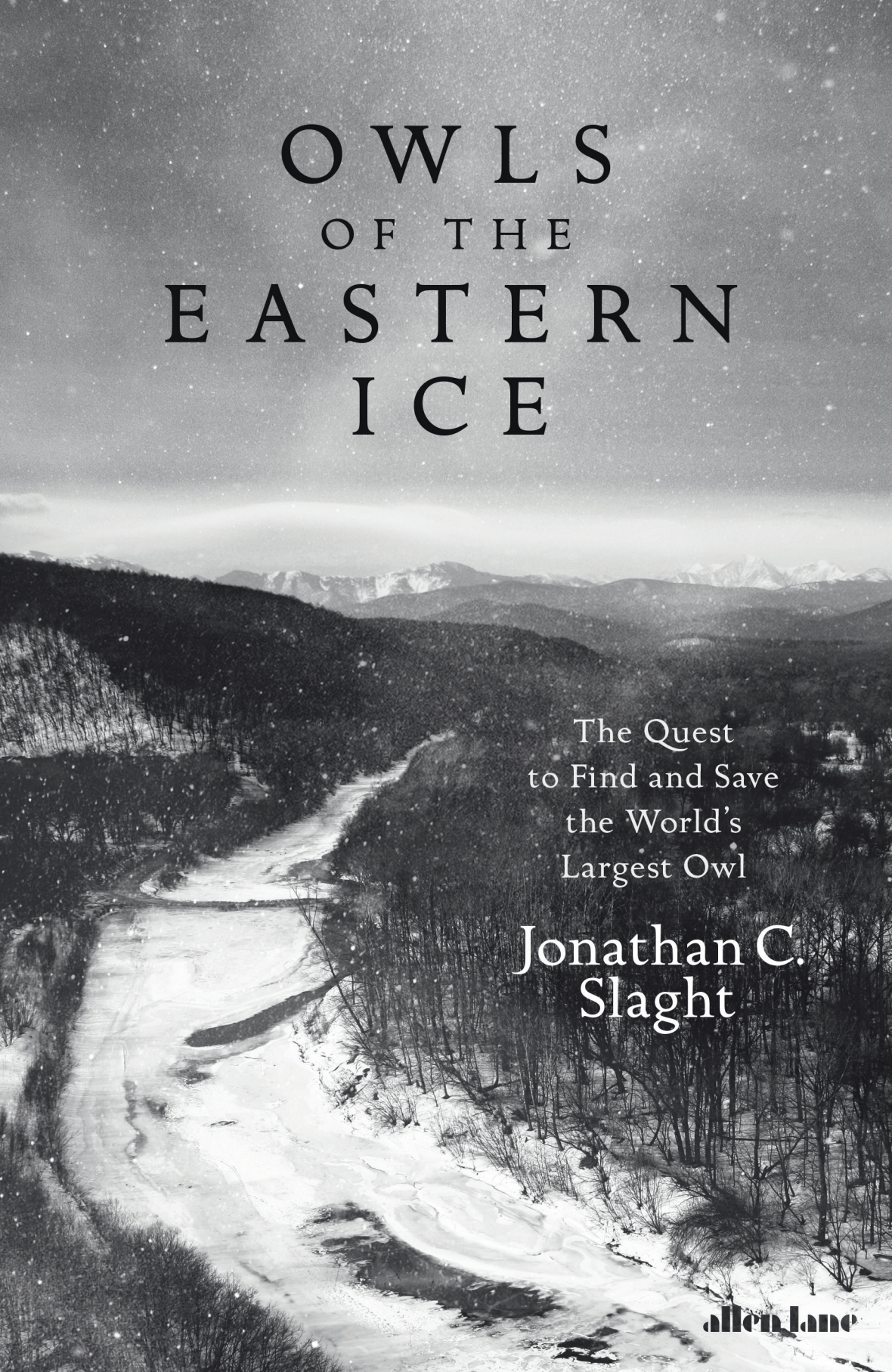
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