Arsen'ev's Lament

A Century of Change to Wildlife and Wild Places in Primorye, Russia

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Abstract: In 1900, Vladimir Arsen'ev arrived in a remote corner of the Russian Empire on the cusp of significant change. Forests in the Ussuri Kray (now Primorskiy Kray, or Primorye) were wild, wildlife was abundant, and the human population was low. Twenty-one years later, after witnessing a sustained influx of settlers and a reduction of wildlife, in his introduction to *Across the Ussuri Kray* [*Po Ussuriiskomy kraiu*], a travelogue about his experiences in the region, Arsen'ev mourned the passing of this unique time and place. This article outlines Arsen'ev's contributions to our understanding of Primorye's wildlife in the early twentieth century, describes what led to the reductions in wildlife he witnessed and offers a summary of how wildlife and wilderness look in the region today.

Keywords: Amur leopard, Amur tiger, conservation, hunting, natural resource use, Russian Far East

When Vladimir Arsen'ev first arrived in the Russian province of Primorye in 1900, known then as part of the Ussuri Kray, he was smitten by the mosaic of wilderness and culture he found there. This was a land of tigers and bears, Chinese and Udege, forest and mountain, all swirled together in one remarkable pocket of northeast Asia. Arsen'ev was tasked with inventorying local resources in the first decade of the twentieth century, providing much-needed updates to catalogs of infrastructure and population, and he did so by conducting a series of long-distance expeditions with a focus on the Sikhote-Alin Mountains and the Sea of Japan coast. He later published memoirs describing his early days in the kray, with his 1906 and 1907 expeditions detailed in *Across the Ussuri Kray* [*Po Ussuriiskomy kraiu*; 1921] and *Dersu Uzala* (1923). A half-century later, in 1976, these trips were immortalized by Akira Kurosawa's Academy Award-winning film "Dersu Uzala."¹

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Arsen'ev was far from the first Russian to explore this region then write about it—people such as Nikolai Przhevalskii (in 1867–1869) and Mikhail Venyukov (in 1868) quickly come to mind—but I consider Arsen'ev to be Primorye's first eloquent champion.² His love for the Ussuri Kray, its people, and its wildlife flowed unabashedly from his pen, and his passion was infectious. Many Russian naturalists, both professional and amateur, credit Arsen'ev as an early source of their fascination with nature.

Better than most, Arsen'ev had a deep understanding of the region's wildlife and culture. Then, the kray was dotted by sparse collections of Chinese hunter cabins, Korean farming communities, indigenous Udege encampments, and Russian villages. Arsen'ev wove among them, spending time in the settlements he encountered, not just passing through, and interviewed village residents to learn about their experiences and histories. The level of detail in his works would suggest an educational background seeped in the sciences: geology, ethnography, ornithology, botany, perhaps even archeology. It is surprising that Arsen'ev had no scientific training beyond what he had received at a military academy in St. Petersburg, which he attended from 1892 to 1895.^{3,4} However, the skills he honed as an expedition organizer were well suited for scientific observation: he knew the importance of properly collecting and storing samples, keeping a structured journal and, perhaps most critically, how to efficiently synthesize raw data into coherent reports.

Some of Arsen'ev's records were so exhaustive that we can parse out everything from which villagers owned rifles (including the serial numbers of these weapons and their year of manufacture) to which Koreans were distilling moonshine, and which crops were being planted where.⁵ He also took careful note of indigenous dress and custom and transcribed Chinese forest law.⁶

Wildlife in Arsen'ev's Primorye

Arsen'ev's notes on the wildlife he encountered were equally detailed. He wrote about the predator-avoiding behavior of long-tailed goral—shaggy, goat-like cliff dwellers—and detailed the dietary preferences of Asiatic black bears.⁷ Sometimes his theories on behavior were wrong, such as when he suggested that Amur (or Siberian) tigers mimic red deer calls to lure them to their deaths, but more often than not his accounts were accurate.⁸ Some of his observations have historical im-

portance: his description of a congregation of Steller's sea lions (called a "haulout"), for example, is one of only two historical records in Primorye, and there had not been a haulout seen there again until 1997.⁹

