

14 маа 1999 г.
№ 073

The Republic of Abkhazia lies in the north-west Transcaucasus. The north-western and northern border of the Republic of Abkhazia first runs along the River Psou and then along the crest of the main watershed-ridge of the Greater Caucasus. In this sector it borders the Krasnodar and Stavropol regions of the Russian Federation. In the east the border passes along the Abkhaz-Svanetian (Sak'an) ridge, the southern spur of the K'odor (Panaj') ridge, and the lower course of the River Ingur. Here the Republic of Abkhazia borders the Republic of Georgia, specifically its ethnographic provinces of Svanetia and Mingrelia. In the south the territory of the Republic of Abkhazia is washed by the waters of the Black Sea.

The average length of the territory of Abkhazia from north-west to south-east is 170km, and from south to north 66km. It lies between the northern latitudes of 43° 35' and 42° 27' and the eastern longitudes of 40° and 42° 08'. The general area of the country is 8,700km².

Geomorphology

Abkhazia is a typical mountainous country. Almost the whole of its territory is covered with high, sharply dissected mountain-chains. If from the height of the main ridge of the Greater Caucasus one casts a glance over the mountain chains in Abkhazia, they make one think of gigantic waves of stone, congealed in their passage and gradually descending to the shore of the Black Sea. The incline of the territory of Abkhazia runs in a general direction from the south-west to the northeast.

The mountainous area is girded by hilly approaches which turn into the low-lying coastal plain in the east of the country or come to an abrupt end at the seashore in the west. The main ridge of the Greater Caucasus enters the frontiers of Abkhazia near the sources of the River Awadhara (Wadhara). Here on the north-western border the mountains rise to 2,500m above sea-level. Towards the south-eastern ridge there is an increase in height, and on the eastern border the Abkhazian mountain-chains already heave up to between 3,500 and 4,000m.

Passes across the main ridge within the confines of Abkhazia lie at heights of between 2,300 and 3,000m above sea-level. It is because of this that the majority of them are difficult to reach and for most of the year are closed for passage. The most manageable for passage is the K'lukhor Pass on the Abkhazian (Sukhum) Military Highway. The last century saw the growth of a great deal of traffic across the Marukh Pass as well. These passes are paths which are suitable for travel either by people on foot or by packhorse.

By the foothills of the southern slope of the Greater Caucasus lie deep longitudinal valleys along which rivers flow. The most significant of these are the Awadhara, Bavju,

Baul (tributaries of the River Bzyp) and Chkhalta, as well as the upper course of the K'odor and the lower course of the Sak'en (Sak'an).

Valleys in the upper reaches carry traces of the movement of ancient glaciers, whilst in the lower reaches the rivers flowing along them cut into morainal deposits, forming terraces. In the extreme east of Abkhazia a belt of longitudinal valleys is sealed off by the Abkhaz-Svanetian (Sak'an) ridge — this is a high eroded spur of the Greater Caucasus which forms a watershed between the river basins of the K'odor and Ingur. The highest point of the ridge is the summit of Mount Kh^warikhra (3,710m).

In the east of Abkhazia from the summit of Khodzhal (3,309m) as far as the River K'odor, parallel to the main ridge, there rises the powerful latitudinal swell of the K'odor ridge, compacted with dense tufa-porphyrific rocks. Its blade-shaped crests and rocky peaks vie with the main chain itself of the Greater Caucasus for steepness and height.

In the north-east of the country, parallel with the main ridge, runs the Chkhalta ridge, which extends in the west to the Chedym ridge (the peak of Mount Kh'ymsa rises to 3,150m). The saw-shaped crests of these ridges, jagged with deep sand-filled holes eroded by ancient ice-formations, are bearers of small modern glaciers.

The relief to the south of this arc of ridges, weakly concaved in the north, is characterised by alternating meridional eroded, denuded ridges or deep river-bearing ravines.

A large portion of the territory in the north-west is taken up by two vast limestone massifs — that of Gagra (Arabika peak is 2,660m) and that of Bzyp (Nap'ra peak is 2,684m). These massifs are compounded with powerfully thick deposits of limestone, attenuated into gently sloping pleats and distinguished by active karsting processes. Here it is that one finds one of the largest caves on the planet — that of New Athos (= Afon Ts'yts; its internal volume is 1.5 million m³), as well as one of the deepest — the Snowy Cave, with a charted depth of 1,300m.