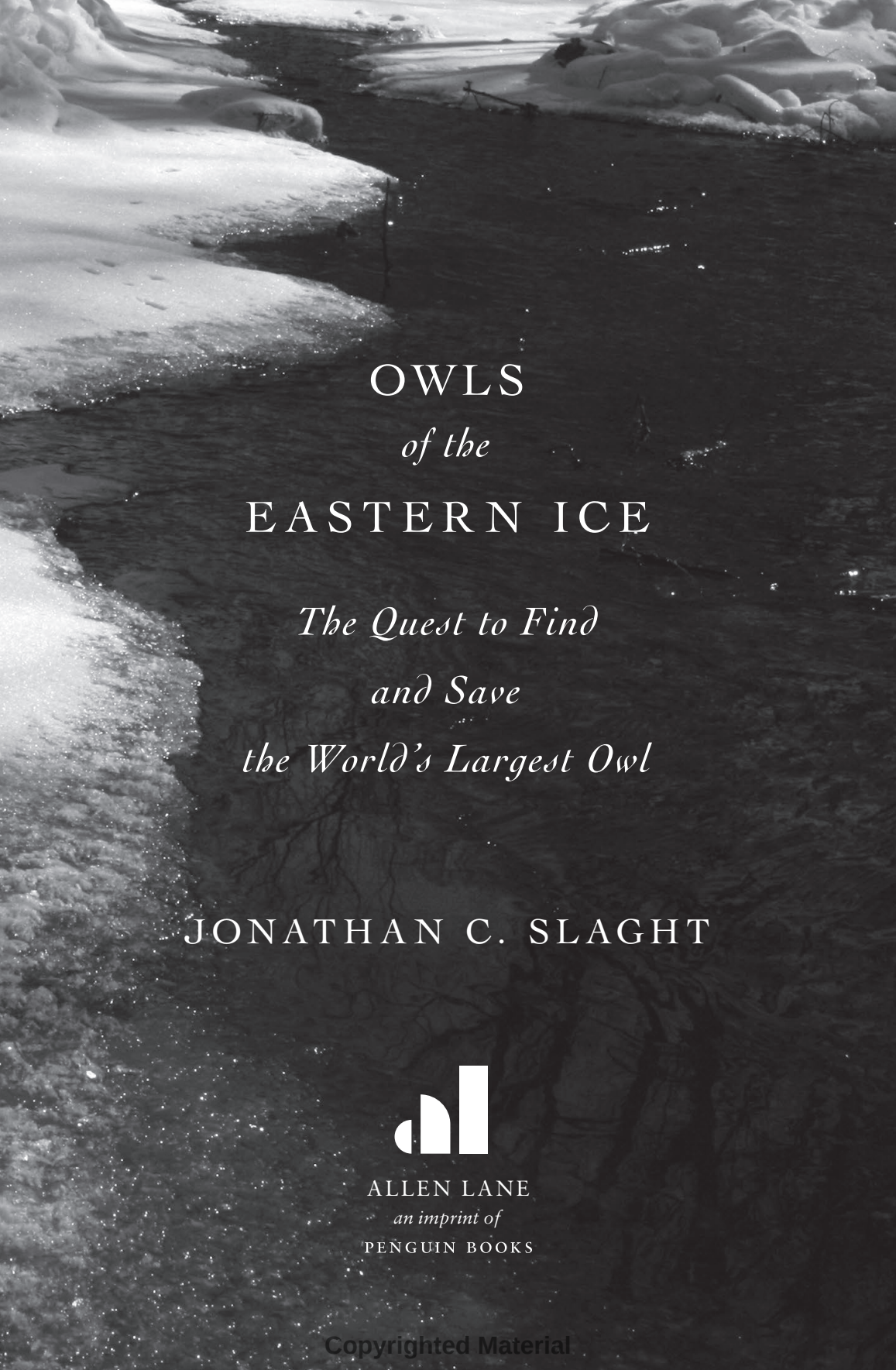

