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NATURAL ARMENIA

НЕРЕАЛЬНОЕ-РЕАЛЬНО

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INTRODUCTION

With eight geographic zones, seven climate ranges, nine altitudes, sixteen soil zones, half the plant species in the Transcaucasus and two-thirds of Europe's bird species, Armenia's small territory is a stunning biotops region. More varieties of flora and fauna can be found per square kilometer in Armenia than almost anywhere on earth. The relative ease of exploring these often over-lapping flora and fauna zones makes Natural Armenia a destination of its own.

Birding and Flower Watching have already put Armenia on the map, with birders and flower lovers coming from around the world. Trekkers and Mountain Climbers can explore 85 mountains over a mile high, in diverse ranges that cover and divide the country into micro-climates and topographies. Mt. Aragats, Armenia's tallest mountain, can be surmounted in a tight 6 week span of July to mid-August.

For avid spelunkers, the most spectacular images in Armenia are underground, and with more than 10,000 caves throughout the country, Armenia aims to please to subterranean explorer. There are hundreds of mineral springs (both cold and hot) to delight taste buds and soothe tired bodies. There is even a hot spring on top of a mountain, inside a dormant volcano.

Other tourists hike, bike, climb, glide, swim, boat and horseback ride their ways across the country, exploring remote regions where one feels alone in the world, or village-hopping, savoring the delights of home living.

What follows we hope will whet the appetite for a little natural exploration of Armenia.

ECOLOGY

GEOGRAPHY, CLIMATE

Armenia's rich diversity of terrain includes Dry Sub-Tropic, Mediterranean, Desert, Semi-Desert, Mountain Steppes, Mixed Forest, Sub-Alpine and Alpine vegetation zones. These are further subdivided in to 17 specific vegetation zones. There are even a few glaciers thrown in for extra measure in the upper altitudes. The area around Yerevan alone stretches over five vegetation zones, with a mixture of flora and fauna rarely seen elsewhere.

Topography The terrain was created by millions of years of volcanic and tectonic plate activity which slowly enclosed a vast sea that once covered the entire country up to the Sevan Mountain Range. In its earliest period (380 million years BCE), almost the entire Republic lay under water. Around 170 million years BCE volcanic activity began to from land masses and by 10 million years BCE the Geghama Lehr (Mountain Range) and the mountains making up Southern Armenia were formed. As recently as 500,000 years BCE (by which time Homo Sapiens had been inhabiting the area for at least 500,000 years), at least five volcanoes were still active: Aragats, Azhdahak, Spitakasar, Vardenis and Astghonk.

Climate Much of this is due to Armenia's unique weather systems, which mix moisture from heavy snowfalls in the mountains and the Black and Caspian Seas with hot blasts of air from the Syrian and Iranian plateaus. The mixture produces incredibly diverse amounts of rainfall, from a mere 250 mm (10 inches) a year in the lowlands to 550 mm (21 inches) in the mountains. At the same time, ecosystems formed by large forests in Northeastern and Southern Armenia produce their own climates, so that the region around Haghbat and above Kapan can count on 50-60 inches of precipitation annually. Most of the country's precipitation comes from snowfall, which averages 100 cm (40 inches) in the middle mountain regions alone.

Armenia is protected from the harsh winter conditions of the Russian landmass by the Northern Caucasus Mountains, and consequently receives much of its weather from the Persian and Syrian Plains. In wintertime, the Southern regions and northernmost regions are thew warmest. While the mountains may be covered with snow, lower valleys are clear, getting their first spring flowers as early as the end of January. The southernmost area of the country is considered Dry Subtropical: while Giumri is still receiving its last winter snowfall in April, Meghri has begun its second harvest. Ararat Valley is one of the lowest areas in Armenia, and does not receive as much snowfall or rain as the upper elevations.

Weather The weather changes according to the great variety of geographic terrain. While it may be sunny and hot in the Ararat valley, 60 kilometers away in Sevan it may be cold and rainy, and snowing in the upper regions of Aragats. Common July temperatures range between Ararat Valley highs of 25-30° C (77-86° F) to middle mountain regions summer highs of 18-20° C (64-68° F). The absolute recorded high was 42° C (107.6° F), in Ararat Valley. Common January temperatures range between Ararat Valley lows of

-5 to -7° C (23 to 19° F), with an absolute recorded minimum of -30° C (-22° F); to middle mountain regions common lows of -8 to -12° C (16 to 12° F) and an absolute low of -46° C (-46° F) recorded at Arpi. The average number of frost-free days in Armenia is 250 in Ararat Valley, and 150-200 days in the middle mountain areas. In the upper elevations no more than 30-50 days are considered frost-free.

Rainfall Armenia receives a total average precipitation of 550 mm (21.6 inches). Ararat Valley receives the least amount of precipitation, 200-250 mm (7.9 to 10 inches). The most amount of precipitation occurs in the upper regions, and during Spring and early Summer, with a second rainy season in October and November. When rain falls in the summer months, it often begins with a drizzle and soon develops into a downpour. In the winter months, snow does not last in the Ararat Valley, as the temperatures often vary between freezing and just above. In the middle mountain areas, the snow will keep for long periods of time, and commonly reaches 100 cm (40 inches).

Sunshine Armenia receives an average of 2700 sun hours of light a year. In the summer months, the Ararat valley is perpendicular to the sun, and each sq. cm of land receives per minute 1.46 calories of heat. Because of the perpendicular alignment of the land with the sun, people who sunbathe can obtain very even suntans (listen up, beach bums).