In the eastern part of Abkhazia the zone of limestone development is quite narrow, and all the limestone ridges are separated by a distinct ledge from the belt of hilly mountain-approaches, which sink in the south to the sea-coast. The foothills descend and torn into a flat coastal plain. In the north-west this occurs only as separate strips in river-estuaries, whilst to the east of Sukhum it widens out into a broad continuous zone, reaching the Samurzaq'an(o) depression up to a width of 30m.

One can therefore divide Abkhazia geomorphologically into four longitudinal zones:

1. the zone of the main ridge of the Greater Caucasus
2. a zone of rolling, rocky ridges with deep longitudinal and transversal riverbeds
3. a zone of hilly mountain-approaches
4. a zone of coastal alluvial depression, consisting of separate sections — those of Tsandrypsh, Bzyp, Gudauta, Sukhum, Abzhywa and Samurzaq'an(o).

Climate

Abkhazia is characterised by a sharply pronounced vertical differentiation of climatic zones and an exceptional variety of climatic conditions. In the course of the 50km from

the shore of the Black Sea up to the main ridge of the Greater Caucasus it is possible to experience all the climatic zones from humid subtropical to an arctic waste of eternal snows and glaciers.

Such a variety of climatic states is conditioned by the intricate composition of the complex of physical-geographical peculiarities — radiation from the sun and circulatory phenomena in the atmosphere, peculiarities of orography and the very important climatic factor that is the moderating activity of the Black Sea.

The territory of Abkhazia lies at the intersection of two of the terrestrial globe's climatic zones — the subtropical and the temperate. As regards the amount of direct radiation from the sun at warm times of the year, Abkhazia is akin to the Japanese subtropics, and at cold times of the year to the subtropics of the Mediterranean countries of Europe.

Winter in Abkhazia is the warmest in the entire territory of the former USSR. Average temperatures in January in the Gagra region are $+7^{\circ}\text{C}$ and in the environs of New Athos even higher at $+7.1^{\circ}\text{C}$.

The capital of Abkhazia, the town of Sukhum (Aq^w'a), lies 80km south of Gagra, and here the average temperatures in January are $+6^{\circ}\text{C}$. Further to the south the average temperatures fall, ignoring, as it were, the geographical latitude. In the towns of Ochamchira and Gal they are equivalent to $+4.1^{\circ}\text{C}$. This phenomenon is conditioned by the lower protection afforded by the mountain ridges of the southern coastal depressions against encroachment by cold masses of air.

As the location rises, the average temperatures fall. Drop in temperature per 100m in height, starting from a height of 250m above sea-level, is around 0.6°C . This explains why the average temperatures for January on the main Caucasian ridge can reach as low as -20°C .

Because of the influence of the Black Sea, the period for the approach of maximum temperatures is one month late (occurring in August) in comparison with localities in conditions of a continental climate. The mean temperatures in August on the coast are equal to $+23^{\circ}\text{C}$. The highest mean temperatures in the hottest month are found at the resort of Gagra, standing at $+24.5^{\circ}\text{C}$.

The yearly amount of precipitation and its distribution across the territory of Abkhazia is dependent upon the closeness of the sea, the direction of the prevailing air-masses, and the character of the terrain. The mean annual amount of precipitation is 1,400mm.

The amount of precipitation along the coast increases from north to south, but especially pronounced is the rise in precipitation as altitude increases. Thus, for example, Sukhum (35m above sea-level) receives 1,390mm of precipitation, whereas Ts'ebelda (Ts'abal — 426m above sea-level) gets 1,788mm. Higher still in the upper reaches of the River K'odor the amount of precipitation exceeds 2,000mm per year, whilst in separate high-mountainous regions, it is true, this magnitude may reach 4,000mm per year.

The average relative humidity in Sukhum is equal to 72 per cent. The number of hours of sunshine in the capital of the republic consists of 2,238 hours per year. The

maximum occurs in summer (812 hours), and the minimum in winter (317 hours).