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The Quest to Find and Save the World's Largest Owl

JONATHAN C. SLAGHT

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Allen Lane is part of the Penguin Random House group of companies
whose addresses can be found at global.penguinrandomhouse.com

First published in the USA by Farrar, Straus and Giroux 2020
First published in Great Britain By Allen Lane 2020
001

Title-page photograph by the author; part-opening photograph by Anatoliy Ryzhov

Printed and bound in Great Britain by Clays Ltd, Elcograf S.p.A.

A CIP catalogue record for this book is available from the British Library

ISBN: 978–0–241–33393–8

www.greenpenguin.co.uk

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For Karen

What was happening around us was unbelievable. The wind raged furiously, snapping tree branches and carrying them through the air . . . huge old pines swayed back and forth as though they were thin-trunked saplings. And we could not see a thing—not the mountains, not the sky, not the ground. Everything had been enveloped by the blizzard . . . We hunkered down in our tents and were intimidated into silence.

—VLADIMIR ARSENYEV, 1921, *Across the Ussuri Kray*

Arsenyev (1872–1930) was an explorer, naturalist, and author of numerous texts describing the landscape, wildlife, and people of Primorye, Russia. He was one of the first Russians to venture into the forests described in this book.

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Owls of the Eastern Ice

Prologue

I SAW MY FIRST BLAKISTON'S FISH OWL in the Russian province of Primorye, a coastal talon of land hooking south into the belly of Northeast Asia. This is a remote corner of the world, not far from where Russia, China, and North Korea meet in a tangle of mountains and barbed wire. On a hike in the forest there in 2000, a companion and I unexpectedly flushed an enormous and panicked bird. Taking to the air with labored flaps, it hooted its displeasure, then landed for a moment in the bare canopy perhaps a dozen meters above our heads. This disheveled mass of wood-chip brown regarded us warily with electric-yellow eyes. We were uncertain at first which bird, actually, we'd come across. It was clearly an owl, but bigger than any I'd seen, about the size of an eagle but fluffier and more portly, with enormous ear tufts. Backlit by the hazy gray of a winter sky, it seemed almost too big and too comical to be a real bird, as if someone had hastily glued fistfuls of feathers to a yearling bear, then propped the dazed beast in the tree. Having decided that we were a

threat, the creature pivoted to escape, crashing through the trees as its two-meter wingspan clipped the lattice of branches. Flakes of displaced bark spiraled down as the bird flew out of sight.

I'd been coming to Primorye for five years at this point. I'd spent most of my early life in cities, and my vision of the world was dominated by human-crafted landscapes. Then, flying from Moscow the summer I was nineteen, accompanying my father on a business trip, I saw the sun glinting off a sea of rolling green mountains: lush, thick, and unbroken. Dramatic ridges rose high, then drooped into low valleys, waves that scrolled past for kilometer after kilometer as I watched, transfixed. I saw no villages, no roads, and no people. This was Primorye. I fell in love.

After that initial short visit, I returned to Primorye for six months of study as an undergraduate and then spent three years there in the Peace Corps. I was only a casual bird-watcher at first; it was a hobby I'd picked up in college. Each trip to Russia's Far East, however, fueled my fascination with Primorye's wildness. I became more interested and more focused on its birds. In the Peace Corps I befriended local ornithologists, further developed my Russian-language skills, and spent countless hours of my free time tagging along with them to learn birdsongs and assist on various research projects. This was when I saw my first fish owl and realized my pastime could become a profession.

I'd known about fish owls for almost as long as I'd known about Primorye. For me, fish owls were like a beautiful thought I couldn't quite articulate. They evoked the same wondrous longing as some distant place I'd always wanted to visit but didn't really know much about. I pondered fish owls and felt cool from the canopy shadows they hid in and smelled moss clinging to riverside stones.

Immediately after scaring off the owl, I scanned through my dog-eared field guide, but no species seemed to fit. The fish owl

painted there reminded me more of a dour trash can than the defiant, floppy goblin we'd just seen, and neither matched the fish owl in my mind. I didn't have to guess too long about what species I'd spotted, though: I'd taken photos. My grainy shots eventually made their way to an ornithologist in Vladivostok named Sergey Surmach, the only person working with fish owls in the region. It turned out that no scientist had seen a Blakiston's fish owl so far south in a hundred years, and my photographs were evidence that this rare, reclusive species still persisted.