Photo courtesy Tigran Nazaryan ©

MOUNTAINS

The Sevan Mountains are the oldest standing in Armenia, weighing in at 380-1,200 million years old. Volcanoes and massive earthquakes formed the base of the mountainous region, carving mountains, valleys and plateaus on a land that now has an average altitude of 2000 meters (6,560 ft), with less than 10% of the country lying below 1000 meters (3280 ft.).

The highest point in Armenia is Mount Aragats (el. 4090 meters/13,415 ft.) Absolute elevation ranges from 450-4,090 m (1,476-13,419 ft) above sea level.

Lying between continental plates, Armenia and the Transcaucasus continue to be subject to earth tremors, which in prehistoric times shaped the great rocky mountains in the Southern and Northern parts of the country.

34 mountain ranges crisscross the country, each protecting unique pockets of wildlife and terrain. More than 85 mountain peaks higher than 1300 meters (4,264 ft) grace the landscape.

Photo courtesy Tigran Nazaryan ©

Mountainous Armenia

The tallest 85 mountains in Armenia | See also www.masis.am/ for detailed info and killer pics.

Name	Altitude Meters/Feet	Mountain Range	Region
Aragatz	4090 / 13,419	Aragatz	Aragatzotn
Astghonk	3926 / 12,877	Vardenis Range	Gegharkunik
Kaputiugh	3904 / 12,805	Zangezour Range	Siunik
Gazanasar*	3829 / 12,559	Zangezour Range	Siunik
Aychingil (Pass)	3707 / 12,159	Zangezour Range	Siunik
Azhdahak	3598 / 11,801	Geghama Range	Kotaik
Spitakasar	3555 / 11,660	Geghama Range	Ararat
Metz Ishkhanasar	3550 / 11,644	Karabakh Upland	Siunik
Vardenis	3470 / 11,381	Vardenis Range	Vayots Dzor
Geghasar	3443 / 11,283	Geghama Range	Ararat
Sartsali	3433 / 11,260	Karabakh Upland	Vayots Dzor
Tzarasar	3426 / 11,237	East Sevan Range	Gegharkunik
Aramazd	3392 / 11,126	Bargushat Range	Siunik
Nahapet	3375 / 11,070	Zangezour Range	Siunik
Yernjak	3368 / 11,047	Zangezour Range	Siunik
Chaghatsar	3333 / 10,932	Vardenis Range	Vayots Dzor
Sakoyvar	3299 / 10,820	Vardenis Range	Gegharkunik
Sevkatar	3225 / 10,578	Geghama Range	Gegharkunik
Bazenk	3221 / 10,565	Karabakh Upland	Siunik
Khustup	3214 / 10,542	Khustup-Katar Range	Siunik
Shahaponk	3204 / 10,509	Zangezour Range	Siunik
Achkasar	3196 / 10,483	Javakhk Range	Lori
Tzitzernakar	3187 / 10,453	Karabakh Range	Siunik
Gokhtan	3147 / 10,322	Zangezour Range	Siunik
Gogi	3120 / 10,234	Vaik Range	Vayots Dzor
Tezhlehr	3101 / 10,191	Pambak Range	Kotaik
Siskatar	3093 / 10,145	Zangezour Range	Siunik
Maimekh	3081 / 10,106	Pambak Range	Lori
Tzaghkavet	3076 / 10,089	Yeranos Range	Ararat
Karkhach	3063 / 10,047	Sevan Range	Gegharkunik
Metz Yeghnakhagh	3042 / 10,001	Yeghnakhagh Range	Shirak
Chgnavor	3024 / 9,919	Meghri Range	Siunik
Bovakar	3016 / 9,892	Halab Range	Lori
Katar	3012 / 9,879	Bargushat Range	Siunik
Urasar	2994 / 9,820	Bazum Range	Lori
Murghuz	2993 / 9,817	Miapor Range	Tavush
Amulsar	2988 / 9,800	Zangezour Range	Vayots Dzor
Gndasar	2946 / 9,663	Vardenis Range	Vayots Dzor
Karazhayr	2931 / 9,614	Bargushat Range	Siunik
Koshakar	2921 / 9,581	Zangezour Range	Siunik
Maral	2904 / 9,525	East Sevan Range	Gegharkunik
Kashatagh	2901 / 9,515	Sevan Range	Gegharkunik
Teksar	2898 / 9,505	Teksar Range	Vayots Dzor
Eshak Mehdun (Pass)	2862 / 9,387	Zangezour Range	Siunik
Armaghan	2829 / 9,729	Geghama Range	Gegharkunik
Parakan	2825 / 9,266	Zangezour Range	Siunik
Bazumtar	2796 / 9,171	Bazum Range	Lori
Ayrisar	2781 / 9,122	Halab Range	Lori
Harsnasar	2773 / 9,095	Vaik Range	Vayots Dzor
Karktasar	2743 / 8,997	Areguni Range	Gegharkunik
Great Maimekh	2642 / 8,666	Pambak Range	Tavush
Kanachkogh	2593 / 8,505	Vayots Sar Range	Vayots Dzor
Ijevan	2592 / 8,502	Ijevan Range	Tavush
Yeragagat	2589 / 8,492	Yeragagat	Ararat
Vayots Sar	2586 / 8,482	Vayots Dar Range	Vayots Dzor
Arailehr	2575 / 8,446	Arailehr	Aragatzotn
Mechetiu	2555 / 8,380	Bargushat Range	Siunik
Lalvar	2543 / 8,341	Lori Plateau	Lori
Dahna	2534 / 8,312	Khosrov Range	Ararat
Lejan	2526 / 8,285	Lori Plateau	Lori
Sharai	2474 / 8,115	Shirak Plateau	Shirak
Tzirnkar	2472 / 8,108	Tzirnkar Range	Siunik
Artanis	2460 / 8,069	Sevan Range	Gegharkunik
Sep	2448 / 8,029	Kars Plateau	Shirak
Urdj	2445 / 8,020	Khosrov Range	Ararat
Yeznasar	2441 / 8,006	Kars Plateau	Shirak
Menaksar	2399 / 7,869	Geghama Range	Kotaik
Gutanasar	2299 / 7,541	Tzaghkunyats Range	Kotaik
Bartas	2269 / 7,442	Meghri Range	Siunik
Chatin	2244 / 7,360	Gugarats Range	Lori
Berdakar	2163 / 7,095	Meghri Range	Siunik
Yerablur	2124 / 6,967	Yerablur Range	Siunik
Kaghamakhut	2106 / 6,908	Shirak Range	Shirak
Paghakn	2072 / 6,796	Gugarats Range	Tavush
Kotuzsar	2061 / 6,760	Khosrov Range	Ararat
Arteni	2047 / 6,714	Arteni Range	Aragatzotn
Galvanersar	2012 / 6,599	Gugarats Range	Lori
Paitatap	1979 / 6,419	Paitatap Range	Tavush
Arsar	1862 / 6,107	Ijevan Range	Tavush
Alsar	1853 / 6,078	Alsar Range	Ararat
Lok (Pass)	1846 / 6,055	Lori Plateau	Lori
Yeranos	1823 / 5,979	Yeranos Range	Ararat
Dzigatar	1646 / 5,399	Gugarats Range	Tavush
Yerakh	1418 / 4,651	Khosrov Range	Ararat
Eliak	1361 / 4,464	Voskepar Range	Tavush

