

I. Primorskiy Region

Overview of the Region

Josh Newell

Location

Primorskiy Krai (or Primorye) lies in the south of the RFE, bordered by Khabarovsk Krai to the north and by China to the west. In the far south of the krai, Russia, China, and North Korea share a border on the Tumen River Delta. The region's coast is washed by the Sea of Japan. It is just 400 kilometers from Japan.

Size

Primorskiy Krai covers 165,900 sq. km.

Climate

In winter, cold air blows east from the continent creating consistently cold, dry, and sunny weather with little precipitation. January temperatures average -10C in the south, -30C in the north, and reach --45C in the mountains. Winter snows begin to thaw in the middle of March in the south and toward the middle of April in the north and in the mountain regions. Humid masses of air come up from the south across the Sea of Japan in summer creating rainy and hot weather, especially along the coast. Flooding is a yearly event. July, with an average of 22C, is the warmest time in the inland regions. August is the warmest time along the coast with average temperatures around 20C. Autumn, considered the best season, is clear and dry and lasts from late September to late November, when snow begins to fall.

Geography and Ecology

The Sikhote-Alin mountain range covers much of the territory, stretching from the southwest to the northeast, parallel to the coastline. The mountains rise to a height of 1,855 m. (Mt. Oblachnaya) and average about 1,000 m. The northern part of this range extends into Khabarovsk Krai.

Rivers on the western side of these mountains flow into the Ussuri River, a major tributary of the Amur River, which runs south to north and forms the border with China. One of these rivers the Bikin runs through the largest intact stands of Korean pine and broadleaved forests left in the krai. Short swift rivers flow from the southeastern slopes of the Sikhote-Alin Mountains into the Sea of Japan. Generally no longer than 50 to 100 km., these rivers often flood due to intense summer rains. The increase in agriculture and logging over the past 70 to 80 years has increased the size and frequency of floods. Almost all of Primorskiy's rivers, especially those flowing into the Sea of Japan, are spawning grounds for migratory fish, including many species of salmon. The Sea of Japan washes the eastern coast, which has estuaries and lagoons, beautiful beaches, and a diversity of marine and shore wildlife.

In the southwest, rare black fir and broadleaved forests of the eastern Manchurian mountains, which extend into North Korea and China, provide the last habitat for the endangered Far Eastern leopard (*Panthera pardus orientalis*), but are shrinking in size. Due to the mountainous landscape there are few marshes in the krai; most are along Khanka-Ussuriysk Plain which borders Lake Khanka in the south and east and stretches north along the Ussuri River. Lake Khanka, the largest body of freshwater in the Russian Far East, covers about 4,000 sq. km. but is very shallow, no more than 10 m. The lake wetlands, extremely valuable for migratory birds, have been degraded by agriculture. The Tumen River Delta, in the far south, also provides wetland habitat for migratory birds, marine mammals, and reptiles.

Forest covers 80% of the krai, and most of the species are endemic. In the north and at higher

elevations, Ayan fir, silver fir, and Daurian larch dominate. Further south and in the river valleys, northern and subtropical tree species intermix to create unique forests which Russian ecologists call the Ussuri Taiga. The biological diversity of these forests, the wetlands, and the rich coastal waters is higher than almost anywhere else on Russia and rival that of any temperate ecosystem in the world.

Flora and Fauna

Most of the estimated 250 to 300 remaining Amur tigers roam Primorskiy's forests. The 30 or so remaining Far Eastern leopards live along the Chinese North Korean border in the southern part of the krai. Rare cranes migrate to Lake Khanka, the Tumen River Delta, and along the Ussuri River. Other rare and endangered species include the Far Eastern forest cat (*Felis euphilura*), red wolf, sika deer (*Cervus nippon hortulorum*), Steller's sea eagle (*Haliaeetus pelagicus*), golden eagle (*Aquila chrysaetos*), short-tailed albatross (*Diomedea albatrus*), Oriental white stork (*Ciconia boyciana*), Chinese egret (*Egretta eulophotes*), Himalayan black bear, Mandarin duck (*Aix galericulata*), Blakiston's fish owl (*Ketupa blakistoni*), and goral.

Over 700 species of living organism inhabit the coastal waters of the Sea of Japan. There are about 2,000 species of plant, of which 250 species are trees; many of these are endemic. Some of Primorye's rare flora include Manchurian apricot trees, tara vines, ginseng (*Panax ginseng*), Komarov lotus, Japanese yew trees, and rhododendron.

Forests

See description on Geography and Ecology above

Forest Hotspots

1. **Samarga River Basin**
2. **Middle and Upper Bikin River Basin**
3. **Middle Iman River Basin** (proposed Sredne-Ussurskiy National Park)
4. **Southwestern Primorskiy Krai**
5. **Upper Ussuri River Basin** (proposed Verkhne-Ussuriyskiy National Park)

Largest Cities

Vladivostok (pop. 648,000) is the administrative center and a major port and international trade center.

Nakhodka (pop. 166,000) and Vostochniy (pop. 15,000) are major timber and coal ports.

They also have Russia's largest fish canneries.

Ussuriysk (pop. 161,000) is a center for food processing.

Arsenev (pop. 72,000) produces military aircraft. Spassk-Dal 地 iy (pop. 61,000) is the center for the cement industry.

Main Resources

Primorskiy has abundant natural resources with more than 2 billion tons of coal, 1.7 billion cu. m. of timber (including 0.5 billion cu. m. of Korean pine), gold, silver, tin, fluoride, bromide, lead, zinc, and tungsten. Marine species fished include salmon, cod, flounder, herring, king crab, shrimp, and mollusks.