Although the Ussuri Kray was a wild place at the turn of the twentieth century, the region was not devoid of human presence. Approximately 700,000 people populated the Ussuri Kray then, mostly concentrated in Vladivostok, Khabarovsk, Nikolsk-Ussuriysky (now Ussuriysk), and Nikolaevsk. By ethnicity, populations were fairly evenly split between Russians (300,000) and Chinese (345,000), with Koreans (55,000) and especially indigenous Nanai and Udege (2,000) in the minority. However, along the coast and in the northern regions of the Sikhote-Alin mountains where Arsen'ev explored, Russians were in the distinct minority: most of the population was Chinese (with only 685 Russians, 9 percent of the overall population north of St. Olga Post, now Olga).¹⁰

The early twentieth century was a period of considerable wildlife exploitation in Primorye. The Chinese hunting system was highly organized, with an efficient transportation network that linked hunters, trappers, and their wares to collection hubs in most major river drainages, where products were collected and sent on to Vladivostok or Khabarovsk for eventual export to Chinese markets. Arsen'ev documented near-hyperbolic levels of hunting, with fences up to fifty kilometers long leading wildlife indiscriminately to snares or pits, storehouses full of animal parts ready for export to China, and estimated 1.2 million sable traps in the forests. Everywhere he went, Arsen'ev described how animals were hunted or harvested, from octopi and other mollusks to musk deer, goral, and bears. Arsen'ev viewed the Chinese hunters as a threat to Primorye's natural resources. His notes sometimes allowed the scale of these threats to be quantified: for example, in a 107-day period spanning 1912 and 1913, a single collection hub along the Iman River received 637 musk deer glands, and skins from 1,783 weasels, 241 sables, 10 lynx, 21 bears, and 5 tigers.¹¹

Although Arsen'ev regularly blamed the Chinese population for their exploitation of Primorye's animals and worried that if left unabated the forests would soon be devoid of wildlife, the Russians settlers also had their hand in this decline. For example, Yuri Yankovskii, sometimes called "Asia's greatest tiger hunter," lived near Vladivostok until the fall of the Russian Empire and socialized with Arsen'ev. Yankovskii is said to have killed hundreds of Amur tigers in his lifetime.¹² Photographs over the years show Yuri, his sons, and his hunting companions posing next to veritable piles of animal carcasses including

tigers, leopards, bears, wild boar, leopard cats, foxes, raccoon dogs, and more.¹³ At age forty-eight, in exile in what is now North Korea, Yankovskii wrote that he still hunted “a little,” taking only thirty to forty animals a year, mostly roe deer and wild boar.¹⁴

Arsen'ev largely viewed the Russian settlers as lazy and unorganized, not as threats to wildlife, and when he described Russian hunting these episodes were framed more as acts of heroism or feats of strength.¹⁵ For example, Arsen'ev met a villager in Fudin named Kashlev, revered for how many tigers he had slain, and also extolled the Pyatyshkin and Myakishev Brothers, who had collectively killed hundreds of bears.¹⁶ Arsen'ev played his part in wildlife take as well, although not on nearly as vast a scale. In addition to hunting deer and boar as food during expeditions, he and his team shot mammals and birds to preserve as museum specimens, with sixty birds being collected during the 1906 expedition alone.¹⁷ They also hunted for sport: on one occasion, Arsen'ev sought out and shot a bear for no reason other than to prove his meddle as a hunter; on another occasion, one of his companions killed an Amur leopard. Arsen'ev would have shot a tiger as well, or at least tried to, had Dersu Uzala not dissuaded him of the idea.¹⁸

The pressures put on wildlife in Arsen'ev's day were not sustainable, and the actions of Yankovskii and other tiger hunters nearly saw these big cats driven to extinction. At the time of Arsen'ev's early twentieth-century expeditions dozens of Amur tigers were being removed from the forests annually.¹⁹ Dr. Dale Miquelle, a leading Amur tiger conservationist in Primorye today, contends that there were about 850 adult Amur tigers in the wild in Russia around that time, based on the historic geographical range of tigers and their known territory size. Some of these animals, mostly adults, were targeted by Russian trophy hunters, while others, primarily younger animals, were captured alive for domestic and international zoo and circus markets.²⁰

