Map 9.1

Koryak Autonomous Okrug

301,500 sq. km

By Newell and Zhou / Sources: Ministry of Natural Resources, 2002; ESRI, 2002.

Koryak Autonomous Okrug
(Koryakia)

Location
The Koryak Autonomous Okrug (Koryakia) covers the northern two-thirds of the Kamchatka Peninsula, the adjoining mainland, and several islands, the largest of which is Karaginsky Island. The northern border with Chukotka and Magadan Oblast runs along the tops of ridges, marking Koryakia as a separate watershed from those territories. The southern border with Kamchatka Oblast marks the beginning of Eurasia’s most dramatic volcanic landscape.

Size
301,500 sq. km, or about the size of the U.S. state of Arizona.

Climate
Koryakia’s subarctic climate is moderated by the Sea of Okhotsk and the North Pacific. January temperatures average about –25°C, and July temperatures average 10°C to 14°C. Average annual precipitation for the region is between 300 and 700 mm. Inland areas in the north have a more continental and drier climate, and areas around the Sea of Okhotsk tend to be cooler in winter and summer than those on the Pacific shore.

Geography and ecology
The okrug’s four raions roughly mark four separate drainages: Rivers in Olyutorsky and most of Karaginsky Raion drain into the Bering Sea, while rivers in Penzhinsky and Tigilsky Raions drain into the Sea of Okhotsk. The Central Ridge, including the okrug’s tallest peak, Mt. Khuvkhoitun (2,613 m), continues north from Kamchatka Oblast. The ridge declines in average elevation as one proceeds northward to Parapol Valley. Characterized by low, swampy tundra, much of it on permafrost, Penzhinsky Raion is ideal for some of Northeast Asia’s largest herds of wild and domestic reindeer (Rangifer tarandus). In the northeast, Olyutorsky Raion is more mountainous, with peaks averaging between 1,200 and 2,000 m.

Flora and fauna
Koryakia varies greatly in vegetation, from barren alpine peaks to Dahurian larch (Larix gmelini) woodlands, coastal meadows, and riparian forests of chosenia (Chosenia arbustifolia) and willows (Salix). The most widespread type of vegetation is subarctic tundra, often with groves of Japanese stone pine (Pinus pumila) and shrub alders (Alnus), and scattered larch trees.
The Okhotsk and Bering littorals are home to many marine mammals, including walrus (*Odobenus rosmarus*), Steller’s sea lion (*Eumetopias jubatus*), Northern fur seal (*Callorhinus ursinus*), and other seals. Gray whale (*Eschrichtius robustus*) largely disappeared from the Sea of Okhotsk in the nineteenth century, but indigenous people still hunt beluga (*Delphinapterus leucas*). The Okhotsk and Pacific shelves are rich fisheries, especially for Kamchatka crab (*Paralithodes kamtschaticus*). The rivers provide spawning grounds for most species of Pacific salmon (*Oncorhynchus*).

Forest and tundra fauna include a range of fur-bearing animals: sable (*Mustela zibellina*), wolverine (*Gulo gulo*), river otter (*Lutra lutra*), Eurasian lynx (*Felis lynx*), red fox (*Vulpes vulpes*), and American mink (*M. vison*). Large predators include gray wolf (*Canis lupus*) and brown bear (*Ursus arctos*), the latter under increasing pressure from poaching for the Chinese gall-bladder market. Indigenous people also depend upon wild and domesticated reindeer, snow sheep (*Ovis nivicola*), and moose (*Alces canadensis*). Many species of rodents are found all over the okrug, including lemmings (*Lemmus*) and the rare Kamchatka marmot (*Marmota kamtschatcica*). Waterfowl is most abundant in Parapol Valley; other birds common to the region include eagles, owls, falcons, and ravens (*Corvus corax*), a prominent figure in the mythology of native peoples.

**Largest cities**

The largest town is Ossora (pop. 6,000), the center for Karaginsky Raion, the most populated and economically developed *raion* in Koryakia. Tilichiki and Korf (the site of the main airport, just across a small bay) together total about four thousand people. The capital, Palana, once had a population of over six thousand, but now has closer to four thousand.