Economic Importance in the RFE

- Largest and most balanced economy in the RFE
- Forty percent of total RFE Industrial output
- Leading Agricultural region of the RFE

Saving Russia's Far Eastern Taiga: Deforestation, Protected Areas, and Forests 'Hotspots'

- Transportation center for the RFE

THE EXISTING PROTECTED-AREA SYSTEM

Dr. Yuri Bersenev

Protected Areas Specialist

Primorskiy Krai Committee of Nature Protection

Introduction

With its extremely high diversity of flora and fauna, and the presence of many rare and endangered species, Primorskiy Krai differs from many other regions of comparable size in the world. Conservation of this biodiversity is of global significance and it is essential to establish a system of nature preservation that will ensure adequate protection. One way to ensure such protection is to expand the network of protected nature reserves.

Over the past decades, nature protection and reserve creation have been developing in the krai. However, the network of existing protected areas does not adequately preserve the region's biodiversity, as many boundaries have been established without proper consideration for the range of habitat necessary to protect endangered species.

Recommendations for Action

Only 3.42% of the total area of the krai is currently protected, but there is a comprehensive vision for expansion outlined in the Primorskiy Krai Ecological Program. Therefore, when creating protected areas, it is important to follow the guidelines of this Program, as the territories have been chosen according to scientific criteria and research. (The most important of these territories are listed, below, in Section VII.)

There is a real opportunity to establish a series of national parks and Territories of Traditional Nature Use. This is due to a series of decisions made on a krai and federal level, including the federal government decree of April 23, 1994, No. 572-r (the Chernomyrdin Document).

In 1994-95, twenty-five-year licenses were granted to log forest regions in the krai. Areas slated for protection have been excluded from the licensing process, but they cannot be excluded forever only for the time necessary to decide if a nature reserve should or should not be created. To establish a reserve, it is essential to do an ecological and economic justification (obosnovanie). With the licensing process progressing quickly, we must speed up completion of these obosnovanie for territories in urgent need of protection.

Zapovedniks (Strict Nature Reserves)

At present there are 6 zapovedniks in Primorye. It's more than in any other region of Russia. However, the overall area is not so big (679,423 hectares including 65,900 hectares of marine areas and 5,690 ha of Khanka Lake). It is 4.1% of the territory of the Krai. It is 7.1 times less than in Kamchatka, 2.5 times less than in Magadan region, and 2.4 times less than in Khabarovsk region. Sikhote Alinskiy, Lazovskiyy, and Khankaiskiy zapovedniks are administered by State Committee on Environmental Protection of the Russian Federation. The rest of the zapovedniks are administered by the Russian Academy of Sciences.

Kedrovaya Pad Zapovednik (17,890 ha.)

Kedrovaya Pad, the first zapovednik in the RFE, was established in 1916, even though World War I was in progress. It is located in the south of Primorye (Khasanskiy rayon) and includes a small mountain ridge (up to 692m). It has an extremely high index of biodiversity. On a very small area it is such that it could be compared to a botanical garden. Administered by the Russian Academy of Sciences, the reserve provides habitat for 60 species of mammal

including Red Book species such as the Far Eastern leopard, Amur tiger, Himalayan bear, Amur forest cat, and spotted deer. Eight hundred sixty-two species of vascular plant grow on the territory and 380 species of bird (including 11 Red Book species) and 41 rare species of insect live in or migrate through the region. Other notable features of the zapovednik include some of the largest remaining remnant stands of black fir. There are also over 800 species of night- and day-time butterflies.

Ussuriyskiy Zapovednik (40,432 ha.)

This zapovednik was established in 1932, together with the mountain-taiga research station, which comes under the aegis of the zapovednik. It is also administered by the Russian Academy of Sciences. There are no high mountains or rapid rivers in the area. The most valuable part is the liana spruce/broad-leaved forests that had a miraculous escape from fires and logging. In general, forests cover 99% of the territory.

The main Red Book species it protects are the Amur tiger, Himalayan bear, Amur forest cat, and spotted deer. There are 868 species of vascular plant including 15 rare and endangered species, 62 species of land mammal, 160 species of bird, 6 species of amphibian, 7 species of reptile, 12 species of fish, and 32 rare species of insect.

Sikhote-Alinskiy Zapovednik (390,184 ha., including an aquatoria of 2,900 ha.)

Established in 1935, the Sikhote-Alinskiy Zapovednik, at 1,800,000 ha. was at the time the largest in Russia and one of the largest in the world. But in 1951, the area of the reserve was reduced almost sixfold. In 1995 the marine aquatoria of 2,900 ha. was added. It is located in the north of Primorye (Terneiskiy and Krasnoarmeiskiy rayons). The zapovednik, a federal reserve, is controlled by the federal Ministry of Ecology, and has the status of a Biosphere Zapovednik, which arguably affords it greater protection. The territory is characterized by vertical zoning. It also borders on the sea. These factors determine the high index of biodiversity. Three types of forest on the territory of the zap are Korean pine, broad-leaved, and fir-and-spruce forests.

The main Red Book species protected here are the Amur tiger (21-29 individuals); goral, a horned mountain goat (150), and spotted deer (100 to 120). There are 1,100 species of vascular plant (including 20 rare and endangered species), 63 species of land mammal, 375 species of bird, 7 species of amphibian, 5 species of reptile, and 32 species of fish.

Lazovskiy Zapovednik (120,024 ha.)

Lazovskiy Zapovednik, located in the south-eastern part of Primorye (Lazovskiy rayon), also established in 1935, was a branch of the Sikhote-Alin Zapovednik until 1940. The original area of the reserve was 339,000 ha., but it was dissolved in 1951. In 1957, it was reestablished but covered only an area of 173,932 ha. In 1960 the area was reduced again (to 139,891 ha.) and it is now 120,024 ha. It is also controlled by the federal Ministry of Ecology.

Forests of taiga, tundra, steppe, and even subtropical zone can be found in the zapovednik. All vegetation and biota have a secondary character. They were altered as a result of anthropogenic activity (mostly logging). The reserve protects the Amur tiger (14 adults and 6 young), goral (210 to 220 individuals), and spotted deer (730). There are 1,212 species of vascular plant, including 44 rare and endangered species. The reserve provides habitat for 56 land mammals (including 7 Red Book species), 317 species of bird (including 28 Red Book species), and 21 rare and endangered species of insect.

