II. Khabarovsk Region

This region includes both Khabarovsk krai and Jewish Autonomous region. In the overview of the region, however, information on Jewish Autonomous oblast has been omitted but information on protected areas and forest hotspots is included.

Overview of the Region

Josh Newell

Location
Center of the Russian Far East (RFE), extending 1,800 km. Along the Tatar Strait and Sea of Okhotsk.

Size
Khabarovsk Krai alone is one and half-times larger than France: 790,000 sq.km.

Climate
Winters are cold and dry. Summers are hot and wet, particularly in the south. Temperatures in the south average -21C in January and 21C in July.

Geography and Ecology
Because Khabarovsk Krai extends a great distance north to south, it has a wide diversity of plant and animal species.

Travelling down the northern part of the Krai, one first meets tundra and high, rocky mountain landscapes (gol'tsi in Russian) with lichens. Further south one finds thin larch forests interspersed with dwarf siberian pine and then larger larch forests (which cover 15% of the north) with grass, small marshes, and meadows. Most of the region lacks roads and is therefore largely inaccesible. The towns are along the coast. Population density is low.

The central part of the krai includes the lower basin of the Amur River valley, one of the world's largest river basins, whose headwaters begin in Chita region and China. Here, in the broad Amur Valley, the region and its forests are influenced by the monsoon climate. Fir and spruce forests gradually mix in with the larch. Birch and aspen grows back first after logging. The Baikal-Amur Mainline (BAM) and adjacent rail spurs have greatly increased access. Population density is higher here than in the northern regions of the krai.

The southern part of the Krai, which includes part of the Ussuri River basin and the souteastern sea coast from around the town of Vanino, is strongly influenced by the monsoon climates; an escape from the glaciers of the last ice age and the warm, humid summers have created high biodiversity. The Ussuri taiga, named after the Ussuri rivers, is one of the most unusual and species-rich temperate forests in the world. Human population density is higher than in other parts of the krai, randing from 10 to 30 residents per sq. km.

Fauna
Rare and endangered species include:
Mammals: Himalayan black bear, Amur tiger, Far Eastern forest wildcat
Birds: white-backed albatross, Eurasian spoonbill, Far Eastern stork, black stork, whooper swan, swan goose, Baer's Pochard, Mandarin duck, Chinese merganser, osprey, Steller's sea eagle, gray-faced buzzard, golden eagle, peregrine falcon, Siberian spruce grouse, black crane, Japanese crane.
Reptiles: Far Eastern tortoise

Forests
See geography and ecology description above

Forest Hotspots

Khabarovsk Krai

1. **Anyuiskiy National Park**
2. **Matai Zakaznik**
3. **Pikhtsa-Tigroviy Dom Zakaznik**
4. **Gur-Khoso Zakaznik**

Jewish Autonomous Region

1. Pompeyevka River Basin
2.Kul'dur Nature Park

Industry

Population
Khabarovsk Krai has 1,600,000 people; 23% of the RFE's population.

Cities
Khabarovsk, administrative center and the RFE's largest center or civilian machine building; pop. 615,000
Komsomol'sk-on-Amur; major industrial center, oil refinery; pop. 319,000
Amursk, center for defense industry, pulp and paper; pop. 60,000
Sovetskaya Gavan', growing seaport and ship repair center; 35,000
Vanino, the krai's major seaport; pop. 18,000

Main Resources
Khabarovsk krai has 1.75 billion cu.m. of commercial timber (70% coniferous). Forest reserves by species (million cu.m.) include spruce (515), pine (505), oak (185) and larch. Coal, gold, tine, manganese, and tungsten are plentiful. Oil reserves are known to lie offshore, around the Shantar Archipelago.

Economic Importance in the RFE
25% of industrial output of the RFE
One-sixth of agricultural production
The entire output of steel production and petroleum
Almost 50% of RFE timber production
Most major Russian-forest logging joint ventures are located in the krai.

Khabarovsk Krai's Protected Area System: Problems and Priorities

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Specially protected nature territories (SPNTs) in Khabarovsk Krai are distributed quite unevenly. In the most developed southern half there is a rather well developed network, whereas in the northern part their number is much lower. A general description of these areas as of January 1, 1999 is given in Tables 1 and

2. Table 1
SPNTs of Khabarovsk Krai Description:

Type of SPNT	Quantity	Area, (thousands of hectares)
1. Zapovedniki	6	1,696.1
2. Zakazniki–federal	5	734.2
3. Zakazniki–Krai Nature Preserve	1	131.5
4. Zakazniki–Krai Game Preserves	10	2,017.1
Total:	22	4,578.9

Table 2
SPNTs of Khabarovsk Krai

SPNT	Area (1000 ha)	Administrative Raion (Raion)	Establishment decree and date
Zapovedniki			
1. Bol'shekhekhtsir-skiy	44.9	Khabarovsk	Ministerial Council Decree 1963
2. Komsomol'skiy	61.2	Komsomol'skiy	1963
3. Bureinskiy	359.0	Verkhne-Bureinskiy	1987
4. Dzhugdzhurskiy	860.0	Ayano-Mayskiy	1990
5. Botchinskiy	267.4	Sovetsko-Gavanskiy	1994
6. Bolonskiy	103.6	Amurskiy, Nanaiskiy	1997

Federal Zakazniki – game			
1. Khekhtsirskiy	56.0	Khabarovsk	1959
2. Tumninskiy	143.1	Vaninskiy	1967
3. Oldzhikhanskiy	1597	Poliny Osipenko	1969
4. Badzhalskiy	275.0	Solnechnyiy	1973
5. Udylskiy	100.4	Ulchskiy	1988
Krai Zakaznik – Nature			
6. Dublikanskiy	131.5	Verkhne-Bureinskiy	Khabarovsk Krai Ispolkom decree. 1984
Krai Zakazniki – Game			
7. Bobrovyi	89.0		1969
8. Orlik	3.8	Nikolaevskiy	1974
9. Simminskiy	80.0	Amurskiy, Nanaiskiy	1976
10. Kharpinski	326.7	Solnechnyi	1979
11. Birskiy	53.6	Vyazemskiy	1981
12. Ulya	240.0	Okhotskiy	1986
13. Kava	566.0	Okhotskiy	1988
14. Ozernyi	37.5	Okhotskiy	1988
15. Vana	105.0	Tuguro-Chumikanskiy	1989
16. Shantarskiy	515.5	Tuguro-Chumikanskiy	1997

Biodiversity indicators and the presence of typical zonal and regional communities were considered when most of the existing preserves were established, ensuring good representation at the species level.

It should be noted, however, that 55% of the 212 rare species of vascular plants (IUCN categories I – III) are not included in the protective system of the existing SPNTs. A similar situation also applies to the animal world. Out of 50 species of vertebrate land animals that had been entered in the Red Data books of the IUCN, USSR, and RSFSR only 32 have protection in the preserves of the krai, although some of the remaining 18 species (or 36%) can be found on an irregular basis. Apparently the lack of special protection for these species and their habitats in the SPNTs prohibits them to achieve a stable existence on krai territory. Most of these populations are at the peripheries of their ranges, and are seldom in their optimal habitat.

One can, therefore, conclude that the existing SPNTs of the region do not ensure the preservation of its entire gene pool of rare species. And although the proportion of the rare animal species protected in the preserves is greater than that of the plants, it does not ensure their stable existence.

SPNTs represent some 5.8% of the area of the region, which makes it possible to consider them as a baseline standard for the conservation of the ecological balance of the krai. This is reasonable, since 70% of krai territory contains environmentally extreme conditions (long frost periods, mountainous terrain, harsh winter climate, etc.) and for this reason alone is characterized by low ecological stability. This is fully applicable to the Okhotskiy and Ayano-Maiskiy raioni where the area of the SPNT is minimal.