Hydrography

The coasts of Abkhazia extend a distance of 240km on the eastern littoral of the Black Sea. The most picturesque section of coast is in the region of Gagra, where for a distance of about 20km spurs of the Gagra limestone massif descend right up to the seashore, dropping down to it from a height of almost 2,000m in steep slopes, which form the grandiose Gagra cornice.

To the south of Gagra the ridges gradually draw back from the shore, giving way to hilly mountain-approaches. The latter in their turn become the flat Bzyp depression with the Pitsunda promontory. To the east of the promontory of Pitsunda lie the conglomerative Mysra hills (Mjussera), which attain a height of 200m. This is one of the most picturesque spots of Abkhazia's Black Sea coast. Here a colossal conglomerative block is cut off by the sea and forms a sheer rocky shore with narrow sandy beaches. To the south of Sukhum the shoreline of Abkhazia is low-lying and to a significant degree straight-lined.

On the bottom of the Black Sea three zones are quite distinct: the continental shelf, extending to a depth of 200m; the continental slope, stretching between 200m and 2,000m; and the bottom of the hollow, occupying the depths from 2,000m to 2,243m.

Close to the shores of Abkhazia, the width of the continental shelf varies sharply. At the Gagra cornice it does not exceed one kilometer, but opposite Gudauta it reaches 35km. The average transparency of the water around Sukhum is around five meters. The greatest transparency of the Black Sea waters around the shores of Abkhazia occurs at the time of the autumn calms and attains 27m. The average annual temperatures of the water at Sukhum are +17°C. At the hottest time of year, in August, the temperature of the surface of the water along the coastline can reach +27°C or +28°C. The salinity of the surface of the water fluctuates from 17.5 per cent (in winter) to 18.2 per cent (in summer). It increases the greater the depth, and in ground-layers it stands at 22.5 per cent.

In terms of its hydrophysical and hydrochemical properties, the Black Sea stands out sharply among all other sea-reservoirs on the planet, for the fundamental feature which sets it apart from all others is the sharp difference in water-density between the surface-layer in the range 100-150m, the oxygen layer, and the water-mass lying deeper down, the hydrogen-sulphide layer. These two strata are sharply distinguished in terms of temperature, salinity, dissolved gases, content of biogenic substances, and distribution of life-forms. As a result of the heavy presence of hydrogen-sulphides the water layer of the Black Sea at depths below 150-200m is devoid of life, with the exception of anerobic bacteria. As explained by Ascheron (1995, p4), the inrush of organic matter from the five major rivers that feed it (Kuban, Don, Dnieper, Dniester and Danube) is too much for the sea water, which would normally be expected to decompose it.

Internal waters

The territory of Abkhazia with its abundance of precipitation possesses a very dense surface hydrographical network, represented by mountain-glaciers, rivers, lakes, springs and bogs. The general glacial area in Abkhazia's mountains is equal to about 77km², which represents four per cent of the whole Greater Caucasus. The glaciers encountered in the mountains of Abkhazia are basically of the pendant, valleyed and peaked

varieties. As regards their size, the glaciers are not large, and only some exceed a length of two kilometres. In all there are 131 glaciers in Abkhazia, where in the main they feed the system of two rivers: the K'odor and the Bzyp.

Abkhazia's rivers typically display a bewitching charm and wild indomitability. Their crystal-clear waters rush headlong down from high mountain-ledges, scatter in the white froth of waterfalls, cut through deep narrow gorges and, breaking loose in the foothill-zone, suddenly decelerate their flow as though preparing themselves to vanish gently in the embraces of a wave of the Black Sea.

The largest river in Abkhazia is the Bzyp, which finds its start on the southern slope of the main ridge at a height of 2,300m and has a course of 112km from source to estuary. At the sources of the river lie ten glaciers; the beds of the river and its tributaries possess hollows in the shape of inverted circus domes — the traces of recent glaciers. In mid-course the Bzyp buries itself in a deep and narrow tufa-porphyrific defile. The gorges in places are as narrow as three to four metres. Here the river acquires a large number of underground tributaries, raising the water over mounds and forming deep pits and shallows. The Bzyp cuts through to the coastal depression by penetrating between the rocky spurs of the Bzyp and Mamdzyshkha ridges and falls to the sea following lengthwise the area of the Mysra hills. The average annual flow of the Bzyp constitutes 96m^3 per second.