* Gazanasar holds *Gazanagyol lich*, Armenia's highest lake.

Photograph courtesy Tigran Nazaryan ©

CAVING

For avid spelunkers, the most spectacular images in Armenia are underground, and with more than 10,000 caves throughout the country, Armenia aims to please to subterranean explorer. Caves are located in every region of the country, but the more interesting line river gorges (Amberd, Hrazdan, Debed, Arpi, Vorotan and Voghji are great places to start).

Vayots Dzor is the location of three caverns rated the best in Europe by members of the French Speleological Society. Magili, Archeri (Bear's), and the smaller Jerovank cavern, provide hours of exploration. All three caves are located within a few kilometers of each other, with nearby camping at natural springs, under the boughs of an ancient apricot forest, or below towering rock formations.

Magili Cavern is located in the Noravank Gorge, close to Areni. One and half kilometers deep, the cavern was inhabited as far back as the Neolithic period. Stone tools and artifacts have been discovered in the cave, as well as more "recent" ceramic fragments from the 9th c forward. Because of its depth, Magili cavern holds a constant temperature of 14 degrees centigrade (58 degrees Fahrenheit). The passageway varies from just enough for a person to crawl through to a spacious 10-15 meters in width.

Magili is also a unique underground eco-system, home to thousands of Microchiroptera Desmodus, Diphylla, Diaemus, otherwise known as fruit bats. The only mammal capable of true flight, bats are an important part of the ecological system. One of nature's spectacles is at dusk, as the nesting bats fly out of the cave in a fluttering cloud that twists and turns in the evening air. Free style camping can be made in the river canyon near an ancient apricot forest near a hankayin akhpur (a mineral spring).

About 4 hours hike from Magili, near Arpi, is the mammoth Archeri or Bear's Cave. The entrance is located 1660 meters above sea level, and requires repelling to get to the entrance. The cave is more than 3 kilometers deep, with some of the most spectacular stalactites and stalagmite formations in Europe. Formed by thousands of years of calcite deposits dripping from ground water, the formations and varieties of colors are stunning. The water that is dripping now to form these formations is probably more than a hundred years old, filtering from the top of the mountain through layers of granite, slag and tuf to the cavern chamber. The formations glow under flashlight, some pure white, others as translucent as smoky glass, still others gold and red in color.

Just past Arpi is Jerovank, the "water church". The "church" is actually a cave with a pool of spring fed water outside eh entrance. Inside are a series of stalactites that were used as part of 4th millennium BC worship. Directly in front of the cave entrance is a sacrificial stone, and the stalactites inside were used as phalluses for fertility rituals.

Photograph courtesy Tigran Nazaryan ©

Spelunkers and archeologists found human skeletal remains inside the cave, confirming speculation that early rites included human sacrifice. The canyon outside the cave is thickly forested and a hiker's paradise. Nearby are the 11th c. Agaragadzor Kamurch and a large spring fed pool, a perfect place to swim in and cool of after a lengthy hike.

Caving Tours should be attempted only with a qualified spelunker. Some caves have yet to be mapped and it is easy to get lost or hurt. A few we have found who arrange caving:

Avarayr Adventure Tours, (tel. 010 56 36 81, 52 40 42, Fax: 010 56 36 81), 1 Pavstos Biusand p, Yerevan, E-mail: avarayr@arminco.com, URL: www.avarayr.am/ has been arranging cultural and adventure tours to Armenia for more than 12 years, one of the first to provide fully equipped hiking, climbing and adventure tours. Tours include expert guides, cooks and support staff for all tours. Tours run the gamut from hiking and climbing in the wilderness to cultural visits for the more comfort-minded. Their best seem to be tours that combine both aspects. A good, solid company.