The territorial arrangements of the existing SPNTs are not organized for stable functioning. A number of preserves have no buffer zones, there are no planned or functioning connective channels (ecological corridors, water-protection zones) that would link the preserves with the regional regulating and compensating sources (Bureinskiy and Bolshekhekhtsirskiy). The Botchinskiy Zapovednik on the coast of the Tatarskiy Strait has no exit to the sea, nor does the Bolon'skiy Zapovednik have access to Bolon'skiy Lake.

The small size of the zapovedniki and the proximity of some of them to large industrial centers make them particularly vulnerable to fires, poaching and various types of pollution.

The practice of residual financing, which had gained a foothold during the period of the economic crisis, resulted in the absence of staff scientists (Dzhugdzhurskiy. Botchinskiy, Bolon'skiy) and enforcement services. This also led to the breakdown in ecosystem monitoring.

In listing the above problems as primary ones when planning successful SPNTs, it is essential to concentrate on the preservation of biodiversity and stable growth and to keep in mind future economic development of this territory along with preservation of the natural environment for the existence of its inhabitants.

Zapovedniks

Bolon'skiy Zapovednik

This preserve, situated between the lower reaches of the rivers Kharpi, Sel'gon, and Simmi in the Bolon' Lake basin, is on the boundary of two administrative raioni, the Amurskiy and the Nanaiskiy. The southwestern part of the lake is also part of the preserve. The total area of the preserve is 103,600 ha including 8,325 ha in the Amur Raion and 20,350 ha in the Nanaiskiy Raion. The coordinates are $49^0$24' N. latitude and $135^0$35' – $136^0$18' E. longitude.

The preserve is remarkable in that in encompasses the relictual Lake Bolon'. It has the largest concentration of marsh and meadow habitats in the Priamurye region; it is a natural reserve of massive nesting grounds for aquatic and wetlands birds, provides feeding grounds for fishes of the Amur ichtyological complex; and is also a habitat for the moose and the deer in the summer. Because the lake is on the flight path of migratory birds, species diversity is very high.

The most promising scientific activity in the preserve is the study of wetland ecosystems. In this context, investigations will be conducted into the structures of the wetland biogeocenoses, the adaptation of animals and plants to specific living conditions, and anthropogenic effects on natural complexes. In addition to that, rare and disappearing species of plants and animals will be monitored, and constructive strategic and tactical measures for their protection will be explored.

The most interesting protective efforts in the plant world are the relictual aquatic cenoses that include plants entered in the international, Russian and regional Red Data Books such as the Japanese barbet, tall bladderwort, English iris, floating water chestnut, and others. Species of animals entered in the Red Data Book include the nesting birds: Far East white stork, black stork, whooper swan, mandarin duck, fish hawk, crested kite, erne, golden eagle, peregrine falcon, Japanese crane, the black crane, morepork owl and others.

Future successful growth of the preserve depends primarily on the establishment of an ornithological station, comprehensive studies, and also on investigation of its still poorly explored territory. At the present time, the staffing of the preserve has not been defined, and no scientific studies have been started.

Botchinskiy Zapovednik
The Botchinskiy Zapovednik is situated on the very southern tip of Khabarovsk Krai. Its territory coincides with the basin of the river bearing the same name. Its coordinates are $47^0$50' N. latitude and $138^0$40' – $139^0$40' E. longitude. The primary factors determining the nature of the vegetative cover are the mountainous terrain and the influence of the sea, particularly in the lower reaches of the Botchi River basin. Also important are fires that have affected both the coast and the watershed of the Botchi and Dzhaus rivers. Two elevation belts are easily distinguishable in the preserve: the forested zone (mountainous taiga) and the sub-alpine belt.

Fur-bearing animals here include the otter, American mink, Indian marten, sable, wolverine, fox, raccoon dog, lynx, squirrel, white hare, and others. The Botchi River area apparently had one of the highest populations of otters, wolverines and lynx in the Sikhote-Alin region. With its preserved ecosystems of dark coniferous forests with pine and broad-leaved species, and a large variety of animal and plant species sporadically distributed and living on the fringes of their habitats, this territory is very interesting from a biogeographical point of view. It is also very vulnerable to fires, so the most important objectives of the preserve include the protection of nature against this danger along with continuous monitoring of the state of the ecosystems. The absence of scientific workers, incomplete ranger staff, and insufficient finances make these goals unattainable at present.

Bureinskiy Zapovednik
This preserve was established in 1997 on a territory of 359,000 ha. Its coordinates are $51^0$30'-$52^0$30' N. latitude and $134^0$10' – $135^0$05' E. longitude. The biological diversity of the vegetative cover is represented by 479 species of vascular plants, of which 22 belong to the rare and disappearing species of the Red Data Book of the RSFSR. Twenty species are on the rare plants list of Khabarovsk Krai. Among the animals registered in the Red Data Book of the RSFSR are the Himalayan chamois, peregrine falcon, falcon and others.

In existence for more than a decade, the Bureinskiy Zapovednik has fully justified its creation and has proven the validity of its site selection. Situated in a bend formed by the mountain ranges of Esop, Dusse-Alin' and Bureinskiy, it incorporates the landscape characteristics of each one of them by uniting them territorially and highlighting their genetic commonality. The territory of the preserve acts as a landscape-ecological nucleus, linking the basins of the rivers Selemdzha, Amgun' and Bureya while preserving its own natural characteristics. From the biogeographical viewpoint, this is manifested in the corridors that permit gene flow between the populations of vertebrate land animals of these territories and a certain unification of the fauna according to biotope.

Considering the ecosystems of the Bureinskiy Zapovednik as complete entities, in which there is a unity of the litospheric complex of the hydrographic system and habitats of plants and animals in a maximal possible diversity, it becomes necessary to recommend it as a biosphere preserve. The preserve is staffed with enforcement personnel and a minimal number of scientific employees.

The Dzhugdzhurskiy Zapovednik
The Dzhugdzhurskiy Zapovednik was established in 1990 on a territory of 860 ha. Its coordinates are $55^0$50' N. latitude and $137^0$50' E. longitude. There are more than 400 species of vascular plants in this preserve, of which 20 are in the category of rare or endangered species, and most have been entered in Red Data Books at various levels.
Essential contributions to floral and faunal biodiversity are the marine influences to the land, small territories with pronounced altitude gradient, and the general landscape mosaic. Harsh climatic conditions concurrently dampen these effects.

The area chosen for the preserve had been used for a long time for various economic activities: mining of minerals, hunting, fishing, and forestry. It also supported various networks of telephone and telegraph communications. Each of these activities directly impinged in one way or another upon the natural features of the area and generated a number of side effects. The sum of all these actions, given the extreme vulnerability of the landscape, resulted in severe deformations of the latter. The condition and the productivity of the natural systems were substantially damaged. The overall natural structure and function of the territory, and its genetic interconnections and integrity have been altered. To a great extent, indigenous forest complexes have been destroyed and replaced by those suitable for commerce.

In the course of its existence, the preserve has not been able to establish itself as a scientific nature protection unit: it has no staff, no scientists, and no funds to construct an office or living quarters. The only existing preserve in Okhotiya cannot ensure preservation of the gene pool of its rare species of plants and animals.

Promising protected territories of Khabarovsk Krai

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The establishment of protected natural territories in Khabarovsk Krai has to do with the need to satisfy various requirements:

- Preservation of the gene pool for biodiversity;
- representation of typical and indigenous ecosystems that are under ubiquitous threat of destruction;
- preservation of region-specific resources (forests, fur-bearing mammals, fishes);
- ensuring constancy of climatic parameters needed for human habitation; and
- managing the territory for the economic and recreational needs of the population.