**Population**

As of 2001, there were 29,100 people living in Koryakia, about one-third of those being indigenous to the area (Koryaks, Itelmens, Chukchi, and Evens). This is the first time in over thirty years that the population has been less than thirty thousand, down substantially from the 1991 peak of forty thousand people. The emigration rate has declined in recent years, but so has the birth rate. The population is concentrated in a compact settlement pattern; towns and villages occupy only 37,700 ha, 0.1 percent of the total territory, and human activities seriously affect less than 1 percent of the total area.

**Key issues and projects**

**The persistent energy crisis**

The single greatest challenge to the environment and people’s standard of living is the energy crisis. Low-grade coal and diesel for heating and electricity contribute to pollution, and local people are cutting more trees, as firewood increasingly becomes the main source of home heating in many villages.

**Platinum mining**

The main enterprise engaged in mining precious metals in the okrug is ZAO (closed joint-stock company) Koryakgeoldobycha, established in 1992. During the first six years of its existence the company became a large enterprise, increasing platinum production from 600 kg to 6 tons annually by 1998. It is the largest alluvial platinum mining enterprise in Russia.

**Coal mining**

Low-grade brown coal, the deposits are mined for local heating plants.

**Poaching**

Poaching is a serious threat to salmon stocks. The indigenous and some of the immigrant population sometimes fish illegally, preserving fish for winter and selling the roe for cash. Most seriously, professional caviar pirates are notorious for taking large amounts of roe and leaving the fish to rot on the riverbank. Conservation activity should take into account the subsistence needs of locals and distinguish that from unsustainable poaching.
Political status
In 1993, Koryakia was declared an “equal subject of the Russian Federation” in Yeltsin’s famous decree, but its political status remains ambiguous. The okrug was subordinated to Kamchatka Oblast soon after its establishment in 1930. It has never had a political and economic infrastructure truly autonomous from Kamchatka Oblast. Local political and economic power is mostly in the hands of ethnic Russian and Ukrainian immigrants, and Koryakia’s “sovereignty movement” has never been a simple case of indigenous ethnic nationalism. In 1996, Koryakia had the distinction of electing Russia’s first female governor, Valentina Bronevich, an ethnic Itelmen. Her administration did not see any marked improvement of the situation among indigenous people (which is certainly hampered by the endemic economic crisis of the past nine years), although in May 1999, the okrug and oblast administrations did sign an agreement on the terms of the relationship between the two territories.1

Natural resources
Koryakia’s main resources are precious metals (platinum group metals, gold, and silver) and fishing products: Pacific salmon, whitefish (Coregonus, Prosopium), Pacific herring (Clupea pallasi), walleye pollock (Theragra chalcogramma), Pacific cod (Gadus macrocephalus), and various species of crab. Other mineral resources include mercury, antimony, arsenic, sulfur, coal, limestone, and tin. The coal is low grade and suitable only for local consumption. Development of mineral resources has been hampered by high costs associated with rugged, remote locations and almost complete absence of infrastructure. The following deposits of nonferrous metals have been discovered, explored, or partially explored: Snezhnoe, Itchayvayam, Sergeevskoe, Liapganaiskoe, Neptunskoe, Olyutor, Ainavetsknoe, Khrustalnoe, Ametistovo, and Ozernovsky (see map 9.2). The last two are the largest gold deposits and are being targeted by Russian companies for development with foreign participation. Forest resources are negligible for commercial development. Traditional indigenous activities (reindeer herding, hunting, and fishing) are not commercially viable. Limited oil reserves have been found within Koryakia’s territory on the Sea of Okhotsk shelf, but they have not been fully explored and mapped. Oil and gas

regions cover 46.8 sq. km in Koryakia; the most promising are the Vivensky and Voyampolsky regions. The total gas potential is estimated at 87 billion cu. m, but the extraction base has not yet been established due to the lack of foreign investment.

If Koryakia were able to develop a tourist infrastructure, it would be able to capitalize significantly on its latent tourist resources: game hunting, fly fishing, adventure wilderness trips, and ethnographic tourism. Although in an embryonic stage of development, tourism has produced favorable reviews by those few who have visited the region.