Armenian Mountain Rescue Teams "Spitak" (tel: 010 35 00 06), 50 Halabian p, Yerevan, email: spitak@yerphi.am, moon.yerphi.am/~spitak/adventure.htm, stationed in both Yerevan and Stepanavan, can organize hiking, rock climbing and mountain expeditions. Guides are experienced rescuers-rock climbers, and they can also arrange horse riding along picturesque routes, by a horse cave and "Ancient Armenian horse games."

The Eco-Tour Center (tel. 010 27 87 28 / 27 40 12), 2 H Hakobian St. apt. 22, 375033 Yerevan, Armenia, email: zhanna@netsys.am, www.ecotourismarmenia.com, arranges nature tours, climbs and camping, as well as birding, flower watching and other nature tours. Contact Zhanna.

Hike & Go, (tel. France (+33 6) 88 34 04 11, local cell: 091 20 41 38), email: info@hikeandgo.com an adventure travel group operating out of Armenia and France (English spoken) is an interesting group that features tours of Armenia combining traditional touring with hiking into Armenia's wilderness and off-the–beaten-path monuments, some of which can only be reached by hiking. See web site (www.hikeandgo.com/)

AdvenTour Travel (tel. 010 53 96 09, cell: 091 42 67 45), Email: adventour@netsys.am, URL: www.armeniaexplorer.com, 39 Pushkin p, Yerevan, Armenia, 375002, arranges adventure, birding, botanical and historic tours.


Photo courtesy Tigran Nazaryan ©

RIVERS, LAKES & SPRINGS

Rivers

(Note: length of river is given for Armenia territory only) Too many visitors who have never ventured beyond the confines of the Ararat Valley in the summertime are given the false impression that Armenia is a dry country. More than 200 rivers and streams run through the country, most of which are fed from melting snows and tens of thousands of springs. There is still an astonishing amount of water which runs through the main tributaries into the Arax River on the Armenian/Turkish border and the Kur River in Azerbaijan.

A huge underground lake lies below the Ararat Valley. The Valley was recorded as early as the Assyrian Period as being a rich, forested marshland, with cultivated lakes. The Kasakh (89 km), Hrazdan (146 km), Azat (56 km) and Vedi (58 km) Rivers run West to East and North to South in the Ararat Valley, feeding numerous irrigation canal systems as they flow from mountain sources into the Arax river (158 km), which forms the southwestern border with Turkey.

In Vayots Dzor the Darb (20 km), Yeghegis (54 km) and Arpa (90 km) Rivers continually feed the low lands as do thousands more natural springs.

The Vorotan (119 km), Voghji (56 km) and Meghri (32 km) Rivers run through Siunik, with the Vorotan flowing East to the Hagari River in Azerbaijan where it joins the Arax. The Meghri River flows from the Meghri Mountain Range south into the Arax River by Meghri town.

In Shirak District the Akhurian River begins at the Arpilich Reservoir in Armenia ┼s Siberia and flows for 210 kilometers before joining the Arax River by the village of Bagaran in Armavir District. The Mantash River (90 km) flows from South to North East into the Akhurian, feeding the Shirak Canal system with the Akhurian.

The second largest river system in the country lies in Lori and Tavoush Districts. In Lori the Dzoraget (57 km) joins the Pambak (86 km) River to form the source of the Debed (152 km), which flows into Georgia. The smaller rivers of the Chichkan (65 km), Urut (25 km) and the Marts (25 km) feed the Lori River system. In Tavoush the Koghb (25 km), Joghaz (57 km), Aksipara (21 km), Sarnajur (23 km), Spitakjur (10 km) Urtijur (19 km) all feed into the Aghstev (99 km) which runs to the Kur River in Azerbaijan (the Kur eventually joining the Arax). Other rivers in Lori feeding the Kur are the Hakhum (45 km), Tavush (43 km) and the Khndzorut (65 km).

Sevan Lake is fed by 28 rivers, including the Masrik (43 km), Boydara (16 km), Vardenis (28 km), the Argichi (51 km) fed by the Karadzi (22 km), the Martuni (12 km), Tzakkar (23 km) and the Kukudzor (11 km) joining the Gegharkunik (51 km). In turn the Sevan is the source of the Hrazdan River, which flows through Kotaik District into the Ararat Valley. The Marmarik River in Northwest Kotaik joins the Hrazdan River east of the Tzaghkadzor Forest and Resort area.

There are countless mountain streams that feed this extensive river system which runs in virtually all directions as they deliver melting snows, spring and rain water into the valleys and mountain plateaus. Several rivers have been diverted into lakes and reservoirs, which form the bulk of the irrigation and drinking water for the country. Like so much else in the former Soviet Union, mismanagement of natural resources, rather than their amounts, has threatened the ecological system as well as the economic expansion for the new republic.