Introduction

After completing a master of science project at the University of Minnesota in 2005, studying the impacts of logging on Primorye's songbirds, I began brainstorming for a Ph.D. topic in the region as well. I was interested in something with broad conservation impact and quickly narrowed my species contenders to the hooded crane and the fish owl. These were the two least-studied and most charismatic birds in the province. I was drawn more to fish owls but, given the lack of information about them, was worried that these birds might almost be too scarce to study. Around the time of my deliberations, I happened to spend a few days hiking through a larch bog, an open, damp landscape with an even spacing of spindly trees above a thick carpet of fragrant Labrador tea. At first I found this setting lovely, but after a while, with nowhere to hide from the sun, a headache from the oppressive aroma of Labrador tea, and biting insects descending in clouds, I'd had enough. Then it hit me: this was hooded crane habitat. The fish owl might be

rare, devoting time and energy to it might be a gamble, but at least I would not have to spend the next five years slogging through larch bogs. I went with fish owls.

Given its reputation as a hearty creature in an inhospitable environment, the fish owl is a symbol of Primorye's wilderness almost as much as the Amur (also called Siberian) tiger. While these two species share the same forests and are both endangered, far less is known about the lives of the feathered salmon eaters. A fish owl nest was not discovered in Russia until 1971, and by the 1980s there were thought to be no more than three hundred to four hundred pairs of fish owls in the entire country. There were serious concerns for their future. Other than the fact that fish owls seemed to need big trees to nest in, and fish-rich rivers to feed from, not much was known about them.

Across the sea in Japan, just a few hundred kilometers east, fish owls had been reduced to fewer than one hundred birds by the early 1980s, down from approximately five hundred pairs at the end of the nineteenth century. This beleaguered population lost nesting habitat to logging and food to construction of downstream dams that blocked salmon migration up rivers. Fish owls of Primorye had been shielded from a similar fate by Soviet inertia, poor infrastructure, and a low human population density. But the free market that emerged in the 1990s bred wealth, corruption, and a covetous eye focused keenly on the untouched natural resources in northern Primorye—thought to be the fish owl's global stronghold.

Fish owls in Russia were vulnerable. For a naturally low-density and slow-reproducing species, any large-scale or sustained disruption to their required natural resources could mean a precipitous population free fall such as the one seen in Japan and the loss of one of Russia's most mysterious and iconic bird species. Fish owls and other endangered species were protected

by Russian law—it was illegal to kill them or destroy their habitat—but without concrete knowledge of what their needs were, it was impossible to develop a workable conservation plan. No such approach for fish owls existed, and by the late 1990s, previously inaccessible forests in Primorye were increasingly becoming sites of resource extraction. The need for a serious fish owl conservation strategy was escalating.

Conservation is different from preservation. Had I wanted to preserve fish owls, I wouldn't have needed research: I could have lobbied the government for a ban of all logging and fishing in Primorye. These broad measures would protect fish owls by eliminating all threats to them. But aside from being unrealistic, such a move would ignore the two million people living in the province, a proportion of whom rely on the logging and fishing industries for their livelihoods. The needs of fish owls and humans are inextricably linked in Primorye; both have depended on the same resources for centuries. Before the Russians came to dip their nets in the rivers and harvest trees for construction and profit, Manchurian and indigenous populations did the same. The Udege and Nanai made beautiful embroidered clothing from salmon skins and fashioned boats from enormous, hollowed-out trees. Fish owl reliance on these resources has remained at modest levels over time; it is the human needs that have escalated. My intention was to return some balance to this relationship, to conserve the necessary natural resources, and scientific research was the only way to get the answers I needed.

In late 2005, I set up a meeting with Sergey Surmach at his office in Vladivostok. I liked him immediately, with his kind eyes and small, fit frame capped by a blossom of unruly hair. He had a reputation as a collaborator, so I hoped he'd be open to my proposal of partnership. I explained my interest in studying fish owls for a Ph.D. at the University of Minnesota, and he told me

what he knew about these birds. Mutual excitement grew as we discussed ideas, and we quickly agreed to work together: we would learn as much as we could about the secret lives of fish owls and use that information to craft a realistic conservation plan to protect them. Our primary research question was deceptively simple: What were the features on the landscape that fish owls needed to survive? We already had a general idea—big trees and lots of fish—but we needed to invest years to understand the details. Other than the anecdotal observations of past naturalists, we were largely starting from scratch.