In the mid- to late-1930s, when the federal *zapovednik* (nature reserve) system expanded to include lands in Primorye, interest in tigers evolved to include study and protection as well as hunting. Lev Kaplanov, a biologist at the newly established Sikhote-Alin Zapovednik, conducted a series of surveys across 30,000 square kilometers in Russia to estimate tiger numbers. Although his work was not published until 1948—five years after he'd been murdered by a poacher—the results were startling: Kaplanov believed there were only a few dozen Amur tigers left in the wild.²¹ As healthy female tigers do not typically breed until they are three or four years old, and there is usually a two-year

period between litters, the practice of hunting adults and capturing juveniles meant that the wild population simply could not breed fast enough to sustain itself.²² A half-century of persistent pressure on their numbers by Yankovskii and others like him had left Amur tigers on the brink of extinction.

The situation with Amur leopards was equally dire. These are smaller cats than tigers, unable to negotiate the deeper snows in the northern, more remote reaches of the Ussuri Kray. Consequently, while they once ranged throughout northeast China and the Korean peninsula, in Russia they have been distributed mostly in the southern part of Primorye.²³ Here, they typically lingered closer to the coast where strong winds kept ridgetops, their preferred travel routes, snow-free. The southern part of the Ussuri Kray was the area with the greatest human population density during the period of Arsen'ev's early twentieth-century expeditions, with most of the region's inhabitants crowded in Vladivostok, Nikolsk-Ussuriysky, and in villages near the railroad leading to Khabarovsk.²⁴ Hunting pressure and loss of habitat due to human encroachment and land conversion here caused leopard numbers to decline steadily through the ensuing century, with a concomitant range contraction. The area where Arsen'ev's companion killed a leopard in *Across the Ussuri Kray* has not seen one of those rare animals since the 1970s.²⁵ The range of these cats has continued to contract since, and today all wild Amur leopards in Russia are restricted to a single pocket of forest in southwestern Primorye. This area is bordered to the east by the Sea of Japan, to the west by the China border, to the south by the North Korea border, and to the north by the greatest human population densities in the entire Russian Far East.²⁶

Arsen'ev acknowledged the overall impact of hunting and human development in his introduction to *Across the Ussuri Kray*, which reads almost like a eulogy. He lamented the loss of wildness, writing: "Where before a tiger roared now a locomotive whistles, and where there was once a sparse scattering of Chinese trappers there are now large Russian settlements. The indigenous peoples have retreated north, and wildlife populations in the forest have been greatly diminished."²⁷ It was without question a period of rapid change and, in part due to Arsen'ev's body of work, we can piece together distributions of wildlife in Primorye a century ago, and the threats to them, which in turn allows us to assess how those populations have changed over the past century. The region and its animals have proven to be more resilient than Arsen'ev may have expected.

Wildlife in Modern Primorye

In 1947, the Soviet government placed a moratorium on trophy hunting for tigers and, in 1955, followed up with a five-year ban on the capture of live tigers as well.²⁸ With legal protection and sufficient suitable habitat for them to expand into, tiger numbers responded positively over subsequent decades. Encouraging results were detected almost immediately by biologists, who estimated 90–100 tigers in 1965, up from the 20–30 Kaplanov estimated in the 1930s. By the 1980s, this number had risen further to 240–250 tigers.²⁹ The fall of the Soviet Union and resultant lawlessness in Primorye, however, saw a sharp increase in tiger poaching in the early 1990s with an estimated 50–60 poached annually.³⁰ For the second time in the twentieth century, the extinction of Amur tigers seemed imminent.