Main industries
Accounting for about 70 percent of total annual production, fishing is by far the most important industry in Koryakia and includes subsistence salmon fishing and drying for winter, caviar production (legal and illegal), commercial river fishing, and large-scale, sea-based fishing by local companies, such as Iain Kutkh, and foreign licensees. After a high of 140,000 tons of fish caught annually in the 1970s, the official annual fish catch has not exceeded 100,000 tons since. Nonferrous mining is the next most lucrative enterprise, but is poorly organized, save for platinum mining in Karaginsky Raion. Much of the gold is produced by small-scale, semilegal operations in Penzhinsky and Olyutorsky Raions, typically from placer deposits.

Infrastructure
The lack of roads and seaports as well as an aging air fleet characterizes local infrastructure. Koryakia relies upon Petropavlovsk-Kamchatsky as the only major port and airport in the area. None of the towns has port facilities, and ships from the open sea (in Palana) or bays (Ossora, Manily, Korf) are unloaded onto barges. Direct flights from Petropavlovsk are available to Korf, Tilichiki, and Ossora, on Yak-40s, and to Palana on AN-28s. Pahhachi has direct service to Petropavlovsk from May through September. Merchants also make use of commercial helicopter cargo flights from the Kamchatka Oblast towns of Esso and Anavgai, which are connected to Petropavlovsk by highway, to supply the southern part of Koryakia, especially in winter. Helicopter flights to smaller villages are irregular, but are usually available at least once a week. Flights to Magadan and Chukotka

Soaring fuel costs make air transport very expensive. Chartering an MI-8 helicopter costs about U.S.$200 per hour of flight. A one-way ticket between Petropavlovsk and the capital, Palana, is about U.S.$200.

Winter roads provide more convenient access between many towns and villages, and individuals use snowmobiles, dogsleds, and even reindeer for transport between villages.

The only permanent road in the okrug runs from Ossora to the village of Karaga, about 20 km away, and is unpaved. Outboard motorboats are used for local riverine transport. Small, self-powered barges service many of the smaller villages from Palana, Manily, Ossora, and Korf. The Penzhina is the largest navigable river, servicing Kamenskoe, Oklan, Slautnoe, and Ayanka from Manily. However, low water levels in late summer make the last two villages difficult to reach.

Internet access is available through servers in Petropavlovsk. Palana and Tilichiki have direct dial-in numbers to local routers with permanent connections to the Petropavlovsk servers. Internet use is limited to commercial and governmental elite, but is growing. All villages have telephone service except Paren, which relies on two-way radio connections with Manily.

Foreign trade

The greatest exports in terms of volume and value are in fish and marine products and in platinum. There is a growing black market export in bear gall bladder to the People’s Republic of China, and poached salmon roe also makes its way to other Russian regions and Japan. Nearly everything else is imported: food, clothing, building materials, and fuel. Used cars are imported from Japan through Petropavlovsk. Food is imported primarily from other areas of Russia and the former Soviet Union, but South Korea, Canada, and the United States are also major suppliers. Clothing and other dry goods (typically of the lowest quality) most often come from China and South Korea. Retail prices in Palana average 1.9 times higher than those in Petropavlovsk.* Prices in small villages typically are double what they are in larger towns such as Palana. The administration is actively seeking foreign investment in fishing and fish processing, platinum and gold mining, and attracting foreign hunting and adventure tourism, primarily from Germany and North America.
Along with its neighbors Chukotka and Kamchatka, Koryakia was closed as a border zone during Soviet rule. Its biggest contribution to the RFE economy is the sale or lease of fish and crab quotas to Vladivostok or foreign-based companies. Caviar is exported, but Koryakia lacks the ability to process (freeze or can) fish on a large scale.

General outlook
In a word, grim. As is common all over the RFE, Koryakia suffers from a persistent energy crisis. Settlements are widely scattered about and diesel-electric generators and coal-fired centralized heating plants provide for each settlement separately. Skyrocketing transport costs and persistent lack of funds have forced severe cutbacks. All towns experience some kind of electric rationing through periodic outages. Heating plants operate at reduced capacity. Households resort to electric heaters and woodstoves. Many of the smallest and most remote villages (e.g., Paren) rely almost entirely upon woodstoves for heat and candles and oil lamps for light. All of the larger towns and many of the villages are located on the coast, where wind power would be the most economic and reliable source of electric power.