The environment policy of this region still does not reflect two of its extremely important aspects, the functional and territorial. The first has to do with the regulation of the how the environment will be used; the second, with environmental protection methods to ensure full or partial conservation of valuable territorial systems, and the protection of individual ecosystems with their multiplicity of elements. This category includes also territories that are not strictly preserves (natural parks, protected watershed-zone forests, etc).

Future territorial nature conservation systems of Khabarovsk Krai need to satisfy the following requirements:

- Preservation of a certain guaranteed minimum of protected species in accordance with the Convention on Biodiversity and legislative acts of the Russian Federation;
- managing for optimal relationship between biogeocenoses constituting the key elements in ecosystems of Khabarovsk Krai;
- managing for an equilibrium between natural ecosystems and those that had been drastically altered.

With regard to the first item, it appears reasonable to assume that preserving 70% of the protected species can ensure the integrity of the flora and fauna. The basic principle in organizing the protected territories involves the segregation of key biocenoses, distinctive nuclei that function to maintain balance within the ecological framework of krai territory. Such nuclei, for example, are the unique biogeocenoses of the broad-leaved and mixed forests.

Within the region they form a zone with high biodiversity indices of both the animal and the plant worlds. Clearly noticeable in that context are the Khorskiy and the Anyuysko-Gurskiy sectors and the coastal area of the Tatarskiy Strait from the delta of the Tumnin River to the Bay of Nelis.

The proposed system of protected nature territories (POT) in Khabarovsk Krai should comprise an array of ecosystems of various successive stages, from successional to climax. Within the grouping of the Bikin-Khor-Anyuy sections the segregation of an absolutely protected zone is mandatory. This preserve must act as the nucleus of the entire system of the protected nature territories to ensure favorable survival conditions for the gene pool of flora and fauna and to serve as a source for adjacent territories, where development activities are in progress.

A strict conservation zone (zapovednik) is recommended for the central part of the Anyui River. This includes portions of the lower reaches of the river since they are in the Gassinsky Model Forest. The upper mountainous reaches, including the Tardoki-Yani massif (which performs a very important ecological function in the region) may be assigned to a supporting category. It could be recommended as a natural park in anticipation of forthcoming growth of international tourism.

The POT nucleus of the Northern Sikhote-Alin' may act as a functional structure only if it, together with the supporting territories, is part of an integral system. Thus, the Birskiy, Chukenskiy and Khekhtsirskiy zakazniki and the Bol'she-Khekhtsirskiy zapovednik, with the help of ecological corridors, provide the necessary connection with the Bikin River watershed on one side, and also through the "Tigrovyi dom" [Tiger's home] zakaznik and the Gassinsky Model Forest to the Anyua and the Gur rivers' basins.

The coast of the Tatarskiy Strait is home to a unique assortment of littoral plant and animal species of the Pacific Ocean, the greater portion of which are relictual. The existing Botchinskiy zapovednik does not provide access to the shoreline and does not include coastal ecosystems. This is an enormous drawback for efforts of preservation of rare animal species. The Tumninskiy zakaznik, to some degree, contributes to animal preservation.

The system of protected natural territories of Khabarovsk Krai must ensure the existence of a natural homeostasis to further the following objectives: a defined level of economic endeavor, promising future development of the economy of this territory and the preservation of the natural environment for the existence of the population.

Promising Zapovedniki

Anyuiskiy Zapovednik (Also forest hotspot #1)
This planned territory contains 300,000 ha and is situated on the upper Anyui River basin within the boundaries of the Nanaiskiy Raion. It encompasses primarily mountainous taiga and high mountain landscapes, including the highest peaks of the Northern Sikhote-Alin' (Mt. Tardoki-Yani). The primary targets for preservation are the unique high elevation communities including relictual monotypic species. Also included are rare species of animals registered in the Red Data Book of the RSFSR (fish hawk, fish owl, scaly fish duck, and Siberian spruce grouse.

Badzhalskiy Zapovednik
This preserve is to be situated in the watershed of the like-named river, which crosses the central Badzhal ridge at its highest section. It is located in the territories of the Verkhnebureinskiy and Solnechnyi raioni, and covers an area of 250,000 ha. To be protected are the indigenous spruce, larch, and mixed forests in combination with high-mountain tundra communities. Unique to this region are the endemic Voroshilov's [zopnik] and aster,

Boyko's groundsel, and others. From among the representatives of the animal kingdom candidates for protection are the Siberian spruce grouse, the peregrine falcon and others. As time goes on, the preserve may be recommended for biosphere status in view of the fact that its territory functions as an environment-forming entity in the upper section of the Amgun' river.

Territories of planned zakazniki

The "Gur-Khoso" Zakaznik (Also forest hotspot #5)
The planned protected territory comprises 179,480 ha and is situated in the basins of the rivers Khoso and Yul' rivers, and the left-bank portion of the lower and middle sections of Dzhaur River (left tributaries of the Gur River) all within the boundaries of the Komsomol'skiy Raion. The primary objects of protection are the well-preserved and large fragments of natural systems of mixed and broad-leaved forests. The boundaries of the planned SPNT include the northern border of the habitat of numerous species of Amur flora and fauna and the migration paths of vertebrate land animals. The territory has a high degree of biologic diversity and performs an important ecologically stabilizing function within the Gursk biogeographical boundary.

The "Ulike" Zakaznik
The planned territory contains 65,490 ha and is situated in the basin of the river Ulike within the boundaries of the Vaninskiy Raion. The primary objects to be protected are the salmon breeding bottoms of the Ulike River and its tributaries – which are currently under considerable anthropogenic stress. Also in need of protection are plant and animal systems of the coastal and upand landscapes, and areas of seasonal concentration of animals and migratory birds. The Ulike Zakaznik and the Tumninskiy Zakaznik constitute a single nature-protection zone.

The "Pikhtsa-Tigrovyi dom" Zakaznik (Also forest hotspot #4)
The territory of this prospective preserve comprises 124,850 ha and is situated in the basins of the Pikhtsa (a tributary of the Amur river) and Nel'ta (the right tributary of the river Mukhen) rivers, all within the boundaries of the Nanaiskiy Raion. Primary elements of protection are the virgin cedar forests (in the Pikhtsa river basin), the natural complex of the mountain Tigrovyi Dom with an outcropping of rocks near the headwaters of the Nel'ta, and the habitat of the Amur tiger. Also included is the southern part of the Lake Gassi with its Far East turtle, and rare species of birds that include the mandarin duck, the scaly fish duck, the black stork and the owl.

The "Dzhevdukha" Zakaznik
The planned territory consists of 100,000 ha. This includes the marshes and wetlands of the Lake Dzhevukha and a system of lakes and the channel in the area of the confluence of the Amur and Amgun' rivers, a key area of the lower Amur in terms of plant and animal species. Also to be protected are the members of the water and marsh ornithofauna, both nesting and migrating species.

The "Toromskiy" Zakaznik
The territory of the proposed special-protection category covers 100,000 ha. It includes the system of the Byuko Range, which acts as an environment-forming system in the basin of the Torom River. The protected area is to consist of a key section of boreal taiga that containing the typical beringian complex of the plant and animal world.

The "Koppi" Zakaznik
The proposed territory constitutes 124,980 ha and is situated in the basin of the upper Koppi River within the boundaries of the Sovetsko-Gavanskiy Raion. The primary objects to be protected are the mountain-valley nature systems with elements of mountain tundra, elfin pine

growths, and open woodland at high elevations, larch stands and dark-coniferous valley forests.