Lakes, Reservoirs
Lake Sevan (alt. 1897m/6222f), with a total water surface of 1256 sq. kilometers is one the largest high altitude lakes it the world. The lake is fed by 28 rivers and streams, thousands of years of melting snow from the surrounding mountains and scattered rainfall in the Spring and early summer. As the source for the second largest river in Armenia, the Hrazdan, Lake Sevan literally is the source of life for the largest part of the Armenian population. Extensively used beginning in the Soviet Area to irrigate arid mountain plateaus and to generate hydro-electric power, the lake reached recorded low levels in the 1970 ┼s, losing more than 10 meters of water depth. The receding waters revealed several prehistoric settlements, including the 2nd millennium BCE royal burial ground at Lechashen and 1st millennium BCE Urartian cuneiform stones, showing the lake has experienced at least one natural loss of water volume in history. Continued aggressive use of the water in the 1980's further depleted an additional 10 meters of depth. It has been estimated that even if water diversion was stopped, it would take up to 500 years to naturally restore the lake to its previous levels.

Ailing as it is, Lake Sevan is still a spectacular marine system, holding some of the purest water in the world. A unique high altitude marshland lies on the Southern shores, a rare home to Storks and water fowl little seen at this altitude. The lake is home to the endangered Ishkhan (Armenian trout) and Sig fish, as well as seagulls, gray ducks and several species of eagles. Another endangerd visitor to the lake is the Armenian leopard or panther (panthera pardus tullianus).

(See Sevan Chapter for more details)

Other lakes Aside from Lake Sevan, there are only a handful of natural lakes in the country, among them Karilich and Lake Lessing on Mt. Aragats; Aygehr in the Ararat Ravine; Lake Kaputan in the Zangezour Mountain Range; Lake Akna on the Geghama Lehr east of Abovian; and Lake Parz northeast of Dilijan. By comparison , while Lake Sevan has 1256 sq. kilometers of water surface, there is only one square kilometer of water surface from ALL the primary natural lakes in Armenia.

Reservoirs make up the second largest water surface in the country, the source of irrigation and drinking water, and also a source of ecological strain. The Akhurian, straddling the Turkish and Armenian borders and Kars River on the Turkish side feed the Akhurian Reservoir, which lies east of the town of Maralik. The reservoir is heavily used, and water tables drop precipitously by mid summer. Much of this was due to irrigation methods that used huge sprinkling systems, in which 70% of the moisture is evaporated before it reaches plant roots.

Other reservoirs include the Spandarian, Angeghakot, Tolors and Shamb Reservoirs in Siunik (Sissian District), developed to promote wheat production in the area, and to divert water to support Lake Sevan. Others are the Kechut (Vayots Dzor), Azat (Ararat District), Aparan (Kotaik), Mantash, Kaghnu and Arpi (Shirak).

Thermal and Mineral Springs
There are more than 20,000 (some say 40,000) natural springs in Armenia. The springs (including mineral and thermal springs) supported a thriving health and spa ("Sanatorium") industry in the 1980 ┼s, and make up one of Armenia ┼s most promising tourist attractions. At present most mineral springs are relatively undeveloped, except the spa areas around Jermuk and Hankavan. Even there the cost of a spa treatment is as low as $10-15 a day (meals and lodging included).

Thermal springs lie throughout the country, but Siunik and Vayots Dzor are home to the most popular (and the warmest recorded) springs. The most famous is perhaps Jermuk, with naturally carbonated sulfur thermal springs (37-42? C/99-108? F). Other springs at Jermuk include a calcium-sulfur cold water spring (4-20? C/39-68? F), and purified spring-fed thermal Jacuzzi's and baths (20-37? C/68-99?F). Hankavan has several natural mineral springs in the area, the warmest at the Hankavan Spa (20-37?C/68-99? F), which is currently closed. Not to worry, as the springs run off into the Marmarik River, and locals regularly gather for a quick soak. Another popular warm water spring spa is located at Arzni, just north of Yerevan. The waters¶ and newly privatized spas¶ are working.

There are countless other thermal and cold water springs, most known only to the local villagers. It's well worth asking, since you may just stumble across a natural treasure. If you find one off the beaten path, relax and soak a while ¶ you will be undisturbed, often completely alone in stunning wilderness areas.

For a list of Mineral Springs in Armenia, see *TourArmenia: Springs (www.tacentral.com/nature/natural_story.asp?story_no=4)*.

Soaking Etiquette
Springs can be located by the roadside, which are reserved for drinking, on clearly marked paths, or in out of the way locations. Many springs are considered community property, with villagers and visitors making stops to soak or collect water in bottles. If it's a drinking spring, then it's not for soaking, no matter how appealing. A spring for soaking is fairly obvious: it empties into a pool, is fairly secluded, and is not stocked with fish (and fishermen) being bred for market. Often there will be others already taking in some of the effervescent waters. Men feel quite at home stripping down to their underpants to soak provided women are no where in sight. Nudity is rarely (if ever) allowed. Bring a swimsuit if you are more modest. Women visitors can feel free to soak, but wear a swimsuit, and if there are any local men around, be prepared for a lot of attention, which can make the experience unpleasant.

Carbonated sulfur water is surprisingly strong, and one should never soak more than 5-10 minutes at a time, especially if it is hot. This goes for 'professional soakers' and neophytes alike. The revitalizing affect will be most immediately felt on your pulse, so monitor it as you soak. The skin tingles, and if you are allergic to sulfur, you can get a rash. Calcium carbonated water (the stuff they put in sodas to make it fizz), tingles as well, and can raise your pulse if you stay too long in the water. Best to "dunk and drip", that is, spend just a few minutes in, then twice as long out, especially if you haven't tried natural spas before.

Along the roadside you will find hundreds of carved stones, almost all an outlet for natural drinking water. The stones are carved as memorials to commemorate a loved one, an historic event, even an engineer who worked on the road. Almost all have designs borrowed from the khachkar tradition, with beautiful details and flourishes. The water is safe to drink, though if enough mouths have sucked on the pipe, you may want to wait a few seconds before taking a sip.