— Alexander King
Ecology

Sergei Abramov, Robert Moisseev, Olga Chernyagina

Koryakia lies mainly within the tundra woodland zone. Lowlands are sparsely forested, with Dahurian larch and stone birch (in the south) being the dominant tree species. Tall forests of larch grow in river valleys along the western and southern borders. Upland areas are covered with subarctic tundra, composed of low shrubs, grasses, lichens, and mosses, with large areas of Japanese stone pine, stone birch, and shrub alder thickets. Alpine tundra is widespread at higher elevations. Coastal meadows exist along the southeastern seashore, but most coastal areas are covered with wet tundra and peat bogs. Riparian forests, mostly of chosenia, willows, and aromatic poplar (Populus suaveolens), line the large rivers.

The ecosystems are mostly pristine because of minimal human impact. The topography of the area is mainly mountainous, though marshy plains cover more than 25 percent of the territory. The Central Mountain Range continues north from the Kamchatka Oblast to Parapol Valley. The rugged Koryak Mountains dominate Olyutorsky Raion. The Ichigem Mountains form the western border with Magadan Oblast and include the headwaters of the P彭zhina River. The largest plains are the West Kamchatka lowland (extending north from Kamchatka Oblast territory along the Okhotsk coast) in Tigilsky Raion and Parapol Valley in the north.

The moderate subarctic climate is determined by the high latitude of the area as well as its closeness to the Okhotsk and Bering Seas. The northern, landlocked part of Koryakia has a more continental climate. Marine influences make the weather highly variable. Both the long winters (lasting up to seven months) and the cold summers are punctuated with severe storms. The longest rivers are Penzhina, Vyvenka, Apuka, and Tigil. Characteristically, the water in the rivers is soft and hydrocarbonated. Large areas of the plains are covered with swamps and small lakes, generated by excessive humidity, permafrost, slow surface runoff, and river flooding.

Wetlands, mainly moss and grass, cover almost the entire western Kamchatka lowlands and southern part of Parapoly, and are important for nesting and migratory birds. Trees and bushes growing here include Laddendorf birch (Betula laddendorfii) and blue willow (Salix glauca). Plants include small cranberry (Oxyccoccus palustris), cloudberry (Rubus chamaemorus), marsh horsetail (Equisetum palustre), sedge (Carex physodes), wild rosemary (Ledum palustre), peat moss (Sphagnum), and tall cotton-grass (Eriophorum angustifolium spp. subarcticum). Meadows carpeting the lowlands along the coast of Karagin Gulf provide habitat for many rodents including the Arctic ground squirrel (Spermophilus parryi).

Flora and fauna

The overall forested area of Koryakia is 28,800 ha (35 percent). The dominant tree species are Japanese stone pine (50 percent), stone birch (20 percent), Dahurian larch (19 percent), and aromatic poplar (11 percent). In the southern part, pine trees reach a height of 7 m, but elsewhere they are dwarf. There are four logging areas, which are administered by Kamcharlesprom. The annual cut is approximately 30,000 cu. m, mostly used for firewood. Commercial forestry is practically impossible in the okrug.

Considerable areas in the southern part of the okrug are occupied by stone birch forests, which cover the lower slopes up to 600 m above sea level and have a grassy undergrowth. Mountain birch forests have underbrush. Lowland forests include false hellebore (Veratrum), tasselflower (Emilia), wild onion (Allium), cow parsnip (Heracleum), Arctic blackberry (Rubus arcticus), and bluegrass (Poa radula). Mountain forests include Japanese stone pine and shrub alder trees, mountain ash (Sorbus), with Kamchatka rhododendron (Rhododendron kamtschatica) in the undergrowth. Brown bear, sable, wolverine, ermine (Mustela erminea), red fox, and variable hare (Lepus timidus) live in the stone birch forests. Birds are represented by nuthatches (Sitta europaea), spotted woodpeckers (Dendrocopos), buntings (Emberiza), and leaf warblers (Phylloscopus).