The "Nel'ma" Zakaznik
The proposed territory constitutes 80,360 ha and is situated in the basin of the river Nel'ma within the boundaries of the Sovetsko-Gavanskiy Raion. The primary objects to be protected are the systems of dark-coniferous forests that have not been affected by logging and forest fires, areas where ungulates congregate in the course of their seasonal migrations, spawning beds of salmon, and habitats of the scaly fish duck.

The "Matayskiy" Zakaznik (Also forest hotspot #2)
The proposed territory constitutes 114,300 ha and is situated on the left-bank part of the basin of the Matay River (the left tributary of the Khor River) within the boundaries of the Lazo Raion. The primary objects to be protected are the Amur tiger (in less than ten years the number of resident tigers has declined from 10-12 to 3-4 individuals), mandarin duck, the scaly fish duck, the fish hawk, the white-tailed eagle, the owl, the fish owl, and the ginseng, [tall gastrodia], the Japanese barbet and a number of other rare species of animals and plants. This area is one of the territories with maximal biodiversity. In conjunction with the natural park "Verkhne-Katenskiy," it supports the functions of the key migration routes of large mammals between the basins of the rivers Khor and Bikin.

The "Shaman-Yai" Zakaznik
The proposed territory constitutes 37,650 ha and is situated in the basin of the river Yai (the Lake Kizi basin) within the boundaries of the Ul'chskiy Raion. The primary objects to be protected include the natural system of Shaman Mountain, the habitats of wild ungulates, and the salmon spawning beds. A part of the territory is a local natural monument.

The "Khalkhadyan" Zakaznik
The proposed territory constitutes 120,000 ha and is situated on the central Amur plain within the boundaries of the Nanaiskiy Raion. It includes floodplains, marshes, a group of oxbow lakes ("Nedostupnye"), and the hilly forest tract of Khalkhadyan. The primary protected objects include breeding areas of rare animal species registered in the Red Data Books (the white-tailed eagle, the fish hawk, the Far East stork, the black stork, the mandarin duck, the peregrine falcon, the whooping swan, etc.) and places where analogous species of plants are found (Shreber's [watershield]), water chestnut, orchid plants and others.)

Jewish Autonomous Region

This summary of Jewish Autonomous Region's protected area system has been written by Vasily V. Gorobeiko of the JAO Committee on Ecology. Mr. Gorobeiko has also written the overview of the forest hotspots of JAO that follow this section.

THE EXISTING PROTECTED-AREA SYSTEM

The Decree # 1155 of the President of the Russian Federation dated October 2, 1992 and entitled: "On Specially Protected Nature Territories of the Russian Federation" established the preservation and development of a system of specially protected nature territories (SPNT) as one of the top-priority objectives of federal environmental policy.

The federal law "On Specially Protected Nature Territories" puts these specially protected territories in the category of national property. In accordance with the Federal law "On Specially Protected Nature Territories of the Russian Federation" (p. 2, para. 6) such territories may have federal, regional or local significance.

At present, there exist on the territory of the Jewish Autonomous Oblast' the zapovednik "Bastak", a dendrological park under the Oblast' administration, four zakazniki, and one forest zakaznik on the Oblast' level with a total area of 354,000 ha There are also 18 natural monuments. Of these, eight had been established by the Khabarovsk Kraiispolkom resolutions # 208 and #472 of 3/26/66 and 8/27/80, respectively. Three were established by the resolutions of the Oktyabrskiy and Obluchenskiy Raion executive committees and, correspondingly, do not have a definite status on the territory of the Oblast'.

Despite the large area of the territories with special-protection status (9.8% of the Oblast's' territory), one can not state that there exists in the Oblast' a system of protected nature territories, for the following reasons. There is no hierarchical structure of SPNTs; the protected natural landscapes are similar to one another (only four natural monuments are located on the Central Amur low lands, while all of the other specially protected nature territories are on the spurs of the Malyi Khingan); and numerous natural monuments do not correspond to the criteria in the Federal SPNT law.
The creation of such a system is essential to the preservation of biological diversity and the unique natural systems in the Oblast'.

Given today's crisis in the economy and the mounting pressure from poaching activities, the zakazniki are in an extremely difficult situation and incapable of fulfilling their function of protecting nature. Moreover, despite the impressive quantity of their territory, they are all situated on the peripheral mountain massifs of the Malyi Khingan, whereas territories that are particularly important to preserve (central areas of the Khingan mountain massif, and wetlands and marshes) are being actively exploited.

Of the 18 nature monuments established in the JAO only 5 report to the Oblast', while the others, in violation of the existing laws, are under the jurisdiction of the krai and the raioni. According to Article 26 of the law of the Russian Federation "On Specially Protected Nature Territories of the Russian Federation", declaring a natural object a natural monument requires placing it under protection, processing of custodial obligation papers, certification and preparation of other documents stipulated by the legislature of the Russian Federation and the regulations of the Russian Ministry of Nature. This procedure had been complied with in the cases of only two new natural monuments that had been established under the Decree # 326 on 11/6/94 by the Head of the Oblast' Administration. A number of sites that had earlier been declared natural monuments had lost their nature-protecting value, while no less than 50 natural and cultural elements need to be given natural monument status.

Thus, the network of specially protected natural territories that developed in the Jewish Autonomous Oblast' is not a single unified system nor does it fully perform its nature-conserving and recreational functions; it does not ensure the preservation of the region's biological diversity and its unique natural and cultural systems. In this connection, in 1996, the Goskomekologia [State Ecology Committee] of the JAO, together with the oblast' economic administration and the Comprehensive Analysis Institute for regional problems of the [DVO] of the RAN (Russian Academy of Science) developed and started the implementation of a program for the establishment of a system of specially protected natural territories.

In this context, the protective service for the state nature preserve "Bastak" was implemented in 1998. The forest zakaznik "Dichun", the first such entity in the Far East, was established, and the principal tracts of the indigenous mixed forests were placed under protection. Justification for the creation of the nature park "Kul'dur" was documented, and certification of eight new nature monuments is being readied. In 1999, design work was started for the zakaznik "Zabelovskiy"; state protection will be extended to the Central Amur lowlands - the most important sector in terms of biodiversity preservation - and to numerous Amur River channels that are valuable in local fisheries.

In the year 2000-2002 time frame, the establishment of the system of specially protected nature territories is expected to be completed by establishing yet another large reservation in the Pompeyevka River basin and by modifying the boundaries of the zakaznik "Zhuravlinyi" so as to include the remnants of the undisturbed portions of the Daur steppes into the protected territory. Further plans to improve the system include expanding the network of the nature monuments and establishing protected sectors in areas where rare and disappearing plant species are concentrated.

The primary factors that inhibit the growth of the system of specially protected nature territories are the lack of funds (more than 50% of the Oblast's budget is subsidized by the federal government) and the lack of administrative cohesion among the nature-protecting agencies. Currently, the State Nature Preserve is in the jurisdiction of the Goskomekologia [State Ecology Committee] of the Russian Federation, four preserves are administered by the Oblast's department of hunting, another zakaznik and the dendrologic park are under the Department of Forests, and the administrative responsibility for most of the other nature monuments is undefined.

At present, the Oblast' administration is taking certain steps to overcome the administrative lack of cohesion among the nature protection departments. Thus, a new law "On Specially Protected Nature Territories" was adopted, an Interdepartmental Commission for the improvement of the system for specially protected nature territories has been established as was an operational group for the protection of the biological diversity of the Oblast'.