Far Eastern State Marine Zapovednik (area of aquatoria 63,000 ha.; area of land 1,220 ha.)

This zapovednik is controlled by the Russian Academy of Sciences and was created in 1978 to protect the marine shelf ecosystems and bird colonies. A unique feature of this protected area is that it protects the regions where the cold Primorskoye and warm Tsusimskoye meet. Therefore, arctic, sub-arctic and even tropical organisms can be found in the waters of the

zapovednik There are 556 species of vascular plant, 5 species of land mammal and 1 species of marine mammal, 306 species of bird (of which 77 species nest on the territory), 278 species of mollusk, and more than 2,000 species of marine invertebrates.

Lake Khanka Zapovednik (37,980 ha. and 5,690 ha. Aquatoria)

After a long struggle, Khankaiskiy Zapovednik was finally established in 1990, under the control of the federal Ministry of Ecology. The territory of the zapovednik is divided into 5 isolated areas located in Khankaiskiy, Khorol'skiy, Chernigovski, Spasskiy, and Kirovskiy rayons.

The main role of the zapovednik is to protect the region birds and their valuable wetland habitat. Red Book species include the Japanese crane (80 to 90 individuals) and reed parrotbill (350 to 400 wintering birds and 230 nesting pairs). Especially rare species are the Far Eastern stork (15 nesting pairs), Eurasian spoonbill (3 individuals), white-tailed sea eagle (2 individuals), swan-goose (no statistics), Daurian crane (50 individuals), and Asian paradise flycatcher (280 individuals including nesting pairs). There are 617 species of vascular plant, including 49 rare and endangered species, and 523 species of algae. The reserve is home to 48 species of mammal, including 4 Red Book species, 333 species of bird (including 44 Red Book species, and 15 nesting species), 6 species of amphibian, 7 species of reptile (including 1 Red Book species), 60 species of fish (including 2 Red Book species), and 12 rare and endangered species of insect.

In order for Russia to fulfil its obligations under the Ramsar Convention (1971), it would have to include more crucial wetlands into the zap because 2/3 of the populations of the protected species in the region (Japanese and Daurian crane, Far Eastern stork, etc) are currently unprotected.

One major problem for the zapovednik is the aviation testing ground (16,000 ha), which is located in the vicinity of the zapovednik. Bombarding exercises held in every season of the year have been a great disturbance for the birds in terms of noise and grass fires. On the Chinese side of Khanka Lake there is also a protected area but the status of it differs greatly from that on the Russian side. In 1996 an agreement was reached to establish one international zapovednik. At this moment the borders and the protection status of the zapovednik are being agreed upon.

Conclusion

Over the last few year's international communication and contacts of the zapovedniks have increased. Many of Russia's environmental obligations have been paid attention to. However, the overall situation has been deteriorating which is the direct result of the economic crisis. The number of people who depend on marine and forest resources for their survival, has increased, thus, making it difficult to protect all endangered species even on territories of the zapovedniks. Scientific activity has also been drastically reduced. Among prospective solutions the following measures can be mentioned: creating more protected areas, broadening the existing ones, improving protection regimes, creating more (and bigger) buffer zones around the zapovedniks.

Zakazniks (Wildlife Refuges)

In zakazniks some types of industrial activity are restricted/forbidden for environmental protection purposes. The protection regime varies from one zakaznik to the next. Several of the zakazniks in Primorye have existed for decades. At this moment there are a total of 13 zakazniks in Primorye (overall area – 298.7 thousand hectares; it's 1.8% of the overall territory of Primorye). Among the 13, one is a federal level zakaznik, the others are regional

level zakazniks. The majority of them are under jurisdiction of the Regional Hunting Service of Primorye.

Zakazniks are established for a limited period of time. Now work is being done to extend the time limits of some, dissolve others, or, in some cases, establish alternative protected areas in their place. A major problem for the gospromkhoz, which administers many of the zakazniks, is the loss of federal funding from the Ministry of Agriculture. Many of the zakazniks have no rangers on staff to deter poaching.

The list of all zakazniks in Primorye with short descriptions is shown below.

Barsoviy

State republican zoological zakaznik. Est. 1979. Area 106,000 ha. Located in the south of Primorye (Khasanskiy rayon). It has low altitudes and low river valleys, which are good forest types for fauna. Secondary broad-leaved forests are the most common in the zakaznik, although some virgin forests remained. The major protected species is the Far Eastern leopard. Many rare and endangered vascular plants can be found in the area as well as over 150 species of birds nest. This zakaznik is as important as Kedrovaya Pad' zapovednik in terms of protecting biodiversity.

All forms of hunting are forbidden in the zakaznik. Also forbidden are: commercial fishing and logging, development of natural resources, ploughing of land, and use of agricultural chemicals. It is difficult to provide such a protection regime. Several villages are located on the territory of the zakaznik, including the military testing ground in Barabash village (area 39.9 thousand ha).

Losiniy

Hunting zakaznik. Area 26,000 ha. Est. 1986. The main purpose is to protect moose and other endangered hunting animals. Like Barsovy, it was also established to protect rare and endangered species of animals and plants. Forbidden types of activities include hunting, ploughing of land, use of agricultural chemicals, tourism, and recreation. Geological exploration, natural resources development, and scientific research are limited. The zakaznik is located in the lower Venyukovka river basin. It is recommended to extend the zakaznik to include the whole basin of the river.

Tayozhniy

Hunting zakaznik. Area 29,000 ha. Located in the north of Primorye (Krasnoarmeiskiy rayon) and covers the whole upper part of Pereval' naya river basin. Est. 1978. Extended in 1996. It is a unique area. The territory has never been commercially logged. The bulk of the zakaznik is composed of spruce and Korean pine/broad-leaved forests. 17 species of rare and endangered plants can be found in the zakaznik. It also protects the Amur tiger, sable, squirrel, wild boar, and other endangered species, including 16 Red Book species of insects and 90 species of birds.