In the river valleys and on slopes as high as 800 m, Siberian stone pine groves dominate the region. On the lower slopes they form dense thickets; further up they are barely taller than the surrounding vegetation. These hardy dwarf pines, often growing in climates where no other bushes can survive, provide critical habitat for many animals and birds, and protect slopes from erosion. Brown bear, ermine, sable, variable hare, red fox, wolverine, spotted nutcrackers (Nucifraga caryocatactes), Eurasian magpies (Pica pica), and

The red-faced cormorant (Phalacrocorax urile) is an uncommon seabird, nesting locally on remote seashores. Koryakia is the northern limit of its range.
Shrub alder forests (averaging between forty and sixty years old) occupy much smaller areas and grow on the eastern slopes of the Koryak Mountains and on the southern part of the Vetvei Range. Few other plants grow among these leafy alder forests, but there are some species including lady fern (*Athyrium*), twisted stalk (*Streptopus*), manna grass (*Glyceria*), and false lily-of-the-valley (*Majanthemum*). The fauna is similar to that of the dwarf pine forests.

Valley forests extending as narrow strips along riverbanks include chosenia, aromatic poplar, willows, and aspen (*Populus tremula*). Growing among the underbrush is dog rose (*Rosa canina*), honeysuckle (*Lonicera*), and a variety of herbs. Among the trees are large meadows with thickets of nettle (*Urtica*) and ferns (*Polypodiaceae*), and the increasingly rare northern tiger lily (*Lilium pensylvanicum*), reaching about 2 m in height. The wildlife in these valley forests is rich and includes brown bear, river otter, variable hare, Arctic ground squirrel, ermine, muskrat (*Ondatra zibethica*), Steller’s sea eagle (*Haliaeetus pelagicus*), and white-tailed sea eagle (*H. albicilla*). These valley forests are essential in controlling erosion and flooding, and in preserving important spawning grounds.

Dahurian larch forests, often found together with wild rosemary and Japanese stone pine, grow in the Penzhina River valley. Rodents, including voles, Eurasian squirrel (*Sciurus vulgaris*), and Siberian chipmunk (*Tamias sibiricus*), frequent these forests. Moose inhabit the burned forests and river valleys. Predators include gray wolf, brown bear, wolverine, and Eurasian lynx (*Felinus lynx*). In spring, birds such as nuthatches, buntings, leaf warblers, and spotted nutcrackers migrate here, while willow and rock ptarmigans (*Lagopus lagopus, L. mutus*) and hazel grouse (*Bonasia bonasia*) reside year-round.

Lowland tundra, with dwarf pine and lichens, dominates in the northern wetland areas of Parapol Valley, along the northern coast of Penzhina Bay and the river. More than two hundred species of birds have been recorded there. Mammals include variable hare, red fox, wolverine, brown bear, ermine, and river otter.

Subarctic tundra, primarily lichen and brush with mountain avens (*Dryas*), saxifrages (*Saxifragaceae*), Rhododendron, locoweed (*Oxytropis alpina*), and other bushes and herbs, is found in the Central, Koryak, and Ichigem Mountains. In some places one can see mossy sedge, grassy sedge, and mixed herbs. At lower elevations one can find Japanese stone pine and shrub willows. Some plants growing among mountainous tundra zones are very rare and require protection, including ragwort (*Senecio*), Koryak dandelion (*Taraxacum koryakensis*), and loco (*Oxytropis*). The endangered Kamchatka marmot (*Marmota kamtschatica*), Pechora pipit (*Anthus gustavi*), plovers (*Pluvialis*, *Charadrius*), wagtails (*Motacilla*), and leaf warblers (*Phylloscopus*) make their home here. Both mountain and lowland tundra are critical for indigenous reindeer herding and are under pressure from various mining activities. The many thermomineral springs of the Central Range shelter unique thermal ecosystems, which remain practically unstudied by scientists.

Koryakia’s fauna is typical of subarctic Beringia. About 60 species of mammals and 150 species of birds can be found in the okrug. In the coastal areas, almost all pinnipeds of the RFE can be found. Thirteen species of mammals, twenty-four species of birds, and two species of fish are in need of protection.

Wildlife resources are a foundation for traditional nature use by the indigenous peoples. Seventy-five hunting enterprises are registered in the okrug. According to the official data, these enterprises, along with individual hunters, annually produce from 2,000 to 3,500 sable pelts, up to 1,000 fox pelts, and from 100 to 200 brown bear and wolverine skins. Moose, river otter, ermine, Eurasian squirrel, Eurasian lynx, and many birds are also hunted. Recently, reduced economic activity has generally resulted in less hunting. In the coastal areas, around eight hundred seals are hunted annually. Seal hunting quotas have not been met for several years.