The second largest river in Abkhazia is the K'odor, which takes shape from the merger of the rivers Sak'en (Sak'an) and Gvandra (G'andra). The length of the river is 105km (taken together with the Sak'en) and finds its start at a height of 3,200m, gathering its water from the glaciers and snows of the main ridge of the Greater Caucasus and the Abkhaz-Svanetian (Sak'en) ridge. In mid-course, in the region of the village of Lata, the K'odor flows along massive crystalline deposits of limestone, and the river-valley narrows to such an extent that the tops of trees on opposite banks become intertwined with their branches. The banks rise over the river in the sheer Bogada rocks to a height of 600-700m above sea-level. In its basin-area the K'odor excels all the rivers of Abkhazia, constituting $2,051\text{m}^2$, whilst mean annual flow runs to around 144m^3 per second.

Between the basins of the rivers Bzyp and K'odor lie the basins of the large rivers K'elasur (K'alaf'yr), Gumista (G'msta), Aapsta and Khypsta. To the east, on the K'odor ridge, yet another large river of Abkhazia, the Ghalidzga (Aaldzga), finds its start.

The total annual flow of all the rivers of Abkhazia amounts to around 13km^3 , and practically the entire flow is made up of ecologically pure water. Over 300 springs with varying degrees of mineral water have been registered in Abkhazia. The most famous among them are the hydro-carbonated springs in the Awadhara river valley, the sulphate-bearing and chlorous springs of Zhvandrypsh (Zh'adrypsh), the sulphurous springs in the valley of the River Basla, and the sulphurous springs of T'q'archal.

Gigantic underground-springs (gushers) occupy a special place. The source of the Mch'yshta is a typical powerful gusher. Here a water jet of immense proportions forms a transparent, swift-flowing river with its voluminous quantity of water. From the

precipice of the Gagra cornice a gusher bursts forth which gives its start to the shortest river in Abkhazia, the Reproa — from source to its fall into the sea its length is less than 20m. A most beautiful powerful gusher is the Blue Lake in the Bzyp valley.

Throughout the mountainous terrain of Abkhazia there are many lakes — over 130 in number. In the high-mountain sector the most widespread lakes are peaked and moraino-sub-pondal. In the zone of compacted, tectonic breaches one finds deep lakes — fault-troughs and lakes formed by monumental mountain landslips that dam up the mountain-rivers. In the belt of limestone-diffusion there are karstal lakes with the characteristic roundish or funnel-shaped form. In the coastal zone of the Black Sea one meets small lakes or dried riverbeds formed by the flooding of beds of rivers propped up by shoreline dunes.

The largest and most picturesque lake in Abkhazia is Lake Rits'a. It lies at a height of 950m. above sea-level in the valley of the River Lashpsa in a deep mountain-hollow. From the north it is bordered by the high rocky ridge of Atsy^wak^w with the peaks of Atsy^wak^w (2,542m) and Agyapsta (Ag^japsta; 3,263m), from the east and south by spurs of the ridge of Rykh^wa, and in the south-west by the grandiose precipice of Mount Pshah^wishkha (2,222m). At its longest point Rits'a extends to 2,490m, and its maximum depth is 116m.

Soil and vegetation

Abkhazia is distinctive for its unusual richness and diversity of vegetative groups and for its extraordinary variety and tessellation of soils. In low-and mid-mountain regions the processes of erosion are advanced, but in places they are restrained to a significant extent by woodland-vegetation, for the woodland-cover of the territory of Abkhazia exceeds 60 per cent. The erosion of top-soil by run-off does not exceed 400-600 tons per square kilometre per year. Lowland plains are liable to bog-formation. On drained foothill-regions the Pleiocene-age processes of feralitisation have been in progress in surface-layers. As a result of this, secondary clay minerals (oxides of iron and aluminium) have been formed. In base and middle layers red soils have developed, and yellow soils in less rich, acidic layers. Acidic unsaturated podsol (yellow-earthed soil low in humus) forms in soft, friable deposits, whilst on remoistened terraces one finds podsol (yellow-earthed gleyey soil). The character of soil-formation makes these landscapes akin to the typical humid ones of the subtropics, but the comparatively cold winters, particularly in the foothill-zone, do not allow humid evergreen forests to grow here.