Forbidden types of activity include hunting of deer, ploughing of land, use of agricultural chemicals, tourism, recreation, dog walking unless on a rein, and amateur fishing. Geological exploration and natural resources development are limited. Scientific research that isn't compliant with the purpose of the zakaznik, is forbidden as well. It is hard to maintain the protection regime as the area is easily accessible by road.

Tikhiy (formerly Daubikhinskiy)

Est. 1957. Area 23,000 ha. Created to protect ducks and other birds as well as the wetlands, their habitat. It is located in the central part of Primorye, close to the town of Arsenyev, and is situated in an irrigation valley between Sinegoroka and Arsenyevka rivers. On the territory

of this zakaznik there are over 15 natural lakes. Due to this zakaznik, the mandarin duck has become a common species in the area again.

Poltavskiy.

Hunting zakaznik. Area 119,000 ha. It is situated in the western part of Primorye (Pogranichniy and Oktyabrskiy rayons). The refuge was established in 1963. In 1996, the status of zakaznik was extended but its area was reduced. As a result of that decision there is now a gap between this zakaznik and Borisovskoye Plateau zakaznik. The main purpose of the zakaznik is to expand the feeding area for birds. All types of hunting are forbidden.

Beryozoviy

Hunting zakaznik. Area 60,000 ha. It is located in the central part of Primorye (Chuguevskiy rayon). It was created in 1963. The status was extended in 1996. The goal of the nature refuge is to protect rare species of animals, plants, and their habitat. The main protected species are the Amur tiger and Himalayan bear. All sorts of hunting are forbidden as well as land ploughing, use of chemicals, tourism, and recreational activities.

Chyornye Skaly (Black Rocks)

Hunting zakaznik. Area 12,400 ha. It is located in the eastern part of Primorye (Dal'negorskiy rayon), and stretches along the coast of the Sea of Japan (East sea). It was established in 1984. Its area originally was 2,92 thousand ha. When the extension of the status was approved in 1996, the area was expanded. The purpose is to improve populations of spotted deer as well as other animals by means of preserving their habitat (improving forest structure primarily). All types of hunting, commercial logging, use of chemicals, parking of automobiles, and tourism are forbidden in the zakaznik. Scientific research not compliant with the purpose of the zakaznik is also not allowed.

Vasilkovskiy

Hunting zakaznik. Area 34,000 ha. It is located in the south-eastern part of Primorye (Olginskiy rayon). It is also stretched along the coast of the Sea of Japan. It was created in 1973. Its original area was 28,700 ha. When the continuation of the status was approved in 1996, its areas was expanded.

28 species of rare and endangered species of vascular plants can be found in the zakaznik. Larch species are of particular interest. The zakaznik is characterized by a great number of spotted deer and, as a result, a great number of the tiger. The coastal rocks there are inhabited by the goral, one-horn mountain goat. The Himalayan bear can also be found in the zakaznik. Over 100 bird species nest in the area. 16 of them are rare and endangered. 27 species of insects are included in the Red Book.

Fishing, commercial logging, commercial gathering of plants, tourism, recreational activities, and house construction are prohibited in the zakaznik.

Khankaiskiy

This zakaznik was created to protect particular species of ducks and their habitat. It was established in 1963 with the area of 16,500 ha. The status of the zakaznik expired in 1997 and it no longer exists.

Borisovskoye Plateau

Hunting zakaznik with an area of 63,429 hectares. It is located in the south-west of Primorye and stretches along the Russian Chinese border. It was created in 1996. The purpose is to protect such rare and endangered species as the Far Eastern leopard and their habitat. The forest cover of the zakaznik also deserves attention. It is formed by the most southern larch forest and the most northern forest with Schmidt birch.

Automobile parking, all types of hunting, and tourism are prohibited in the zakaznik. Scientific research conflicting with the status of the zakaznik, use of chemicals, and land use are also not allowed.

Ostrovnoi

This is a comprehensive zakaznik and includes islands in the Peter the Great Bay. It was established in 1956 with an area of 9,000 ha to protect all kinds of birds and animals. It includes the islands of Russkiy, Popov, Reineke, Rikorda, Askol 壇 and others, in the far south of Primorskiy Krai. The status of the zakaznik has expired but no decision has been made so far on either extension or cancellation of this protected area.

Goraliy

Zoological zakaznik. Created in 1976 with an area of 4,749 ha. This zakaznik has no time limitation. It is administered by of Sikhote-Alinskiy biosphere zapovednik. It is located in Terneiskiy rayon. It includes the coastal area of the Sea of Japan. One kilometer of aquatoria is also included into the zakaznik. The purpose of it is to protect the goral (horned mountain goat) habitat as well as to prevent fires. All types of industrial activities disturbing the natural environment are forbidden. Presence of people and boats is restricted.

Vostok Bay

This comprehensive Marine zakaznik was created in 1989 in order to protect biota of the bay for scientific research and organization of marine plantations. Its area is 182,000 ha. Dumping of polluting substances and natural resources development are prohibited in the zakaznik.

Vladivostokskiy

This comprehensive zakaznik was created in 1967 with an area of 16.5 thousand ha. It is a forestry park in the suburbs of Vladivostok city that serves to protect the natural ecosystem.

Other Protected Areas

National Parks

National parks pursue the purposes of nature protection, environmental education, and scientific research. Currently, there are no existing national parks on the territory of Primorskiy Krai. However, there are plans to create Upper-Ussuriiskiy, Middle-Ussuriiskiy, and Kema-Amginskiy national parks in accordance with the decree of the government of the Russian Federation #572-r on Long-term Program of Nature Protection and Sustainable Use of Natural Resources as of 23.04.1994.