MINERAL RESOURCES

Armenia is particularly rich with high-grade stone, and from earliest of times it was used to construct temples, cyclopic walls, palaces, homes, churches, even to pave the streets of its Greco-Roman cities. Armenia holds some 3 billion cubic meters of tuf, an easily cut yet resilient material, and most buildings from the early Christian period forward are made from the orange, red, gold and black varieties of tuf. Other stone in the country include basalt, granite, marble, limestone, perlite, andestie, perlite, limestone, agate, pumice and gypsum.

Also cooked up in the country were iron, polymetals, aluminum, molibden, tungsten, diatomite, gold, silver, copper, tin, mercury, barium, sulfur, bentonite, sodium chloride, among other minerals.

Semi-precious and precious stones found in Armenia include obsidian, amethyst, andesite, andelusite, emerald, garnet, beryl, turquoise, several grades of quartz, carnelian, aquamarine, lapis lazuli and diamonds. Specific stone, minerals and gems found in each region are listed below.

Shirak: The bulk of Armenia's marble, limestone, perlite, pumice and tuf is mined in Shirak Region, as well as granite. Minerals found in Shirak include mercury, barium, copper, tin, silver and coal. Gems include amethyst, obsidian, quartz, carnelian, garnet, beryl, turquoise, aquamarine, lapis lazuli and diamonds.

Lori and Tavush both have large deposits of limestone, marble and granite, along with a mixture of tuf, perlite, pumice and diatomite. Minerals include the entire range found in Ararat (gold, silver, tin, molibden, tungsten, mercury, sulfur, sodium chloride and barium), but it is not exploited on a large scale. The bulk of Armenia's copper is mined in Lori District, along with polymetal. Gems found in teh region include agate, diamonds, emeralds, quartz, carnelian, turquoise and lapis lazuli. Geologists believe that the region may prove to be the richest in the country.

Aragats is a dormant volcano, and as such contains large concentrations of volcanic rock (tuf, pumice, perlite) as well as basalt, gypsum, pumice, andesite, limestone, marble, granite. Minerals include quartz, agate, obsidian, silver and copper. Kotaik has large deposits of peat, perlite, basalt, gypsum, pumice, andesite, limestone, marble, granite. Metals include iron, while minerals include quartz, agate, obsidian, silver and copper. There is a working gold mine near Hankavan (alas, visitors not allowed).

Ararat Valley contains large concentrations of volcanic rock (tuf, pumice, perlite) as well as basalt, gypsum, andesite, limestone, marble and granite. Minerals include quartz, agate, obsidian, silver and copper. Minerals and gems include obsidian, amethyst, andesine, andelusite, emerald, garnet, beryl, turquoise, several grades of quartz, carnelian, aquamarine and lapis lazuli

Gegharkunik- Sevan: The mountains are formed from lava rocks like basalt, perlite and limestone, while tectonic plate compression created marble, and granite. Minerals and soil include clay, peat, molibden, gold, copper and silver, while gems include diamonds. Since most of the region is protected, very few mines are in operation (or admitted to be operating), the most notable exception being the gold mine at Sodk.

Vayots Dzor's natural resources are relatively unexplored, though the area holds large deposits of iron, copper, silver, tin, marble, granite, tuf, perlite, basalt, andesite, obsidian, quartz, barium, sulfur, Sodium chloride, clay, aluminum ore and limestone. It is believed that Vayots Dzor was the location of gold, turquoise, diamond and lapis lazuli mines during the Bronze Age, along with other precious jewels, but if this is true, the mines have not been found in the modern age.

Siunik: High quality marble is mined just north of Sissian, along with limestone, tuf, basalt and granite. Goris includes the same, adding iron and diatomite. Kapan and Meghri hold vast quantities of granite, aluminum, polymetal, molibden, tungsten, perlite, and limestone, along with tuf and basalt. Minerals found throughout Siunik include molibden, obsidian, quartz, barium, sulfur, Mercury, Barium, Sodium Chloride, gold, diamonds, copper, tin, silver and high-quality ceramic clay. Especially in Goris and Kapan there may be large deposits of precious gems (quarts, amethyst, carnelian, aquamarine, lapis lazuli and diamonds), but they are not currently being mined.

HUMAN ECOLOGY

The Ararat Valley is one of the oldest settled areas in the ancient world, as excavations in suburban Yerevan illustrate. A 90,000 BCE Stone Age settlement was uncovered on the shores of Lake

Yerevan opposite Shengavit, exposing hunting tools and implements made from obsidian, crude mudpack and cave dwellings, and the earliest religious artifacts uncovered on the Armenian Plateau.

Settlements quickly grew in the Copper Bronze Age along the entire length and width of the valley, based on a change from hunting and gathering to collective farming sometime between 15,000 - 10,000 BCE. Virgin strands of wild wheat still propagate in the valley between Yerevan and Garni. The wheat is the closest thing we have to that which ancient man first cultivated on a large scale. Carbon dating of wheat kernels uncovered at excavations along the Ararat Valley show large-scale wheat cultivation as far back as 15,000 BCE.

The valley's volcanic base produced extraordinarily diverse minerals and metal ore as well, including pure strains of silver, gold, tin and copper. The forging of tin and copper into bronze occurred in the Ararat Valley as early as 5000 BCE, and the first known casting of iron occurred around 2000 BCE.