Surmach was a seasoned field biologist. He had the equipment necessary for prolonged expeditions into remote Primorye: an enormous, all-terrain GAZ-66 truck with a custom-built, woodstove-heated living compartment on the back, several snowmobiles, and a small team of field assistants trained to find fish owls. For our first project together, we agreed that Surmach and his team would bear the brunt of in-country logistics and staffing; I would introduce contemporary methodologies and secure the majority of the funding by cobbling together research grants. We broke the study into three phases. The first phase was training, which would take two or three weeks, followed by identifying a study population of fish owls, which would take about two months. The final phase was fish owl captures and data collection, which would take four years.

I was enthused: this wasn't retroactive, crisis conservation where overstressed and underfunded researchers battle to prevent extinctions across landscapes where the ecological damage has already been done. Primorye was still largely pristine. Here, commercial interests hadn't taken over yet. While we focused on one species at risk—fish owls—our recommendations for better management of the landscape could help safeguard the entire ecosystem.

Winter was the best time to find these owls—they vocalized most in February and left tracks in the snow along riverbanks—but it was also the busiest time of year for Surmach. His nongovernmental organization had been awarded a multiyear contract to monitor bird populations on Sakhalin island, and he needed to spend the winter months negotiating logistics for that work. As a result, while I consulted with Surmach regularly, I never worked with him in the field. Instead, he always sent Sergey Avdeyuk, his old friend and an experienced woodsman, as his proxy. Avdeyuk had worked closely with Surmach on fish owls since the mid-1990s.

An expedition to the Samarga River basin, the northernmost part of Primorye, was the first phase. There, I would learn how to search for owls. The Samarga River basin was unique—the last completely roadless drainage in the province—but the logging industry was closing in. In 2000, a council of indigenous Udege in Agzu, one of only two villages in the entire 7,280-square-kilometer Samarga River basin, ruled that Udege lands could be opened for timber harvest. Roads would be built, the industry would attract jobs, but the combination of increased access and more people would degrade the landscape via poaching, forest fires, and more. Fish owls and tigers were only two of many species that would likely suffer as a result. By 2005 the logging company, cognizant of the uproar this agreement had caused from local communities and regional scientists, made a series of unprecedented concessions. First and foremost, their harvest practices would be informed by science. The main road would be laid high up the river valley, not next to an ecologically sensitive river like most roads in Primorye, and certain areas with high conservation value would be exempt from harvest. Surmach was part of the scientific coalition charged with environmental assessments of the drainage before the roads were built. His field team, led by

Avdeyuk, was tasked with identifying fish owl territories along the Samarga River, areas that would be excluded from logging altogether.

By joining this expedition, I would help protect fish owls of the Samarga and also gain important experience in the art of searching for them. These were skills I would apply to the second phase of the project: identifying a study population of fish owls. Surmach and Avdeyuk had compiled a list of sites in the more accessible forests of Primorye where they had heard fish owls calling, and they even knew the locations of a few nest trees. This meant we had a place to focus our preliminary searches, and Avdeyuk and I would spend a few months visiting these sites and more within a twenty-thousand-square-kilometer area along much of Primorye's coast. After we'd found some fish owls, we would return the following year and begin the third, final, and longest stage of the project: captures. By outfitting as many owls as possible with discreet backpack-like transmitters, over a period of four years we could monitor their movements and record where they went. Such data would tell us exactly what parts of the landscape were most important to fish owls' survival, which we could use to develop a conservation plan to protect them.

How hard could it be?

PART ONE

Baptism by Ice

1

A Village Named Hell

The helicopter was late. I was in the coastal village of Terney in March 2006, three hundred kilometers north of where I'd seen my first fish owl, cursing the snowstorm that grounded the helicopter and impatient to reach Agzu in the Samarga River basin. With about three thousand people, Terney was the northernmost human enclave of any notable size in the province: villages any farther, such as Agzu, had their populations measured in hundreds or even dozens.