For more information on these territories, please refer to the following forest Hotspot Section.

Nature Parks

Nature parks are institutions whose purposes are to protect the natural environment and recreation. At present there is only one nature park in Primorye. According to the above-mentioned decree, Yuzhno-Primorskiy and Vladivostokskiy nature parks are to be created in the region.

Khasanskiy

This nature park is located in the south of Khasanskiy region. It was established in 1997 and some organizational issues are still being discussed. The area of the park is 35,000 ha. The park was created to protect biodiversity in the region. The park includes forests and wetlands with a high biodiversity in terms of number species. 47 species of birds are rare and in need of protection. 28 species of insects are included in the Red Book. The territory of the park is subject to the conditions of three international conventions on protection of migrating birds.

Natural Monuments

Currently, there are 214 approved natural monuments in Primorskiy Krai. All of them have regional status, but 9 of them are recommended for federal-level protection status. In the

government decree mentioned earlier, there are plans to assign the natural monument status to 94 more nature objects. Usually, one natural monument occupies an area from 10 to 150 ha but there are exceptions. For instance, Korean Pine Forests natural monument in Krasnoarmeiskiy rayon occupies the area of 4,929 ha.

There are also 3 spa regions with a total area 121,000 ha, and other protected zones such as Group I forests.

The following people contributed to the above report: A.A.Astafyev, P.V.Kolmakov, V.G.Korkishko. A.K.Kotlyar, A.A.Laptev, A.I.Myslenkov, V.I.Nesterenko, Y.P.Sushitskiy, S.A.Khokhryakov and others (all of the above-mentioned specialists are zapovednik employees) and biologists V.Y.Barkalov, V.V.Bogatov, I.B.Vyshin, V.A.Nedoluzhko, V.A.Nechaev, I.Z.Parpura, D.G.Pikunov, S.Y.Storozhenko, M.P.Tiunov, Y.V.Shibaev, S.S.Kharkevich, Y.A.Chistyakov and others.

II. Forest Hotspots of Primorskiy Krai

Forest Hotspots:

- 1. Samarga River Basin**
- 2. Middle and Upper Bikin River Basin**
- 3. Middle Iman River Basin** (proposed Sredne-Ussurskiy National Park)
- 4. Southwestern Primorskiy Krai**
- 5. Upper Ussuri River Basin** (proposed Verkhne-Ussuriyskiy National Park)

1. Samarga River Basin

A.V. Lebedev, Bureau of Regional Public Campaigns

Description of the territory

The Samarga basin is located in the northernmost part of Primorskiy Krai, on the eastern slope of the Sikhote-Alin' Mountains. It is a political peninsula, surrounded on all sides by Khabarovsk Krai except for a narrow corridor in the south connecting the region with the rest of Primorskiy Krai. The area is bounded to the west by the Nel'ma River basin, to the north by the Anui River basin and on the east by the Khor River valley. The lands immediately adjacent to the Samarga basin on the east and west have recently become intensively logged.

The territory is part of a unique natural complex in the central Sikhote-Alin', where the subarctic and subtropical climatic zones meet to exert an unusual influence on the area's ecosystems. The region was not subject to widespread glaciation in the last Ice Age, with glaciers spreading only into some of the deeper river valleys and therefore having only a limited effect on the Samarga's vegetation. It is difficult to identify a clear border for the region since both latitude and elevation influence the basin's ecological characteristics. Therefore the territory is characterized by a mosaic of different biotae, creating unusual mixtures—for example, it is not uncommon to find moose, a typically northern taiga species, occupying the same habitat with turtles, which one would expect to find in the tropics.

The region has only been sparsely settled by humans, commercial logging has never been conducted here, and there is almost a complete absence of roads. However, fire has repeatedly marred the area's forests. The alpine-taiga landscapes throughout the Samarga basin are characteristic for the Sikhote-Alin'. Of the 630,000 hectares of forest that are administered by the Svetlaya leskhoz, 45% consists of spruce/fir stands, occasionally (1-2%) intermixed with Korean pine (*Pinus koraiensis*). Another 40% is comprised of larch forest, while the remainder is occupied by small-leaved deciduous species, Japanese stone pine and burn sites.

The Samarga River and all of its tributaries serve as spawning grounds of the highest category due to the untouched nature on its banks. For this reason commercial fishing in these rivers is prohibited, and it is highly restricted at their mouths on the seacoast. Native peoples are allotted a quota of 200 kilograms per family per year.

There are only three settlements in the region: the village of Samarga at the river's mouth, the former Old Believers' town of Unty in the lower reaches of the river, home to only ten families, and the predominantly Udege-populated town of Agzu, which remains unconnected by road with other parts of the region. All transportation in out of the town is via river or winter trail. Agzu's population numbers 205 souls, of which 145 are native Udege. The Udege support themselves with a traditional subsistence-based economy, which is now protected by the formation of an 'ethnic territory' by the regional legislature in 1992; this designation is intended as a temporary measure until permanent protection status as a Territory of Traditional Nature Use or similar designation can be conferred. The Udege have been conducting their traditional land use methods in this area for at least a thousand years.

The primary economic activity of the local population is hunting and fishing. The entire territory is divided into 23 hunting leases granted to Udege families as well as Russians and Ukrainians living in the area. Furs and other wild animal products are bought by "Troika" trading company, as well as merchants from Khabarovsk. One of the Khabarovsk firms, "Vostok-Pushchina," has built a negative reputation for itself in the Samarga area because of its rude treatment of hunters and very low payments.

The forest massifs of the Samarga have long been attractive to large timber firms, especially because of the region's proximity to the coast and, therefore, the Japanese market. In the 1980's local authorities were able to avert a timber lease to a Cuban firm that had clear-cut large areas in the neighboring Sukpai basin (Khabarovsk krai). In December, 1997, Rimbunan Hidjau, a large Malaysian firm, won an international tender to cut 500,000 m³ in the Sukpai over a 49-year lease. In the economic planning documents submitted for the tender competition, Rimbunan indicated that timber from the Sukpai would be transported through a road that would be cut through the Samarga basin to the port of Nel'ma on the coast. While this plan had not yet been realized by the end of 1998, either this plan or an alternative, to reconstruct an old railway spur from Sukpai to Obor, will have disastrous consequences for the forests in the Samarga basin.