In accordance with the February 1999 JAO Law "On Specially Protected Nature Territories", 5% of the proceeds received by the Oblast' for the mining of minerals will be directed toward the financing of these territories, however, implementing the actual protection function of the territories will not be possible without external investments.

Zapovedniks

"Bastak" zapovednik

The 91,038 ha State Nature Preserve "Bastak", the first such entity in the Jewish Autonomous Oblast', was established by the government of the Russian Federation (Decree # 96, January 28, 1997) within the boundaries of the Razdolnenskiy forestry unit of the Birobidzhan forest industry. The territory of the preserve is situated on the southeast slopes of the Bureinskiy Range, with the highest point of 1,200 m being near its northern boundary. It is here that the rivers Bastak, Sorenak, Kirga, Ikura, In, and others originate. The preserve plays an important role in water and soil protection, natural resources conservation and in the protection of nature in general. The staff of the preserve consists of seven people. Their tasks include the organization of the protection of the preserve territory, the conduct of scientific and research work, as well as ecological and educational activities.

About 90% of the territory are covered with forests. These consist of mixed and fir-spruce forests with elements of arrowwood and birch in the northern part. In the southeast there are white birch and larch, goosefoot, and brush. About 900 species of vascular plants are found here. Many of them rare and in need of protection: four-facet water lily, water chestnut, Japanese dioscorea, inversely egg-shaped peony, tall spignet, large-blossom ladies' slipper, and others. The flora of the preserve is the green lung of Birobidzhan. The fauna includes both common and rare species. Mammals are represented by wild boar, musk deer, bison, deer, moose, Far East cat, lynx, otter, American mink, sable, badger, brown and Himalayan bear, fox, raccoon dog, and others.) Particularly valuable are the black crane, with nesting grounds in the valleys of the rivers Kirga, Malyi Sorenak, and Bastak, and the Far East stork,

whose nesting grounds had been observed in the basin of Glinyanka River, and the fish owl that may still live in the basin of the Bastak River.

In the future, the preserve should become an outstanding natural laboratory and a scientific base where the biology and ecology of valuable and rare species of plants and animals is not only protected but also comprehensively studied together with the processes occurring in natural ecosystems. It should also become a center of environmental education.

Zakazniks

In the Oblast', there are four Oblast' level nature zakazniki and one oblast' level forest reserve. Altogether, the area covers 263,000 ha, which represents about 7% of the oblast' territory (see table).

	Name	Date Established	Area (1,000 ha)	Location
1	Zhuravlinyi	10-20-88	40.5	Oktyabrskiy Raion
2	Churki	9-24-82	85	Birobidzhan and Leninskiy Raions
3	Ul'dury	12-7-63	28	Birobidzhan Raion
4	Shukhi-Poktoy	12-7-63	60	Birobidzhan & Obluchenskiy Raions
5	Dichun	12-16-98	49.5	Obluchenskiy Raion

The integrated zakazniki are administered and funded by the Hunting Department of the JAO. A staff of ten rangers is stipulated by the regulations, two per each reserve. In 1998, the entire workload was carried by eight rangers, with two of the reserves – "Ul'dury" and "Churki"- without any service vehicles.

Salvage and preventive felling of trees are conducted in the reserves, as is mowing of hay and grazing of cattle. More than 20 apiaries are situated on their territories, some of which have been privatized. All of this leads to the depletion of flora, damage to the foraging base of the wildlife. As the disturbance level is elevated, the fauna of the region is depleted as well.

The recently established reserve "Dichun" is under the jurisdiction of the forestry administration of the oblast'. The functions of administering the reserve have been relegated to the Obluchenskiy Forestry Leskhoz.

Nature monuments

In the JAO, 18 natural sites of scientific, historical, aesthetic and environmentally-cultural significance have been designated as nature monuments (see Table).

	Name of monument	Status	When founded	Area (ha)	Raion
1	Peshchera Ledynaya	Geol.	4-26-79	12.5	Oktyabrskiy
2	Peshchera Koridornaya	Geol.	8-27-80	12.5	Oktyabrskiy
3	Peshchera Glubokaya	Geol.	8-27-80	12.5	Obluchenskiy
4	Peshchera Peschanaya	Geol.	8-27-80	12.5	Obluchenskiy
5	Peshchera Staryi Medved	Geol.	9-12-85	12.5	Obluchenskiy
6	Peshchera Spartak	Geol.	9-12-85	12.5	Obluchenskiy
7	Peshchera Sankina	Geol.	9-12-85	12.5	Obluchenskiy

8	Peshchera Bannaya	Geol.	9-12-85	12.5	Obluchenskiy
9	Peshchera Kabanya Lovushka	Geol.	9-12-85	12.5	Oktyabrskiy
10	Mineral'nyi istochnik Verkhnetulovchikhinskiy	Water	6-13-79	-	Oktyabrskiy
11	Mineral'nyi istochnik Nizhnetulovchikhinskiy	Water	6-13-79	-	Oktyabrskiy
12	Mineral'nyi istochnik Starikovskiy	Water	6-13-79	-	Oktyabrskiy
13	Lotus brush	Botan.	3-26-66	-	Birobidzhan.
14	Lotus Lake	Botan.	4-6-82	-	Smidovichsk.
15	Duck Lake	Botan.	11-16-94	1,825.0	Oktyabrskiy
16	Relictual pine stand	Botan.	11-18-82	108.0	Obluchenskiy
17	Wrinkle-leaved rose brush	Botan.	7-18-83	-	Obluchenskiy
18	Cherepashiy Bay	Zool.	11-16-94	61.0	Leninskiy

Nature Parks

In accordance with the Program for the "Development of a System of Specially Protected Nature Territories of the Jewish Autonomous Oblast' for the Period up to 2005", a draft was prepared for the establishment in the Obluchenskiy Raion of the nature park, "Kul'dur", with a total area of 36,700 ha.

Forest Hotspots

Vasily V. Gorobeiko,
JAO Committee on Ecology

Hotspots: **1. Pompeyevka River Basin**
2. Kul'dur Nature Park

1. Pompeyevka River Basin

Description of the territory
The Pompeyevka River basin includes the southwestern foothills of the Lesser Khingan range, covering about 40,000 hectares with a vertical rise from 73 to 912 meters. The Pompeyevka River is a 71-kilometer tributary on the left bank of the Amur River, descending from the hills and broadening to a width of three kilometers as it forms a marsh near its mouth. The basin is covered by a variety of forest types: spruce/fir interspersed with Korean pine (*Pinus koraiensis*), larch and linden in the headwaters, Korean pine/broadleaf forests mixed with small-leaved species in the middle reaches, and stands of oak and common birch (*Betula verrucosa*) in the lower reaches. Until 1996 the territory was part of the timber stands used by Birakanskiy lespromkhoz, but with the liquidation of the enterprise logging has now ceased.

Much of the Pompeyevka basin was logged over the last sixty years, degrading the climax forests of Mongolian oak (*Quercus mongolica*), Korean pine and broadleaf species and, in turn, the fauna that depended on them. By the mid-1970's local populations of Amur tiger (*Panthera tigris amurensis*) and long-tailed goral (*Naemorhaedus goral caudatus*) were completely annihilated. At the same time, forest massifs that are particularly valuable for species diversity in the headwaters remain relatively intact. But because these forests are mature and overmature, and their coniferous trees represent a valuable timber reserve, there is a substantial threat that foreign timber enterprises (and, once the economy stabilizes, local enterprises) will strive to obtain permission to log these forests. Adding to the problem, placer gold deposits are known to exist in the river basin, with an estimated yield of 200 kilograms. Placer mining is already underway in the Berezovaya River basin, which empties into the Amur seven kilometers downstream from Pompeyevka's mouth.