The combination of agriculture development and metallurgy created a sophisticated culture that predates almost all others in Western Asia and the Middle East. The nucleus was Metsamor, a city of 50,000 people by the mid Bronze Age. Others were Lechashen at Lake Sevan (possibly the site of Gegh), Garni, Shengavit, Jerahovit, AdaBlur, MokhraBlur, Aigeshat and Yervandashat. Frequent raid and border wars leveled cities, which were rebuilt in layers on top of previous rubble, allowing archeologists to uncover generations of splendor and decline.

By the Urartian period, the area was extensively populated, with a large network of roads connecting the regions. Cuneiform found in all the regions of the republic indicate that civilization as classical historians coin it, had developed to a high degree. Primary Urartian cities included Argishtikhinili (Armavir), Teishebaini (Karmir Blur) and Erebuni, which is considered the beginning of Yerevan's history as a city. Heavily timbered in previous centuries, hillsides lining the valley were deforested by the Urartu period, so that additional irrigation canals had to be installed to support the agricultural system.

During the Persian, Hellenistic and Roman periods, settlements grew to large cities, including Armavir, Artashat and Vagharshapat. By this period the Ararat Valley was extensively irrigated, providing an abundance of food. It is not known how many people lived in the republic at this time, but it was a strategic trade and political fulcrum for outside powers, and the city of Artashat was considered the "Cartage of the East," indicating it was not a backwater country. The greatest threat to human ecology was constant warfare and threat of invasion, which stretched from the Roman through the modern era.

Extensive expansion of towns and contruction of churches and monasteries began in the 5th century, continuing up to the Ottoman and Persian division of the kingdom in the 16th-17th centuries. The monastery communities did not coincide with rapid urban development countrywide, as it did in other countries. The urban areas grew primarily at Ani, Dvin and Kapan, with Ani supporting a population of 100,000, larger than any city in Europe at that time. The Ararat Valley continued to support heavy agriculture production, though the southernmost and easternmost areas had by now become a desert. The rise of monastic communities, academies and small towns in the mountainous regions were likely due as much to more abundant resources as they were to threat of invasion.

The 19th century, when the Russian Empire usurped Persian hegemony over Eastern Armenia, marks the beginning of both a surge in population growth and depletion of natural resources. The Russians fostered large exploitation of mineral resources, and it is at this time that French, German and Swiss firms began mining the country's extensive gold, diamond and metal resources on a large scale. Giumri was designated the regional capital (then named Alexandrople after Alexander I), and the population at Yerevan was a mere 14,000. By the early 20th century, Yerevan had grown to approx. 45,000, and the most serious Human Ecology threats were about to begin.

Tamanian designed the new Armenian capital for a then unheard of 150,000 people. In 50 years, the sleepy town of Yerevan had grown to a metropolis of one and half million people working in mostly huge industrial complexes.

The period following World War II is marked by huge urban development and industrial development, and the greatest threats to the environment ensued. While Soviet Armenia reclaimed much of the desert and scrub land on the edges of the Ararat Valley, they did this by depleting the waters in sensitive areas. The vast underwater lake that lies below Yerevan was rendered useless due to pollution and toxic waste disposal, and chemical and metal processing plants in Yerevan, Vanadzor and Alaverdi did greater damage to the environment than the deforestation of the recent past.

Locals remember when the trees covering the mountains between Spitak and Vanadzor were covered with a white dust spewed from the chemical factory, and the annual loss of trees--not to tree cutting, but to toxic poison. In a perverse sense, the sudden collapse of the Soviet economy has given a 7-year breathing space for nature to recover. At the same time the country struggles to support its population with meaningful employment, and natural resources are the first in line to be used to earn income.

Beginning in 1990, Armenia saw a real decline in its population, which has created a critical mass of decline for economical development. Officially the government admits to an 8% unemployment rate and decline of 750,000- 1.5 million of its population (migrated to other countries searching for work). In fact, the unemployment figures are based on worker roles for factories that no longer operate, and the unemployment rate is closer to 80% of the population.

However, the bulk of these factories will never be able to replicate their bloated staffing and remain competitive in the world market, and the burgeoning private sector (also called the "Black Market") makes up much of the difference, with the UN estimating off the record that 50-70% of the population are really unemployed and vulnerable.

Even those figures are guesswork, since a census has not been made since 1989, and every urban area of the country has seen real loss of population. It is much more likely that over a million people have left the country in search for work, sending back support funds to families left behind. As much as 250 million dollars a month are sent into the country from Armenians living abroad.

The threats to human ecology are a mixed bag. Shutting down factories and migrations outside has relieved the pressures on the environment, but as the economy grows, rational use of resources is not being utilized.

Yerevan has experienced a small boom in the past several years, and locals are already complaining of the smoggy skies, worst July to October and December to March, when fossil fuel emission hangs in the air. Irrigation still uses the least effective way of watering plants, and the pressure exerted by the Azerbaijan/Turkey energy blockade against Armenia forces overuse of hydroelectric capacity and prompted the reopening of the Metsamor Atomic Reactor, shut down during the green movement in 1988.

Despite a much smaller population of 1.7 - 2.5 million, the relentless search for income leaves ecology far behind in the thoughts of the people.

The Greens movement that sprung in the 1980's and forced the shutdown ot the Metsamor nucleur reactor and Nairit petrochemical plant, fostered a number of Ecological organizations (Nongovernmental Organizations, or "NGO's"), which continue to fight to protect the environment despite overwhelming odds and virtual neglect by Armenians abroad, the most capable to help. Eco-NGO's are spearheading education, public awareness and conservation efforts, which may prove to be the only means to pass a beautiful and rich ecosystem on to the next generation.