The idea of building the Sukpai-Nel'ma road has been advocated for many years, but domestic companies were always deterred by the expense involved in constructing a new road through such a remote and undeveloped area as the Samarga basin. However, when Rimbunan executives approached the regional authorities in Terney in 1997 about a possible timber lease in the Samarga basin, the goal of constructing the road was high on their agenda. Company officials also attempted to lobby local residents in Agzu in order to gain their support, but local residents voiced strong opposition to any logging in their traditional hunting and fishing territories. Since then, all discussions concerning a timber lease in the Samarga have come to a halt.

Nonetheless, social conditions in the Samarga basin in connection, especially because of the lack of roads available to export hunting and fishing products, means that there will continue to remain a likelihood that Rimbunan executives will be able to persuade local residents to accept the Sukpai-Nel'ma road. Because of this, and also due to uncontrolled poaching of animals and fish by neighboring timber companies, the natural complex in the Samarga basin is critically threatened. If a timber lease does become permitted, then this will bring obvious degradation, but even if it is not, worsening socio-economic conditions will likely lead to severe declines in animal and fish populations (due to poaching). The only solution is to develop an ecologically balanced land use program for the natural resources of the Samarga basin focusing on small- to medium-sized businesses, ecotourism and adequately controlled hunting tourism.

Existing protection initiatives

The initial phase of the aforementioned land use program has been undertaken by the Non-timber Forest Products Association in Khabarovsk in cooperation with Friends of the Earth-Japan. The program is oriented on helping local Udege clans to feasibly produce and sell forest products using their traditional harvesting methods. A specific role in this effort is played by the newly created "Troika" trading company, based in the nearby town of Edinka, which markets only forest products brought to them by local residents. The administrators of this firm distinguish themselves from most of their competition by paying attention not only to economic priorities but also to the importance of resource conservation and nature protection.

Recommended steps

To further promote appropriate market relationships and the recovery of traditional resource-based economies, it is necessary to:

- Develop a business plan for resource use in the Samarga basin;
- Improve the marketing and sale of locally produced forest products in Japan, Primorskiy Krai and Khabarovsk;
- Assist Udege clans in Agzu with the acquisition of small-scale timber processing equipment and for processing of animal and fish products;
- Achieve tax reductions and related benefits for Udege commercial enterprises;
- Stimulate the international and domestic tourism markets with the involvement of local residents.

2. Middle and Upper Bikin River basin

A.V. Lebedev, Bureau of Regional Public Campaigns

Description of the territory

The Bikin River basin is located in northern Primorskiy krai along the western slope of the Sikhote-Alin', between the Iman and Khor Rivers. The ecosystems of the region are characterized by a mixture of Okhotsk and Manchurian flora as well as those of the Sikhote-Alin'. Because of its latitude the Bikin also hosts Amur-Ussuri vegetation communities.

Reflecting this biogeographical composition, the forests of the Bikin valley are comprised in nearly equal proportions by spruce and fir (28%), Korean pine and broadleaf species (32%) and larch (21%). Topography, including exposure, grade and humidity, plays an important role in the distribution of these species.

The region's flora includes up to 1,200 of vascular plants, at least seven of which are located at the extreme of their respective habitats and require protection. The same 'border area' qualities characterize the region's fauna. 52 mammal species inhabit the Bikin valley year-round, with another eight that migrate in and out of the region. Thirty of these live

specifically in the valley's Korean pine and broadleaf forests. The territory is also home to 240 bird species, 70% of which nest here while the remainder are seasonal visitors on their migratory paths. 35 of these species are rare and require protection. Seven amphibian and ten reptile species also inhabit the Bikin, as well as 51 fish species. 27 of the region's insect species are listed in the Russian Red Book.

Historically, geographically and economically the basin has been divided into three land use zones. The lower portion (from the river's mouth upstream to the confluence of the Alchan and Takhalo rivers) has been an area of intensive land use, primarily timber harvesting, hunting and open-pit coal mining. Most of the population of Pozharskiy raion is concentrated here as well. The middle portion of the basin, in the vicinity of the village of Ulunga, is predominantly used for gathering of pine nuts as the forests are comprised mostly of Korean pine and for traditional economic activities of the Udege. The upper reaches of the Bikin and its headwaters have been reserved as a potential Territory of Traditional Land Use (TTP) by the regional legislature since 1992. In October 1998 its status was changed to a krai-administered landscape zakaznik.

A projected TTP has been theoretically substantiated in the upper and middle portions of the basin on 1.35 million hectares as a unified natural/ethnic territory. However, it has been impossible to include the uppermost 700,000 hectares in this area because of a Russian/South Korean timber joint venture, Svetlaya, which ascertained that it had rights to a substantial portion of the upper Bikin. These pretenses were determined to be groundless and logging was not carried out, but the land was still not included in the TTP, nor were its forests designated as Group I forests thanks to strong lobbying by timber interests.

Adding to the threats faced by efforts to create the TTP in the upper and middle Bikin is a logging road that approaches the area from Svetlaya's port on the coast. Non-native resource enterprises have consistently lobbied for permission to use the thoroughfare in order to access the area's timber and animal resources. These dangers, as well as existing uncontrolled poaching by residents the village of Vostok and others where unemployment has reached very high levels, will continue to plague the region as long as the TTP has not been formally established.

Concerning the pine nut trade in the middle Bikin, which formed a foundation for the traditional economy of Udege living in the town of Krasniy Yar, the opening of a bridge across the Bikin has created access to these rich areas for motorists traveling from Khabarovsk. The resulting losses experienced by the residents of Krasniy Yar has led to 'semi-legal' logging of mountain ash and increased poaching as well.