Even though the area's tiger and goral populations have disappeared, the biodiversity value of the Pompeyevka basin remains considerable. The headwaters host a number of endemic species, and form the westernmost spawning grounds for autumn chum salmon (*Oncorhynchus keta*) runs. Red-breasted mergansers (*Mergus serrator*), Mandarin ducks (*Aix galericulata*), eagle owls (*Bubo bubo*), ospreys and golden eagles (*Aquila chrysaëtus*) nest in the river's flood plain, which also serves as a feeding ground and resting area for numerous migratory waterfowl.

Existing protection initiatives
There have been no past measures to protect this area, nor have in-depth studies been conducted. A forest inventory was last conducted in 1986, while in the 1970's a group of Moscow State University ornithologists under the direction of S.M. Smirenskiy conducted research on the area's waterfowl. Unfortunately, none of these materials have been published, nor have the results of a botanical study led by V.A. Nedoluzhko in 1996.

Recommended steps
In accordance with a resolution by a scientific conference in June 1996 "On the development of a system of protected areas in JAO," the Pompeyevka basin is recommended for creation of

a federal zakaznik. Studies must be conducted to determine the most appropriate boundaries and protection regime for this zakaznik.

2. Kul'dur Nature Park

Description of the territory
Kul'dur Nature Park is located in the northwest part of the oblast on the southern slope of the Lesser Khingan range, with mountains and hills ranging in elevation from 280 to 1001 meters. The territory includes the upper Kuldur River basin down to its confluence with the Karadub and Karagai Rivers. The town of Kuldur is located within the park's boundaries, five resort complexes, a metal beam factory and a ralway station, Brusit. The park covers 36,700 hectares, of which 35,300 are covered by forest. Wetlands and marshes cover less than 3% of the territory.

The vegetation is characterized by a diversity of communities: dark coniferous forests, larch forests with dwarf Arctic birch (*Betula nana*) and shrubs, spruce/fir forests with Korean pine, Korean pine/broadleaf forests in the south, birch/aspen communities, willows and alder, and also grassy meadows and mossy swamps. In the vicinity of the town of Kuldur one finds the border between the boreal and East Asian biomes, and associated high species diversity: Japanese yam (*Dioscorea japonica*), iris, Daurian lily (*Lilium dahuricum*), Siberian ginseng (*Eleutheroccus senticosus*), shrubby cinquefoil (*Potentilla fruticosa*) and twenty more Red Book species.

The park's fauna is also diverse, with four zoogeographical types represented. Boreal species include brown bear, waxwing, three-toed woodpecker (*Picoides tridactylus*), viviparous lizard (*Lacerta vivipara*), Siberian newts, burbot (*Lota lota*), swallowtail (*Papilio machaon*) and others. Mountain areas are inhabited by Angara-type species such as ermine (*Mustela erminea*), red vole (*Clethrionomys rutilus*), Siberian jay (*Perisoreus infaustus*), willow tit (*Parus atricapillus*), and also Okhotsk-Kamchatka species like musk deer (*Moschus moschiferus*), sable, nutcracker (*Nucifraga caryocatactes*), crossbill (*Loxia curvirostra*) and pine bunting (*Emberiza leucocephala*). At the same time, Amur-type fauna can be found in the valley broadleaf forests: Himalayan black bear (*Solenarctos thibetanus*), yellow-throated marten, Ussurian wild boar (*Sus scrofa ussuricus*), Machurian wapiti (*Cervus elaphus xanthopygus*), Manchurian hare (*Lepus brachyurus mandschuricus*) raccoon-dog (*Nyctereutes procyonoides*), Eastern blue magpie (*Cyanopica cyanica*), Amur chicken-snake (*Elaphe schrenki*), Amur grayling (*Thymallus dahuricus*) and others. The intermingling of these four zoogeographical zones creates an unusually high diversity of species with rather low numbers of each one. The territory also includes thermal hot springs.

At the present time the Kuldur area is threatened by mining, forest fires, poaching and industrial wastes. Fish resources decline considerably as a result of these concerns, as well as quantities of game species. Because of fires and unregulated tourism soil quality has diminished considerably near resort areas.

The area's mineral resources are well-studied, but the ecosystems have been studied very little. Preliminary research has been undertaken by staff of the Birobidzhan Botanical Gardens (FEBRAS) in the watershed.

Existing protection initiatives
The Oblast Committee on Ecology, in cooperation with the Regional Forest Service and WWF, are working on having the area designated as a nature park. A resolution of the oblast's governor in May 1998 allocated land for the park.

Recommended measure
The development of well-organized tourism will not only improve the region's economy, but will also allow for a lightening of other anthropogenic loads on the most valuable ecosystems. This could allow for a reorientation away from mining.

Forest Hotspots of Khabarovsk Region

5. **Anyuiskiy National Park**
6. **Matai Zakaznik**
7. **Pikhtsa-Tigroviy Dom Zakaznik**
8. **Gur-Khoso Zakaznik**

1. Anyuisky National Park

Description of the Territory

This proposed protected territory (OOPT) of 882,000 ha. occupies the basin of the upper and middle reaches of the Anyui River (a right-hand tributary of the Amur). Located on the western slopes of the Sikhote-Alin Mountains in the Nanaisky region of Khabarovsky Krai, the topography is basically mountainous, with average altitudes of 400 to 1000 m, and a maximum of 2090 m (the highest point of the Sikhote-Alin). In the basin are many rocky places, especially in the mountainous part and along the river. The climate is Monsoon-continental. The average temperature in January (data from the "Solekul'" meteorological station) is -24.4C, and in July, +16C. The Anyui River, being a typical alpine river along its entire extent, has a length of 393 km, an average annual water flow of 225 m/s and modulus of flow of 17.7 l/c.km (Mordovin, 1996). More than 90% of the water catchment area is covered with forests. Within the proposed boundaries of the OOPT, deep evergreen forests of spruce and fir predominate (59.7% of the whole territory). There are also deciduous forests (19.8%), forests with cedar (0.8%), broad-leaved forests (1.5%), secondary small-leaved forests of aspen and birch (19.8%), thickets of creeping pine (0.5%), stone-birch and sparse forests (6.0%), alpine tundra (1.1%) and others. In the flood plains are mature riparian, mostly poplar-chozenia and elm-ash forests (1.1%). Burnt forests and clear-cuts occupy 4.25% of the total territory. Here are represented nearly all high-altitude zones of the unique type of the Amur river region.

The specific character of the territory lies in the fact that the basin of the Anyui River is divided by the greatest boundary of the Asian continent. Here are boreal and alpine tundra biomes, in which are preserved more than 20 Red book-listed species.

In the Anyuy basin (including the lower part, where there are also plans for creation of an OOPT), the following types of fauna are represented: Pre-Amurian (basically, cedar-broad-leaved forests), East-Siberian, Okhotsko-Kamchatkan, high alpine fauna, and fauna of the closed coenoses of Pri-Amuria. Fauna of the cedar-broad-leaved forests predominates, coinciding with the middle and lower course of the river. Here live the Siberian tiger, Himalayan bear, badger, yellow-throated marten, raccoon-dog (tanuki), wild boar, Manchurian deer, roe deer, red-breasted merganser, Blakiston's fish-owl, Mandarin duck, etc.; and there are a number of species of the east Siberian and Okhotsko-Kamchatkan complex (brown bear, wolverine, sable, elk, reindeer, grouse (Japanese: kamabane raicho), stone capercaillie, etc. The vast horsetail brush regions have a high trophic value for hooved animals wintering in the river valley and supports successful wintering of hooved animals (wild boar and roe deer) and the existence of the tiger.