The flora of Abkhazia includes more than 2,000 species of plants, of which 149 are represented by arboreal and shrub forms, whilst the rest are herbaceous. Around 400 species are endemic to the Caucasus, but over 100 are found on the planet only in Abkhazia. Some of the endemic species occupy so restricted an environment that their habitat measures only a few hundred square metres, as, for instance, for the bell-flower (*Campanula paradoxa*) in the Bzyp river valley.

There are five vertical zones that can be distinguished for the soil-vegetative covering in Abkhazia. The first zone is the low-lying belt, limited to heights between

zero and 30m above sea-level. In the narrow coastal layer the turfless sands are covered by the grassy vegetation of such species as spurge (*Euphorbia paralias*), holly (*Eryngium maritimum*), sarsaparilla (*Calistegia soldanella*), mustard (*Sinapis maritima*), lily (*Pancratium maritimum*) etc. On sandy ridges one meets thickets of the relic bamboo cereal (*Arundo donax*). On ancient dunes beyond the reach of the waves of the sea form weak-podsol and podsol soils, with alluvial soils in the river-estuaries — on the latter one finds shrubby growths of berry (*Rubus anatolicus*), thorns (*Paliurus spina*), *Ruscus pontica* and barberry (*Berberis orientalis*). Shrubby growths change into leaf-bearing coastal forests of hornbeam (*Carpinus orientalis*), elm (*Ulmus foliacea*) and hop-hornbeam (*Ostrya carpinifolia*) with such creepers as convolvulus (*Smilax excelsa*), clematis (*Clematis vitalba*) and bindweed (*Periploca graeca*) densely wound around them.

On the alluvial deposits, rich in lime, of the Pitsunda promontory and Mysra hills are preserved sectors of Mediterranean vegetation, which are represented by bright-coniferous forests of pine (*Pinus pithyusa*). In the undergrowth of this latter Mediterranean xerophyte species predominate. Common here are thorn (*Ruscus pontica*) and helianthemum or frostwort (*Cistus tauricus*), while on the grassy covering grow prairie turnip (*Psoralea bituminosa*) and the rarer plant *Cytinus rubra* (known to the Russians as *podladannik*), which is parasitic on the roots of *Cistus tauricus* (known to the Russians as *ladannik*). Pitsunda's pine-grove is a unique monument of nature, which forms part of the Pitsunda-Mysra nature reserve.

The vegetative cover of the coastal lowlands is represented by alder forests of *Alnus barbata* with infusions on drained river-beds of wing-nut (*Pterocarya pterocarpa*) and fig (*Ficus carica*). On high, well-drained places alder-forests are replaced by forests of broad-leaved oak and hornbeam or hornbeam and beech. The sub-forest of these trees is formed from dense, evergreen growths of rhododendron (*Rhododendron ponticum*) and azalea (*Rhododendrum uteum*). As the terrain drops, especially to the south-east, there are complexes of water-bog vegetation with growths of the relic aquatic walnut (*Trapa colchica*) and the endemic hibiscus (*Hibiscus ponticus*) plus *Rhamphicarpa medwedewi*, as at Lake Behesyr.

The second zone is the zone of lowland and foothill forests at heights varying from 30 to 650m above sea-level. This belt is extremely rich in species and variegated in terms of vegetative groups. The soils here are represented by a combination of yellow and red earths with podsol and humus-carbonated soils. In southern Abkhazia combinations of red earths with podsol soils are more widely represented, whilst in the central and northern regions we have combinations of yellow earths with podsol and humus-carbonated soils.

