

- E. You are going to read an extract from a newspaper article. Six paragraphs have been removed from the extract. Choose from the paragraphs A—G the one which fits each gap (7—12). There is one extra paragraph which you do not need to use.

Ecology in a Volcanic Lake

McKenzie Funk investigates how the area round Mount St Helens has changed thirty years after its eruption.

Discarded cans once lay at the bottom of Spirit Lake at the foot of the Mount St Helens volcano. Mark Smith remembers them perfectly: shiny gold lettering somehow preserved by the clear, cold water. He remembers ten-inch rainbow trout. He remembers a sunken rowboat, resting on a submerged tree stump. A teenager when he began scuba diving in the shadow of Mount St. Helens, he remembers the lake as it was before the May 1980 eruption, before the top 1,300 feet of the volcano — more than three billion cubic yards of mud, ash, and melting snow — avalanched into it.

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What Smith remembers from his teenage dives is what he called the "petrified" forest: a ghostly group of sunken, branchless firs, buried upright dozens of yards below the surface. The underwater forest was a mystery to him until the mountain exploded. Then it made perfect sense. The trees were evidence of a past eruption — a sign Spirit Lake has always been in the line of fire.

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Biologist Bob Lucas of the Washington Department of Fish and Wildlife believes someone illegally planted them. In the late 1990s, an anonymous call to his home seemed to confirm it: "I'm the one who stocked the fish."

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"There are as many stories as there are fish tales," he says, "and all of them start, 'I know somebody who put those fish in there.'" To him the important question is not how they arrived but how they grew so big.

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'This is because the lake now sits at the centre of a restricted research area, which Congress set aside in 1982 "to protect the geologic, ecologic, and cultural resources ... in as natural a state as possible." Mostly closed to the public, this part of the blast zone has become one of our planet's grandest experiments.

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Almost daily, callers inquire about the lessons of St. Helens. One woman is interested in salamanders, another in toads. Officials in Alaska and Chile want to know What to expect after eruptions of their own.

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Starting with a single plant Crisafulli discovered in 1981 on the barren, 3,750-acre area covered by the eruption, purple prairie lupines the first colour in a world of sterile grey. In life they were nutrient factories, food for insects, habitat for mice and voles; in death they, and the organisms they attracted, enriched the ash. allowing other species to colonise. Gradually the blast zone began to bloom.

- A.** Indeed, as a natural lab to study the rebirth of ecosystems, the area has no equal. "It's the most thoroughly studied large-forest disturbance in the world," says Crisafulli. It's been examined from nearly every angle, at nearly every scale, from molecules to ecosystems, bacteria to mammals, steaming geothermal vents to waterlogged meadows.
- B.** Three decades later, Spirit Lake holds a new mystery: How did fish, now twice the length of those pre-eruption rainbows, reappear? Everyone has a theory. Smith, who runs Eco Park Resort at the edge of the volcanic monument, thinks the trout slid down from the smaller, higher St. Helens Lake during a flood year. But that lake has only mackinaw—and the Spirit Lake fish are rainbows.
- C.** A key realisation is the importance of "biological legacies" — fallen trees, buried roots, seeds, amphibians — that survived the eruption, thanks to snow cover, topography, or luck. Ecologists had assumed rebirth would happen from the outside in, as species from border areas encroached on the blast zone. But recovery has also come from within.
- D.** Mark Smith grew up at the lake and, as a boy, he fished there. Today he'd have to break the law if he wanted to catch any of those temptingly large fish.
- E.** What I remember from my swim in Spirit Lake is not a sunken forest but an underwater jungle. Last August I drove behind Crisafulli on a sinuous two lane road along Windy Ridge, through a damaged gate secured by a makeshift chain—"You'd think there'd be enough money to buy a new gate," Crisafulli said - and down a scary, slopeside jeep trail into the restricted area.
- F.** So it was before the Jake twice as big but half as deep. Before virtually all evidence of life, animal and human — the cabins and roads and camps and cans — were obliterated. Before the lake became a stinky soup, devoid of oxygen and covered with a floating mat of tree trunks ripped from the landscape.
- G.** Preliminary genetic testing by Forest Service ecologist Charlie Crisafulli also suggests the trout did not descend from the pre-eruption population, but he's given up on figuring out their origin.