I'd been waiting more than a week in this rustic settlement of low, wood-heated homes. At the airport, a Soviet-era Mil Mi-8 sat immobile outside the single-room terminal, its blue-and-silver hull tarnished by frost as the winds and snows raged. I was accustomed to waiting in Terney: I had never flown in this helicopter before, but the buses to Vladivostok, fifteen hours south of the village, ran twice a week and were not always on time or in suitable repair for the road. I'd been traveling to (or living in) Primorye for more than a decade at that point; waiting was part of life here.

After a week, the pilots had finally been given permission to fly. Dale Miquelle, an Amur tiger researcher based in Terney, handed me an envelope with $500 cash as I left for the airport. A loan, he said, in case I needed to buy my way out of trouble up there. He'd been to Agzu and I hadn't: he knew what I was getting into. I got a ride to the edge of town and the airstrip, a clearing cut from riparian old-growth forest. The Serebryanka River valley was 1.5 kilometers wide at that spot, framed by the low mountains of the Sikhote-Alin, and only a few kilometers from the river mouth and the Sea of Japan.

After collecting my ticket at the counter, I inserted myself among the anxious crowd of old women, young children, and hunters both local and from the city, all waiting outside to board, insulated by thick felt coats and clutching suitcases. A storm this protracted was uncommon, and many of us had been stranded in the resulting travel bottleneck.

There were about twenty people in this crowd, and the helicopter could hold up to twenty-four people if there was no cargo. We watched uneasily as a man in a blue uniform stacked box after box of supplies by the helicopter while another dressed the same loaded them on. Everyone in the group was starting to suspect that more people had been sold tickets than the helicopter could carry—the crates and supplies being loaded were taking up valuable room—and everyone was equally determined to squeeze through that tiny metal door. Surmach's team, in Agzu and already waiting for me eight days, would probably travel on without me if I did not make this flight. I positioned myself behind a stout older woman: experience showed that my best chance of securing a bus seat was by tailing such a person, a technique not unlike following an ambulance through traffic, and I assumed this rule held for helicopters as well.

The go-ahead was given almost inaudibly, and as a wall we

surged forward. I battled toward and up the helicopter ladder, climbing among the crates of potatoes and vodka and other essentials of Russian village life. My ambulance moved true and I followed her toward the back, where there was a view out a porthole and a little bit of legroom. As the passenger load swelled to a probably unsafe number, I retained my window view but lost legroom to a giant sack of what I think was flour, upon which I rested my feet. The finite space filled to the crew's satisfaction and the rotors began swirling, languidly at first, then with increasing vigor until their fury commanded all attention. The Mi-8 lurched into the sky, jackhammered low over Terney, then banked left a few hundred meters out over the Sea of Japan and shadowed the eastern edge of Eurasia north.

Below our helicopter, the coast was a strip of pebbly beach wedged uncomfortably between the Sikhote-Alin mountains and the Sea of Japan. The Sikhote-Alin ended almost midmountain here, with slopes of lanky Mongolian oak giving way suddenly to vertical cliffs, some of them thirty stories tall, a uniform gray with the occasional patch of brown earth and clinging vegetation or whitewash stains betraying a raptor or crow nest in one of the crevasses. The bare oaks above were older than they looked. The harsh environment in which they lived—the cold, the wind, and a growing season largely shrouded in coastal fog—left them gnarled, stunted, and thin. Down below, a winter of breaking waves had left a thick, icy sheen on every rock the sea mist could reach.

The Mi-8 descended some three hours after departing Terney, gleaming in the sun through swirls of displaced snow, and I saw a loose collective of snowmobiles massed around the Agzu airport, nothing more than a shack and a clearing. As the passengers disembarked, the crew busied themselves unloading cargo and clearing space for the return flight.

An Udege boy of about fourteen approached me with a serious expression, his black hair mostly hidden under a rabbit-fur hat. I was different and clearly out of place. Twenty-eight years old and bearded, I was obviously not local—Russians my age were clean-shaven almost as a rule, as this was the style at the time, and my puffy red jacket was conspicuous among the subdued blacks and grays that Russian men wore. He was curious to know of my interest in Agzu.

"Have you heard of fish owls?" I answered in Russian, the language I'd be speaking exclusively for this expedition and most of my fish owl work in general.