The Anyui is the northernmost large salmon river along the Amur in the cedar-broad-leaved forest zone and for the basin of the Amur as a whole.

The salmon support a high level, in terms of numbers, of invertebrate life, all types of fish (grayling, trout (Japanese: kokuchimasu), salmon trout, etc.), ichthyophagic fish and several mammals (river otter, American mink, raccoon-dog, etc.). In addition, the Anyuy is the uppermost tributary of the Amur for spawning of the summer race of Siberian salmon and of the hunchback salmon.

In all, in the Anyui river basin it is possible to find no less than 292 species of vertebrates (35 fish species, 7 amphibian species, 6 reptile species, 200 bird species and 50 mammal species). Here there is a high degree of saturation with vertebrate species subject to preservation--in all about 30 species, including the tiger, (according to data compiled in 1996 in the Nanaiski region 18 tigers were counted, almost all them in the Anyuy basin), Himalayan bear, red-breasted merganser, Mandarin duck, golden eagle, white-tailed eagle, osprey, Blakiston's fish-owl, black stork, far eastern stork, grouse (kamabane raicho), etc. In the upper reaches of the Anyuy is clearly the highest density in the krai of populations of rare species of ichthyophages--ospreys (0.93 per 10 km of river channel in 1996). There in 1996 were discovered grayling which differ sharply in morphology of the dorsal fin from the Amur grayling, distributed in the Anyuy and other rivers. Certainly this is an endemic form found only in a small area. In 1996, in the valley of the Moad River, a left-hand tributary of the Anyuy, was discovered a northern location of a species of far eastern toad--the nearest known distribution of this species was 300 km to the south.

By the level of biodiversity of the animal kingdom with the Anyui basin in the boundaries of the Sikhote-Alin, it certainly compares well with the basin of the Bikin River, which exceeds the Anyui in terms of a few elements of Pri-Amurian fauna, but is poorer in terms of ichthyofauna (salmon).

Almost the entire basin is the territory of the traditional natural resource use of the Udege and Nanai tribes. In this regard and as an area of research of the prominent writer, explorer and academic V.K. Arseniev, the territory has a high cultural and historic value, and is also aesthetic because of the variety of landscapes, topographical forms and hydrography (mountains, cliffs, rapids, etc.). Currently, it is the least changed and least human populated water catchment area of a large salmon river in the framework of the entire Sikhote-Alins. Overall, the entire basin of the Anyui, using the terminology of A.M. Panichev, along with the basins of the Bikin and Samarga (and part of the Khor) may be treated as key land form basin systems of the Sikhote-Alins. In modern times in the basin there is a constant human population of about 1200 people (three settlements); along both banks of the Anyui run two forestry roads which have already reached the Podya (on the left bank) and Gobilla (on the right bank) Rivers. The area is threatened with the loss of its biodiversity because of continuing assimilation by forest industry (about 20-25% of the territory has already been disturbed by logging and fires), construction of a highway from Lidog to Vanino, hunting, fishing (hundreds of fishermen come to the Anyui every year from Khabarovsk), disorganized tourism and fires.

No integrated zoological research has been conducted in the Anyui basin. Some knowledge can be gained from the work of V.K. Arseniev's "Anyuiskiy Raion" (1949), written about the results of his expedition in 1926, in which he already brought up the question of creation here of a nature reserve. There are also commercial materials on game animals of the basin in the Far Eastern branch of Russian Academy of Sciences, and on salmon in the Amur branch of TINRO and under the direction of AMURRYBVOD. We have collected material on the flora and fauna and have published a few theses.

Current Measures

In modern times there is no kind of protected territory in the basin. Part of the left bank

of the lower course of the river belongs to the Gassinsky model forest. Since 1996 all forms of fishing have been forbidden on the river, but there has been practically no enforcement of this.

Recommended Measures

First, it will be necessary to discontinue the involvement of new territories in forestry development and to organize monitoring of entry to the roads. The most acceptable form of protected area here will clearly be creation of a large national park. In the first stage, this should include essential apportionment of a strictly protected nature reserve occupying the middle portion of the basin. In the upper part, where organization of a natural park has been proposed, some kinds of activities can be allowed--water tourism and limited sport fishing in a few places. In the nature reserve it will be absolutely necessary to include the waterway and valley of the Anyuy River, with adjacent slopes along the middle and lower course, because it is in these areas that the highest degree of biodiversity has been noticed, and they provide a spawning ground for salmon and wintering ground for hooved animals and tigers. The optimal variant would be introduction here of full nature reserve conditions, but the valley is also a basic territory of traditional natural resource use, so that clearly may limit introduction of autumnal and winter nature reserve conditions (limited winter fur trapping business and small-scale fishing may be permitted). During the rest of the year, some forms of activities such as sport fishing, limited hunting for hooved animals and brown bear, collection of wild plants and tourism may be allowed in a few places. This area has a number of prerequisites in favor of a national park--indigenous people living in the basin, a sufficiently developed network of automobile roads, the proximity to the city of Khabarovsk, and abundant recreation potentials.

Detailed ecological planning of the territory needs to be done along with further integrated zoological, botanical and geomorphologic research. This work may be done by a group of 7-8 people over a course of 2-3 years.

2. Matai Zakaznik

Last to add

3. Pikhtsa-Tigroviy Dom Zakaznik

Description of the Territory

This prospective protected area is located in the Nanayski district of Khabarovsk Krai in the basin of the rivers Pikhtsa (a tributary of the Amur) and Nyel'ta (right-side tributary of the Mukhen river) and occupies a territory of about 125,000 ha. The topography of the territory in the south is low mountainous with an altitude of up to 900 m. It has unique cliffs in the headwaters of the Nyel'ta River and Tigrovy Dom ("Tiger's House") Mountain. The northern portion of the territory, lying in the Middle Amur lowlands constitutes a lake-riddled plain with altitudes from 30 to 60 m. The climate is Monsoon-continental. For a large portion of its length, the Pikhtsa River is mountainous (it has signs of the presence of a waterfall on one of its tributaries); but in its lower reaches, it has primarily plains.

The hydrological conditions of Lake Gassimelkoe depend almost completely on the Amur, and during the winter, water is almost absent. The Nyel'ta River is similarly mountainous. Forests cover about 70% of the territory. Mixed pine-broad-leaved forests with cedar dominate (27.2% of the entire territory), in the midst of which there are portions with virgin cedar forests. In addition, there are spruce-fir (21.8%), broad-leaved (20.2%), larch (5.8%), and small-leaved (12.8%) forests, larch peat moss bog forests (11.5%), mature shrub growth and meadow fragments.

The level of richness of species of this territory is not precisely known, but scientists estimate up to 350-400 species of vascular plants, 50 lichens and 75 mosses are in the region. The rare species, included in the Red Book of the USSR and RSFSR, in the region include yew, Japanese borodatka, tall gastrodia, Japanese dioskorea, and others. About 250 species of vertebrate may live here. Of greatest importance here may be the pristine Korean pine forests in the basin of the Pikhta River. The mouth of this river and Lake Gassi are currently the northernmost habitat of the Far Eastern tortoise. The Pikhta and Nyel'ta Rivers are two of the few remaining spawning grounds of the autumnal Siberian salmon. The region of the cliffs of "Tigrovy Dom" in the headwaters of the Nyel'ta River, and the headwaters of the Pikhta and Mukhen Rivers in the opinion of V.K. Arseniev in the 1920's were "the most tiger- and beast-filled places in the entire Ussuri taiga. In modern times, this region still has high nature-protection value.