The fundamental components of the forests of this zone are oak (*Quercus iberica*), chestnut (*Castanea sativa*), hornbeam (*Carpinus caucasica*), beech (*Fagus orientalis*) with a mixture of different maples and lime (*Tilia caucasica*). In the broad-leaved forests one finds a relic coniferous yew-tree (*Taxus baccata*), and on the hills of Mysra another relic, the red strawberry wood (*Arbutus andrachne*). Common in the sub-forest are the evergreen relics of tertiary flora: rhododendron (*Rhododendron ponticum*), heather (*Erica arborea*), cherry-laurel (*Laurocerasus officinalis*), holly (*Ilex*

aquifolium) and butcher's broom (*Ruscus hypophyllum*). Mosses and lichens have also developed in abundance. This belt is most suited to economic activity and is thus subject to strong human pressure.

The third zone is the zone of forests that ranges between the heights of 650-2,200m above sea-level. This zone is characterised by the great contrast in the strongly differentiated terrain — deep ravines are replaced by high mountain-ridges with slopes of varying steepness and erosion, covered with dense forest, often giving way to grandiose rocky precipices and screes. In the cooler and damper climate of this belt two basic components of the vegetation complex dominate, namely the eastern beech (*Fagus orientalis*) and the Caucasian fir (*Abies nordmanniana*). It should be noted that the beech and fir in Abkhazia attain the maximum measurements known over the whole area of their distribution for the species *Fagus* and *Abies* — for example, at the spot Mramba in a gorge of the River K'odor the height of one Nordmannian fir equal to 85m has been registered, while for the eastern beech a trunk diameter of two metres at chest height is not uncommon. On the limestone deposits of the Gagra ridge are concentrated the nucleus of Abkhazia's relic flora. Unusual for its beauty among these is the bell-flower (*Campanula mirabilis*), and there are also aster (*Aster abchasicus*), potentilla (*Potentilla camillae*) and yam (*Dioscorea caucasica*).

The fourth zone is the zone of sub-alpine curved forests, shrubs and tall grasses, lying at heights of between 2,200 and 2,400m above sea-level. This transitional zone occupies a relatively narrow strip. Here soils of dark-coloured turf and turfy-podsol have developed. The arboreal vegetation is weighed down with deep coverings of snow at winter-time — the thickness of the snow-covering can reach 8-20m. The basic species forming Abkhazia's associative curved forests are the beech (*Fagus orientalis*) with cherry-laurel (*Laurocerasus officinalis*) and rhododendron (*Rhododendron caucasicum*), while there are also associations of birch (*Betula litvinovi*) and maple (*Acer trautvetteri*). Curved forests of Pontic oak (*Quercus pontica*) are rarely found. Characteristic for the sub-alpine tall grassy region in Abkhazia are a family of tall grasses that can reach a height of 2.5m, rough caulescence and broad leaves (20-60cm in diameter), absence of cereals forming turf, durability and colourfulness of flowering. Belonging to the most characteristic representatives for this belt are cow-parsnips (*Heracleum villosum*, *Heracleum pubescens*, *Heracleum ponticum*), angelica (*Angelica tatjanae*), cephalaria (*Cephalaria gigantea*), ploughman's spikenard (*Inula magnifica*), bell-flower (*Campanula lactiflora*), valerian (*Valeriana colchica*) and others.

The fifth zone is the zone of alpine meadows that stretches from 2,200-2,800m above sea-level. The mountain-meadow soils of this belt are poor and strongly skeletalised, thanks to permanent leaching by precipitations. The dominant position in Abkhazia's alpine meadows is occupied by vegetative associations with oats (*Festuca supina*, *Festuca ruprechtii*), cobresia (*Cobresia macrolepis*), gentian (*Gentiana pyrenaica*), woodruff (*Asperula abchasica*) and others.

Above 2,700m the vegetation cover manifests a predominance of vegetation-complexes typical of regions of rocky shards and scree, including saxifrage (*Saxifraga colchica*), milk-vetch (*Astragalus lewieri*), violet (*Viola biflora*), buttercup (*Ranunculus*

abchasicus), larkspur (*Delphinium caucasicum*) and, nestling in the ground, juniper (*Juniperus pygmaea* and *Juniperus depressa*).

The animal world

The fauna of the Black Sea is basically similar to that of the Mediterranean but significantly poorer in species. Thus, the general number of animal species in the Black Sea stands at about 1,500 as against the 6,000 in the Mediterranean. About 160 varieties of fish live here. The poverty of the fauna in the Black Sea is conditioned by the low sunshine and the presence of hydrogen sulphide in its depths and also by the severe winter chills.