Existing protection initiatives

In addition to efforts to establish a TTP, attempts have also been made in the last two years to achieve designation of the central Sikhote-Alin' as a UNESCO World Heritage Site. Also, in order to gain some level of protection for the area, Greenpeace-Moscow and the Bureau for Regional Public Campaigns agreed to the insurances of krai-level authorities to establish Verkhnebikinskiy zakaznik (rather than a more ethnically-focused TTP) on the territory. The decree to establish the zakaznik was signed by the governor in October 1998, and includes all aspects of nature protection interests as well as permissions for native communities to use the territory's resources. However, staff and facilities to monitor and protect the zakaznik have yet to be acquired.

The creation of Verkhnebikinskiy zakaznik, as well as neighboring Chukenskiy zakaznik to the north and efforts to develop a sustainable land use plan for the Samarga basin to the east creates an opportunity to achieve sustainable resource use and nature protection along the entire central Sikhote-Alin'.

Recommended steps

In the near term it is necessary to fulfill the recent decree by the governor of the krai and complete creation of Verkhnebikinskiy zakaznik, using the zoning planned by specialists five years ago. Funding must be obtained for the facilities and protection measures required, and small, locally-run businesses should be supported so that they can invest in equipment for processing of non-timber forest products.

3. Middle Iman River Basin (proposed Sredne-Ussurskiy National Park)

A.V. Lebedev, Bureau of Regional Public Campaigns

Description of the territory

The proposed territory of Sredne-Ussurskiy National Park covers 1090 km² along the western slope of the central Sikhote-Alin' near the middle reaches of the Iman River, which flows into the Ussuri River near the latter's confluence with the Amur. The diversity of flora and fauna characteristic of the Ussuri taiga is found here, including numerous rare and endemic species such as ginseng (*Panax ginseng*) and Amur tiger (*Panthera tigris amurensis*). The region is graced by clean alpine rivers, rocky cliffs, magnificent vegetation and beautiful landscapes. It is also a region where Iman Udege conduct their traditional economic activities.

Of the twenty protected areas in Primorskiy Krai, all but two are located in the southern portion of the krai. These territories tend to be small in size, protecting fairly specific ecosystems that are isolated as oases from one another amidst a sea of lands used heavily for human economic activity.

Three new national parks are projected for creation by 2005 to supplement the existing system of protected areas. One of these, Sredne-Ussurskiy, distinguishes itself with its representation of undisturbed Ussuri taiga. Population density in the area and along its periphery is quite low, with minimal anthropogenic effects on the area's natural characters. Among the species requiring protection here are 31 species of vascular plants, 12 lichens, 28 insects, 9 birds and 2 mammal species.

In addition, the area is one of three remaining traditional territories for native Udege; 122 of them remain in the region. One of the purposes of the proposed park is to provide for a revival of Udege culture and traditional land use methods.

The area's network of rivers includes the Iman, its tributaries (Armud and Pereval'naya) and a number of smaller creeks. The water in the rivers is clean, and both the Iman and the Armud offer suitable conditions for rafting, boating and sportfishing, with sufficient accessibility to attract tourists.

The climate in the proposed park is considered continental, with significant monsoon influences. Temperature reach a lower extreme of -48 degrees Celsius in the winter, and an upper extreme of +38 in the summer, with an average quantity of days with above-freezing temperature at 196 per year.

The predominant flora communities are based on Korean pine and broadleaf forests, with elm and ash prevalent in the valleys, with occasional stands of willow and cottonwood/poplar. Marshes host open woodlands of larch, while secondary growth oaks are found on steep,

south-facing slopes near the villages of Dersu and Dal'niy Kut. Spruce and fir forests are found at elevations above 800-900 meters.

The territory has been increasingly influenced by human activity in recent years, first and foremost by timber harvesting. Although native flora satisfactorily regenerate on lands harvested long ago, prospects for increased logging and poaching due to high unemployment rates could significantly degrade the region's forest ecosystems. In response to these concerns, a "Long-term Environmental Program for Primorskiy Krai" was developed in 1992, which included Sredne-Ussurskiy in a list of recommended new protected areas.

Existing protection initiatives

In addition to the Program listed above, Sredne-Ussurskiy is also included in a Federal Program for Creation of New Protected Areas by 2005. Documentation required for creation of the park was completed at the krai level at the end of 1998.

The territory of the proposed park is adjacent to Sikhote-Alin zapovednik, and until the 1950's it was actually a component part of the zapovednik. It is worth noting that the government of Krasnoarmeyskiy raion has been a strong supporter of a halt to logging of Korean pine forests, and also set in motion a number of important initiatives such as "Peace Zones" on the banks of the Armu and the establishment of a permit process for transporting timber so as to limit illegal logging. Regional authorities are also playing a proactive role in promoting ecotourism, regulation on hunting activity, and preservation of rare species.

The decision to create Sredne-Ussurskiy park was approved by the raion administration in 1997, and in 1998 the necessary documents were prepared by Greenpeace-Russia and the State Committee for Environmental Protection to include the park within a proposed UNESCO World Heritage Site in the central Sikhote-Alin'.

Recommended steps

Once the park is established on a federal level, it will be necessary to provide support to the park's administration in organizing patrols, creating an Udege cultural center in the village of Ostrovnoy, and to develop a variety of trails and programs to attract ecotourism. It will also be important to create a system for combating illegal timber harvesting and animal poaching, including that in lands adjacent to the park. Special emphasis must be placed on building capacity for preservation of rare species such as ginseng and the Amur tiger, and also for environmental education. A necessary first step toward all these goals will be the acquisition of communications equipment and transport.