Species characteristic of the cedar-broad-leaved forests (tiger, two species of bear, wild boar, Manchurian deer, roe deer, badger, raccoon-dog (tanuki) yellow-throated marten, mandarin duck, red-breasted merganser, etc.) thrive here. In the lower reaches of the Pikhta and along the shores of Lake Gassi, fauna of the open coenoses of Priamuria are well represented. There are questioned reports of habitation in this region of the red wolf and the Far Eastern forest cat. The territory has high cultural and historical value as an area studied by V.K. Arseniev, and the cliffs of Tigrovy Dom, as a site of religious worship by the Udege (Arseniev wrote about this in his work "Skvoz' Taigy" ("Through the Taiga")).

About 30% of the territory has been damaged due logging or fires. Recently forest development, hunting and fishing have continued, which threaten loss of biodiversity.

The area is practically unstudied in terms of zoology, geomorphology and botany. There is some funded research from Far Eastern Forest Research Institute. In November 1997, a reconnaissance
investigation was done of Tigrovy Dom Mountain and the area around it, and some material was gathered on the population of vertebrates. It was established that the area is constantly inhabited by tigers, both bear species, Manchurian deer, wild boar, musk deer and lynx; and that white-tailed eagles may be encountered. Siberian salmon come to the Nyel'ta to spawn (a few tens of individuals).

Current Measures

Recently the eastern part of the territory (basin of the Pikhta River) belongs to the Gassinsky model forest. To the northwest adjoining this territory is the "Bobrovy" reserve.

Recommended Measures

Because of its fine aesthetic properties of unique cliffs and presence of a road and the Mukhenskoe mineral water deposits nearby (40 km from the cliffs), the area of Tigrovy Dom clearly could be upgraded to the status of regional natural park.

First it will be necessary to conduct zoological, botanical and geomorphologic research. This work can be done by a group of 5-6 people over two years.

4. Gur-Khoso Zakaznik

Description of the Territory

The territory planned for conservation consists of 179,480 ha located in the zone of influence of the Monsoon-continental climate within the Komsomol'ski District of Khabarovsk Krai and

occupies the left bank portion of the basin of the lower and middle reaches of the Gur River and its tributaries Khoso and Yuli. To the north it is bounded by the Gur River and spurs of Mt. Gorbilya (1221 m above sea level); to the south, by the Gur-Manoma watershed with maximum altitudes of 1300 m above sea level; to the east, by the bed of the Dzhaur River; and to the west, by the gently sloping Khoso-Chermal watershed. The northwestern part of the territory is lowlands or steeply sloping-flat and is advantageous for active restoration of clear-cuts and burns, which cover more than 20% of the total area of the reserve. The low-mountainous southeastern portion is typically forested with a predominance of pine and pine-larch forests. Among these, spruce-fir forests occupy about 57% of the territory of the reserve, larch forests, about 0.5%, small-leaved forests, about 16%, and sparse forests, about 0.4%. More than 5% of the territory is occupied by forests with cedar, which may be represented as cedar-broad-leaved or as cedar-fir-spruce and other fragments. Also encountered here are small fragments of broad-leaved forests.

There are a whole number of reasons it is necessary to conserve this territory. Foremost among them is the high biological diversity of the biotas of the district, concentrated in a limited area, and a high degree of sensitivity with regard to anthropogenic influences. Here are encountered no less than 250
species of ground-dwelling vertebrates, 30 fish species and about 1000 plant species. In the Gur, Khoso and Yuli rivers and their tributaries, autumn and summer Siberian salmon and hunchback salmon spawn.

The basin of the Gur River is an important biogeographical boundary, to the north of which the influence of Angarski flora and fauna has a sharply higher influence on the biota with reduction of the influence of the Manchurian, while on the other hand, to the south, the influence of the Manchurian increases sharply and that of the Angarski drops. In addition, Bering flora and fauna play a very significant role here. Therefore, the plant and animal world of the district is highly multi-faceted: together with larch forests, Ayan fir and white-barked spruce, here are encountered ash, Amur cork, Chinese magnolia vine, Amur grape and barberry. Many species found here are at the limit of their distribution--at the so-called zone of pulsation of natural habitats, characteristic of biogeographical borders, which overall form the preconditions of instability of the qualitative and quantitative nature of the association of living organisms existing here. This is especially notable in analysis of the direct and indirect effects on them from human beings. Cutting of the forest and consequent large-scale fires, together with immoderate and weakly controlled procurement of wildlife and hunting, have brought significant damage to the ecosystems of this region. The supply of cedar, magnolia vine and Amur grape have been reduced by several times and lime-groves have been burned. Encounters with the Red-book listed Far Eastern forest cat have practically ceased. Of the other Red-book species, tigers have become very rare, as have the red-breasted merganser, Blakiston's fish-owl and a number of others. The number of wild boar, capercaillie and grouse have fallen sharply. Nonetheless, the territory proposed for the reserve maintains its high biological diversity and natural restorative potential of its ecosystems, which provides a basis for proposing that preservation of this territory and strict ecological regulation of natural resource usage within its boundaries would create the conditions for its restoration and maintenance.

The main threat to this territory comes above all from the timber industry. Experience has shown that under conditions in the region the types of cutting that occur (predominantly clear-cutting and partial clear-cutting) along with the fact that these cause enormous damage to ecosystems, almost all of them over time become subject to fires which are catastrophic to the plant and animal world. Thus, cutting forests in and of itself, more than anything else, prepared the soil for the catastrophic fires of 1976, as a result of which the fires burned down more than a million hectares of forest. In the area we studied, several tens of thousands of hectares of forest burned down in the lower reaches of the Chermal, Khoso and Yuli rivers. Therefore, there has up until this time existed the danger of complete destruction and

degradation of the ecosystems of this area amazing for the diversity of its animal and plant life.

Also aggravating the situation is the fact that the territory proposed for preservation has been hardly studied at all. Even though industrial activity in the region has continued for several decades already, serious integrated studies of its resources, forests cover and animal life have not been carried out. There are only a few old publications (Spangenberg, 1960; Shtil'mark, 1965, 1973), in which there is indirect information on the territory proposed for preservation. In recent times no special research has been done here. The authors of this outline managed to visit this region twice during short-term expeditions: in June 1975 to the lower reaches of the Khoso and Yuli rivers, and in June 1976 to the basin of the Dzhaur River. In the period since, information on the condition of natural complexes of this region has been received from hunters, game specialists, foresters and loggers and also through air observations by the authors in June 1994 and 1995.

Recommended Measures

In connection with the above, it is absolutely essential in the near future to study the territory in more detail using ground-based and airborne methods, recruiting a broad set of biological specialists. It is important to carry out an inspection of the current condition of the natural complexes, determine the locality of boundaries and level of disturbance, enumerate the ecologically adaptational limits in natural resource usage, discover and apply more effective measures enabling natural or artificial restoration to be done of areas disturbed directly or indirectly by anthropogenic actions. In as much as special ecological-zoological and ecological-botanical research has not been carried out here, it is important to carry out an inventory of animal and plant life of the area with an accent on discovering species and relationships which are rare, unstable or easily damaged by the impact of humans; and determine the places they occur. In contiguous parts, it will be necessary to set aside a series of natural monuments defining the natural-ecological nature of the territory and forming important links of its ecological framework. Special attention needs to be given to clarification of the current relationship of the tiger to this territory and the condition of its prey base. According to data from studies, the tiger has lived in this area constantly over the course of several years. At other times, though, it has only lived here temporarily. Recently, there is information only on the visitation and short stays of the tiger during the course of a year. It is possible that this is connected, above all, with the sharply reduced numbers of wild boar and Manchurian deer, which used to be very abundant. Therefore serious research is needed on the territory of the future reserve by expedition methods.