The most characteristic species of the Black Sea's ichthyofauna along the shores of Abkhazia are the beluga (*Huso huso*), the sturgeon of the Black and Azov Sea (*Acipenser guldenstadti*), the sevruga sturgeon (*Acipenser stellatus*), the Black Sea salmon (*Saimo trutta labrax*), anchovy (*Engraulis engracicholus ponticus*), the Black Sea herring (*Alosa kessleri pontica*), plaice (*Platichthys flesus luscus*), shark (*Squalus acuntias*), five species of grey mullet (*Mugil*), skate (*Raia battis*, known in Abkhaz as *amsyn bga* 'sea-wolf') and others (including *Mullus barbatus* and *Trachurus mediterraneus ponticus*). It should be noted that a significant proportion of the Black Sea salmon stock spawns in the rivers of Abkhazia, thanks to their purity. Also extremely common here are three kinds of dolphin: *Delphinus delphinus ponticus*, *Phocaena phocaena* and *Tursiops tursio*.

Against a background of general richness and variety of animal-life in the Caucasus as a whole, the manifest poverty in species of land-creatures and the ichthyofauna of the internal reservoirs of the entire western Transcaucasus, including Abkhazia, demands attention. Although there are endemic species here, there is nor a vertebrate which would not also be represented in Mediterranean countries. We often find here the self-same species or their sub-species. This latter circumstance most eloquently testifies to the genetic commonality of the fauna of these territories.

The alpine zone of Abkhazia is most obviously characterised by endemic fauna. A fundamental proportion of the endemic species of the Caucasus are concentrated here: the Caucasian aurochs (*Cupra caucasica*), the Caucasian snowy field-vole (*Microtus nivalis*), the Promethean mouse (*Prometheomys schaposchnikowi*), the Caucasian black grouse (*Lyrurus mlocosiewieczy*) and the snowy partridge (*Tetragallus caucasicus*). One of the most important migratory routes for birds on the Eurasian continent passes across the territory of Abkhazia. There have been registered here 268 bird species, among which are rare and endangered varieties such as the eagle, golden eagle, lammergeyer, black vulture, falcon, hawk, rose-pelican, swan and large white heron.

Predators are represented by the Caucasian brown bear, the wolf, jackal, fox, lynx, feral cat, the forest- and rock-marten, badger, otter, Caucasian sub-species of the European mink and the weasel. The large number of caves in Abkhazia serve as refuges for a significant number of bats. At least 16 species of such cheiroptera live here. Ungulates are represented by, in addition to the Caucasian aurochs, the European noble deer, the roe-deer and chamois. Wild boar are very common.

From the representative reptiles and amphibians one can single out the Caucasian viper (*Viper kaznakowi*), endemic to the Caucasus, the Aesculapian grass-snake (*Elaphe longissima*), the Mediterranean tortoise (*Testudo graeca*), the grey toad (*Bufo bufo verrucosissima*). This last represents a sub-species of the grey toad, the largest of the species over the whole area of its habitat.

In the mountain rivers of Abkhazia the most widespread fish is the river-trout (*Salmo trutta*), which is a freshwater variety of the Black Sea salmon. In the marshy lakes on the coastal depressions the most common is the sazan and the crucian (carp), whilst in the rivers of the eastern part of Abkhazia one finds the sheat-fish.

From the comparatively variegated insect fauna one can mention two relic species of large predatory beetle, *Carabus caucasicus* and *Brama ledereri*, which inhabit the coastal forests of Abkhazia's south-eastern region.

The protected nature-reserves of Abkhazia are represented by two reserves and one national park — the Pitsunda-Mysra and the Pskhu-Gumista (Psh^wy-G^wmsta) reserves and the Rits'a relic national park. The general area of all the protected lands consists of 82,000 hectares or about ten per cent of the territory of the country.

Подготовлено информационно-аналитическим отделом Государственной экологической инспекции РА (использованная литература: R.Dbar, I.Geography and Environment в книге: The Abkhazians / под редакцией G.Hewitt, Curson Press, London, 1999).