"Fish owls. Like, the bird?" the boy answered.

"I'm here to look for fish owls."

"You're looking for birds," he echoed flatly and with a note of bewilderment, as though wondering if he had misunderstood me.

He asked if I knew anyone in Agzu. I replied that I did not. He raised his eyebrows and asked if someone was meeting me. I responded that I hoped so. His eyebrows lowered in a frown, and then he scrawled his name in the margins of a scrap of newspaper, holding my gaze as he handed it to me.

"Agzu is not the kind of place you can just go to," he said. "If you need a corner to sleep in, or you need help, ask around town for me."

Like the oaks along the coast, the boy was a product of this harsh environment and his youthfulness hid experience. I did not know much about Agzu, but I knew it could be rough: the previous winter the meteorologist stationed there, a Russian (but still an outsider) and the son of someone I knew in Terney, had been beaten and left unconscious in the snow, where he froze to death. His killer was never publicly identified: in a town as small and tight-knit as Agzu, everyone probably knew who did

it, but no one said a word to the inspecting police officers. Punishment, whatever that might have been, would have been handled internally.

I soon saw Sergey Avdeyuk, the leader of our field team, moving among the crowd. He had driven a snowmobile to meet me. We identified each other immediately by the flashy nature of our heavy down jackets, but no one would mistake Sergey for a foreigner—not with his cropped hair, an upper row of gold teeth perpetually clenching a cigarette, and the swagger of someone comfortably in his element. He was about my height—six feet tall—his square, tanned face obscured by stubble, with sunglasses to protect his eyes from the blinding sun's reflection on the snow. Although the Samarga expedition was the first phase of a project I had conceived with Surmach, Avdeyuk was without question the project leader here. He had experience with both fish owls and deep-forest expeditions, and I would defer to his judgment for the duration of this trip. Avdeyuk and two other team members had hitched a ride to the Samarga River basin some weeks earlier on a logging ship from the port village of Plastun, 350 kilometers to the south. They hauled with them a pair of snowmobiles, homemade sleds bulging with gear, and several barrels of gasoline reserves. From the coast they moved quickly to the upper reaches of the river, more than a hundred kilometers away, dropping food and fuel caches as they went, then turned around and were systematically making their way back to the coast. They had paused in Agzu to meet me, planning to stay only a day or two, but had been waiting for the storm to clear as I had.

In addition to being the northernmost human settlement in Primorye, Agzu is the most isolated. Located on the edge of one of the Samarga River's tributaries, this village of about 150 inhabitants, mostly Udege, is a step back in time. In the Soviet era,

the village was the hub for a game meat operation, in which the locals were professional hunters paid by the state. Helicopters flew in to collect furs and meat, which were exchanged for cash. When the Soviet Union collapsed in 1991, it did not take the organized game meat industry long to follow. The helicopters stopped coming, and the rapid inflation that trailed the fall of the Soviet Union left these hunters clutching worthless fistfuls of Soviet rubles. Those who wanted to leave could not; they simply lacked the resources to do so. With no other alternative, they went back to subsistence hunting. To some degree, trade in Agzu had reverted to the barter system: fresh meat could be exchanged at the village store for goods flown in from Terney.

The Udege of the Samarga River basin had until relatively recently lived in dispersed encampments all along the river, but in the 1930s, under Soviet collectivization, these camps were destroyed and the Udege were concentrated in four villages, with the majority ending up in Agzu. The helplessness and distress of a people forced into collectivization are reflected in their village's name: Agzu may be derived from the Udege word *Ogzo*, meaning "Hell."

Sergey guided the snowmobile off the packed trail leading through town and parked it in front of one of the huts that was unoccupied at present, as its owner was in the forest for an extended hunt. We'd been given permission to stay there. Like all the other dwellings in Agzu, it was of the traditional Russian style—a single-story wooden structure with a gabled roof and wide, ornately carved frames around double-paned windows. Two men unloading supplies in front of the hut stopped to greet us. It was evident from their modern outfits of insulated bibs and winter boots that this was the rest of our team. Sergey lit another cigarette, then introduced us. The first man was Tolya Ryzhov: stocky and swarthy, with a round face highlighted by a thick