4. Southwestern Primorskiy Krai

Vladimir P. Karakin, Pacific Institute of Geography (FEB RAS)

Description of the territory

The lands along the Chinese border from the Tumangan River to the Razdol'naya River is considered a the krai's most important area for biodiversity conservation outside the Sikhote-Alin'. It includes four raions of Primorskiy kraï, Khasanskiy, Nadezhdinskiy (western portion), Ussuriyskiy (western portion) and Oktyabrskiy (southern portion).

The territory is notable for its high concentration of Amur leopard (*Panthera pardus amurensis*) populations and the presence of an isolated Amur tiger population in the Chorniye Mountains. There are also a number of wetlands of international importance that are proposed as Ramsar sites, as well as vulnerable lagoons and estuaries. Finally, plans to create a new protected area on the Chinese side of the border add impetus to similar efforts on the Russian side.

At the same time, the region's value for biodiversity conservation is threatened by a number of planned international development projects. One of the most worrisome of these is the Tumangan Project, which proposes to develop infrastructure for large-scale recreation and biotechnology in lands presently used for reindeer herding. This project would have severe consequences for the region's leopard populations and marine ecosystems.

Existing protection initiatives

At varying times there have been a number of protected areas networks in this relatively small area, many of which still exist today. These include two zapovedniks, Far Eastern Marine zapovednik and Kedrovaya Pad', two hunting zakazniks, Barsoviy and Borisovskoe Plateau, and Khanskiy National Park.

Recommended steps

The presence of a highly active network of hunting lands, as well as the planned economic projects requires a functional zoning of the various territories in southwestern Primorskiy Krai, with an eye toward achieving satisfactory coordination among the many competing interests in the region. This zoning plan should include a well-developed and interlinked network of protected areas, zones of limited economic activity, and areas for more intensive use. Creation of this zoning plan will require specialized systems for informational analysis, including GIS. Special emphasis must be placed on protecting leopard habitats and marine bioresources.

It is also necessary to conduct an independent appraisal of the territories involved so as to establish sufficient ecological corridors to link existing leopard habitats in southwestern Primorskiy krai with potential habitats in the Sikhote-Alin. Development and maintenance of the protected areas network must take into account existing habitats of rare and endangered species and the level of protection offered by existing protected areas. A long-term goal should be to establish a unified protected area using existing areas, such as Kedrovaya Pad' zapovednik, and possibly Khasanskiy National Park and the Borisovskoe Plateau and Barsoviy zakazniks as core areas.

5. Upper Ussuri River Basin (proposed Verkhne-Ussuriyskiy National Park)

A.V. Lebedev, Bureau of Regional Public Campaigns

Description of the territory

The territory of the Upper Ussuri basin includes parts of Ol'ginskiy, Lazovskiy and Chuguevskiy raions, in the watershed formed by three mountains: Sestra (1,671 meters), Oblachnaya (1,854 meters) and Snezhnaya (1,682 meters), and also the headwaters of the Ussuri, Milogradovka and Margaritovka Rivers that are formed at the mountains' feet. To the north of the proposed Verkhne-Ussuriyskiy Park is Berezoviy zakaznik. Three different variations of the park's boundaries have been proposed, with the resulting land area ranging from 110,000 to 180,000 hectares; the mountains of Chuguevskiy raion figure in all three variations.

The proposed park has a very high probability of being created as its establishment would solve a number of important conservation priorities, among them the fact that the park would serve as an ecological corridor connecting Lazovskiy and Sikhote-Alin' zapovedniks. Also, the park would provide an opportunity for organized recreational activities that would not be in conflict with other land users, particularly timber and mining interests. Local residents also support creation of the park, believing that its establishment would create jobs and maintain traditional recreational activities; the area has been a popular recreation destination since the 1930's.

The territory's highest mountain, Oblachnaya, is also the highest peak in Primorskiy krai. It is a dome-shaped mountain, with many streams and creeks descending its slopes. The mountain is removed from the rest of the Sikhote-Alin' by about twenty kilometers.

The park's territory would also include the headwaters of the Ussuri River, which figures prominently in the proposed park's protection agenda while also serving as a visitors' attraction itself.

The area is home to practically all the landscape and flora communities found in the mountains of southern Primorskiy Krai. At elevations less than 800 meters Korean pine and broadleaf forests predominate, while spruce, fir and Korean pine communities are more common at 1,000 meters and higher. At elevations above 1,500 meters the forest becomes characterized by stone birch and Japanese stone pine, while alpine tundra is most common at mountain peaks above 1,600 meters. The diverse elevations found within close proximity to one another in this region allows for mixtures of flora that have led scientists to identify community types found nowhere else. Also, several Russian Red Book species are not rarities here, but on the contrary occur in frequent distributions.

The park's establishment will strengthen protection for 132 vascular plant species, nine of which are rare in Primorskiy Krai and three of which are listed in the Russian Red Book—including two species that are not protected anywhere else. The creation of the park will also protect two paleoendemic species, *Microbiota decussata* and *Saussurea sovietica*.

The territory's fauna is typical of the southern Sikhote-Alin', with such southern taiga species as Amur tiger, Himalayan black bear (*Solenarctos thibetanus*), wild boar (*Sus scrofa*), Manchurian wapiti (*Cervus elaphus xanthopygus*), spotted deer (*Cervus nippon hortulorum*), Manchurian roe deer (*Capreolus capreolus bedfordi*), goral (*Naemorhaedus goral*) and musk deer (*Moschus moschiferus*). The Amur tiger is a constant inhabitant of the area, having remained here even during great decline in their populations in the 1930's and 1940's.

Existing protection initiatives

In 1996 an environmental/economic justification for creating Verkhne-Ussuriyskiy Park was developed. Since then the Regional Committee on Ecology has been working to achieve consensus on boundaries and cooperation among area land users with respect to the park, particularly the Regional Forest Service and hunting authorities. Mechanisms for cooperation among regional and federal agencies are also being developed.

Recommended steps

After the legal status of the park is resolved, it will be necessary to obtain funding for a permanent staff, transport and communications.