- F. You are going to read an extract from a magazine article. Six paragraphs have been removed from the extract. Choose from the paragraphs A—G the one which fits each gap (7—12). There is one extra paragraph which you do not need to use.

Conserving Jaguars

An interesting plan to help jaguars survive is being developed in Latin America. Mel White reports for National Geographic.

At dusk one evening, deep in a Costa Rican forest, a young male jaguar rises from his sleep, stretches, and silently but determinedly leaves forever the place where he was born.

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But the wanderer chooses the wrong direction. In just a few miles he reaches the edge of the forest: beyond lies a coffee plantation. Pushed by instinct and necessity, he keeps moving, staying in the trees along fences and streams. Soon, though, shelter consists only of scattered patches of shrubs and a few trees, where he can find nothing to eat. He's now in a land of cattle ranches, and one night his hunger and the smell of a newborn calf overcome his reluctance to cross open areas. Creeping close before a final rush, he kills the calf.

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This story has been played out thousands of times throughout the jaguar's homeland, stretching from Mexico (and formerly the United States) to Argentina. In recent decades it's happened with even greater frequency, as ranching, farming, and development have eaten up half the big cat's prime habitat, and as humans have destroyed its natural prey in many areas of remaining forest.

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Rabinowitz is the world's leading jaguar expert, and he has begun to realise his dream of creating a vast network of interconnected corridors and refuges extending from the U.S—Mexico border into South America. It is known as Paseo del Jaguar— Path of the Jaguar.

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Rabinowitz hopes to convince national governments throughout the jaguar's range to support this conservation program through enlightened land-use planning, such as choosing non-critical areas for major developments and road construction.

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Talking to governments and bringing Paseo del Jaguar into existence will take many years. Rabinowitz is currently focusing on Mexico and Central America, where officials in all eight countries have approved the project. Costa Rica has already incorporated protection of the corridor into laws regulating development.

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Today even mobile-phone-carrying government ministers sitting in urban offices feel what Rabinowitz calls "a powerful cultural thread binding them to their ancestors. Nobody can say that the jaguar is not part of their own heritage. What better unifying symbol can there be than the jaguar?"

- A.** Alan Rabinowitz wants this situation to stop and is doing something about it. He imagines that the young jaguar, when he leaves his birthplace, will pass unseen by humans through a near-continuous corridor of sheltering vegetation. Within a couple of days, he'll find a small tract of Forest harbouring enough prey for him to stop and rest a day or two before resuming his trek. Eventually he'll reach a national park or wildlife preserve where he'll find a home, room to roam, plenty of prey, females looking for a mate.
- B.** Later he'll tackle South America, where landscapes are more diverse and challenging. Rabinowitz is encouraged, though, by his audiences' emotional response when he talks about jaguars — a response based on the animal's enduring aura of beauty, strength, and mystery. Indigenous peoples around Mexico's central plateau, and the Maya, farther south, incorporated the jaguar into their art and mythology.
- C.** Environmentalists consider such a scheme the best hope for keeping this great New World cat from joining lions and tigers on the endangered species list.
- D.** The jaguar is the only large, wide-ranging carnivore in the world with no subspecies. Simply put, this means that for millennia jaguars have been mingling their genes throughout their entire range, so that individuals in northern Mexico are identical to those in southern Brazil.
- E.** There's shelter here, and plenty of food. He has sensed, too, the presence of females with which he might mate. But there's also a mature male jaguar that claims the forest — and the females. The older cat will tolerate no rivals. The breeze-blown scent of the young male's mother, so comforting to him when he was a cub, no longer binds him to his home.
- F.** "We're not going to ask them to throw people off their land or to make new national parks," he said. The habitat matrix could encompass woodlands used for a variety of human activities from timber harvest to citrus plantations. Studies have shown that areas smaller than one and a half square miles can serve as temporary, one- or two-day homes — stepping-stones — for wandering jaguars.
- G.** The next day the rancher finds the remains and the telltale tracks of a jaguar. He calls some of his neighbours and gathers a pack of dogs. The hunters find the young male and take their revenge.