Thankfully, intensive on-the-ground antipoaching measures since then, including strengthened laws, better coordination of antipoaching teams, and creation of new wildlife reserves, have averted disaster.³¹ Improved management has also resulted in fewer tiger mortalities, with “problem” tigers—usually young and inexperienced animals raiding villages for dogs or cattle—often now captured and relocated rather than killed.³²

As active protections improved, tigers found more space to live undisturbed. The amount of federally protected land in Russia has almost quadrupled from around 6,000 square kilometers in the early 2000s to nearly 20,000 square kilometers today, including Bikin National Park (in the last completely roadless river drainage in Primorye). At 11,601 square kilometers, Bikin is the largest protected area for any tiger subspecies anywhere in the world.³³ Conservationists have also been thinking creatively about what defines tiger range in Russia. Since 2014, for example, a dozen wild-born tigers have been reintroduced to the Pri-Amur region just west of Khabarovsk, where tigers disappeared some decades ago.³⁴ The population there seems to be taking hold, with a half-dozen cubs born in the past few years. The population recovery of Amur tigers in Russia since 1947 has been inspiring, with recent government estimates suggesting close to 600 tigers today.³⁵ There is still work to do, but tigers have indeed rebounded from being on the edge of extinction during Arsen'ev's time.

There is cause for optimism with leopards as well. In 2012, Land of the Leopard National Park was established, a federal-level protected area straddling the Russo-Chinese border that contains nearly all Amur leopard habitat in Russia (and including some of the lands where

Yankovskii hunted leopards and tigers). Scientists from Russia and China have also begun working together to better understand where Amur leopards are found in both countries and, more importantly, how many there are. In 2015, the global population stood at eighty-four individuals.³⁶ This may seem like very few, but the results were cause for celebration; for years, it was thought that the population was less than half that size.³⁷ However, recent advances in animal detection (namely, motion-triggered cameras set along remote ridges) have improved the accuracy of population estimates. Perhaps more important, the anti-poaching system run by the Department of Protection at Land of the Leopard National Park is one of the best in the country.³⁸ This means that there are plenty of prey for the leopards (and sympatric tigers) to eat there, which supports a growing leopard population.

As conservation measures in Russia improve, prompted both by the government and environmental organizations, tigers and leopards are being spotted in places they had not been seen in years, including across the border in China. There, a massive protected area called Northeast Tiger and Leopard National Park was recently established by the Chinese government to give these rare cats a chance to reestablish themselves in China, too.³⁹

I do not wish to diminish the threats posed to wildlife in Primorye today or gloss over the damage witnessed by the twentieth century. There are approximately 4.5 million people combined in the southern Russian Far East now (including Primorye, Khabarovsk Krai, Amur Oblast, Jewish Autonomous Oblast), and this kind of crowd leaves a footprint. There have been significant losses to wildlife and wild places. For example, in the Tyutikhe River Valley in Primorye (now the Rudnaya River Valley, location of the city of Dalnegorsk), where Arsen'ev and his companions gorged on salmon almost to the point of disgust, few of these fish remain, and cancer rates among humans are high; the river is considered one of most polluted places in the world.⁴⁰ It is not just the water that is threatened; logging roads reach like tentacles into Primorye's forests, giving poachers with high-powered rifles unprecedented access to deer, boar, bears, and tigers. Based on personal experience, Russian hunters today use some method (both legal and illegal) learned from their Chinese and Korean predecessors, including drift fences set for musk deer and shooting coastal cliff-dwelling goral from boats (Figure 1).

Figure 1. The author at a drift fence in Primorye in 2004, a method to trap musk deer described by Arsen'ev in 1906 and still in use today. The deer are caught by wire snare around the neck when they pass through openings in the fence. Photograph courtesy the author.

Conclusion

In his introduction to *Across the Ussuri Kray*, Arsen'ev lamented the loss of the past and the taming of wilderness. His sentiment was understandable: elsewhere in the world, seemingly wild places have experienced what's called the "empty forest" syndrome, in which a landscape that appears pristine at first glance—with trees and rivers and wetlands—are quiet.⁴¹ They have been so altered by humans that they no longer support much wildlife, with pollution of water making rivers toxic for fish, and unsustainable hunting eliminating large mammal populations. But in Primorye it is important to understand that the natural system still works; the forests are not empty. For there to be tigers and leopards, there must be sufficient deer and boar for them to eat. And in order for there to be large numbers of deer and boar, there must be intact forests with enough pine nuts and acorns to feed them. That these linkages exist here is a signal that some of the wrongs

wrought in the twentieth century are being corrected, and that there is something here worth saving. Tigers once again roar in places where now the locomotives are silent. Primorye is still wild, and it remains a place that Arsen'ev would recognize and fight for.

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