REGION-BY-REGION ECOLOGY

NORTH ARMENIA ECOLOGY

SHIRAK MARZ

Overview Shirak District lies in stark contrast to the rest of the country, with its southern area lying in predominantly semi-desert to desert mountain steppe terrain, while the northern area rises over alpine meadows called Armenia's "Siberia". From Amassia and Ashotsk, it suddenly erupts into mountain forests at the Georgian border. The Region is bordered by Mt. Aragats on the southeast, the Bazruma and Javakh Mountain ranges on the east, and Turkey to the west. The Akhurian River begins in Shirak Region, runs just west of Giumri before forming the border between Turkey and Armenia at Akhurik.

Half of the region lies on the Kars and Shirak Plateaus, a complex mountain steppe region that includes swamp and marshland, large tracts of semi-desert, mountain steppe and mountain/alpine meadows with pockets of forests nestled inside mountain clefts. The Southern area relies mainly on irrigation and springs to cultivate agriculture. The landscape is striking, if for some visitors a little desolate. The main highways run through the driest parts of the region, which give a false impression: There are as many villages in Shirak region as there are in Aragatsotn, all of them built along rivers, streams and springs. An amazing number of early medieval monasteries and churches were built on the plateau (which is dotted with dozens of mountains itself), each of them a verdant oasis in the surrounding semi-desert. The rock formations and scrub land vegetation that makeup the bulk of southern Shirak are unique Eco-systems, filled with desert wildlife, and the bulk of migrating steppe birds in the Spring and fall.

Armenia's second city, Giumri, lies in the center of Shirak Region. Giumri holds the best examples of what the belle epoque life was like in 19th century Armenia. While most of the Kruschev era buildings were destroyed in the 1988 earthquake, a large part of the old quarter survived the devastation, and many buildings that were partially destroyed are being rebuilt. The city lies above the Akhurian River Valley, which supports deciduous forests along its path.

Between Giumri and the Georgian border, the land slowly rises to the foot of the Javakh Range. The area is notorious for being the coldest area in Armenia throughout the year, though it is a rich marshland with scattered swamps that supports waterfowl and possibly the highest altitude habitat for the stork and crane. The region is primarily inhabited by Molokons, descendants of Russian Orthodox "Old believers", first exiled by Catherine the Great. Forest birds and other fauna inhabit the pockets of forestland that suddenly erupt into a deep forest at the Georgian border.

Minerals, Stones, Gems The bulk of Armenia's marble, limestone, perlite, pumice and tuf is mined in Shirak Region, as well as granite. Minerals found in Shirak include mercury, barium, copper, tin, silver and coal. Gems include amethyst, obsidian, quartz, carnelian, garnet, beryl, turquoise, aquamarine, lapis lazuli and diamonds.

Flora Northern Shirak flora include Iris lineolata, I. Caucasica, Merendera mirzoeval, Colchicum Szoritsii, Gagea ssp., Puschkinia scilloides, Draba ssp., Lallemautia caneseeus, Ranunculus ssp., Myosotis alpestris, Pedicularis ssp., Trifolium ssp., Gladiolus kotschyanus, Silene ssp.

Lower Elevation sagebrush steppe flora includes Gladiolus atroviolaceus, Nigella oxypetala, Actynolema macrolema, Gundelia tournefort, Verbascum saccatum, Lallemanita iberica, Roemeria retracta, Scabiosa argentea, Scorronera paposa, Muscari beglecta, Stchys inflata, Astragalus distyophysus, A. kochianus, Achillea tenuifolia, Helichrysum rubicundum, Silena spergulifolia.

River Gorge flora include Alkanna orientalis, Cerasus incana, Prus, salicifolia, Cerasus mahaleb, Amygdalus ferzlinia, Spirala crenata, Saxifraga cymbalaria.

Desert and semi-desert flora include (non Latin names) sagebrush, steppe grass, straw flowers, poppies and daisies.

Birds (Cross refrence with Birds by Habitat p. 25) Mountain Steppe Wetland | Valley / Lowland | Scrub | Semi-Desert to Mountain Steppe | Mountain Steppe | Rocky Cliff / River Gorge | Mountain Slope | Upper Mountain Cliff and Gorge | Woodland / Farmland / Orchard | Subalpine / Mountain Meadow | Alpine

Other Fauna The largest prairie dog population in Armenia is in Shirak, located west of Maralik. Nutria, moles, jackals and wildcats are frequently seen in the region as well.

Thermal and Mineral Springs Shirak is blessed with several large natural springs, including several mineral springs. All are cold water springs, with natural carbonated sulfur springs lying near Ashotsk, Amassia and Akhurian; carbonated sodium springs near Shirak and Aghin; naturally carbonated springs by Ashotsk, and Sodium Chloride springs close to Shirakavan.

LORI / TAVUSH MARZ

Overview Tavush District in the northeast has the largest forest in the country, covering the second oldest mountains in the country (after Lori and Northern Kotaik). From 26 to 410 million years old, the Miapor, Kenats, Hakhum, Ijevan, Halab, Gugarats and Voskepar Mountain ranges first clashed across the district, forming myriad striations of mountains, valleys, vegetation zones and rock formations. The area is so diverse, with so many varieties of forests, vegetation, flora and fauna, it is hard to take in. The area is the major meeting place of the Iranian, Caucasian, Iranian and Minor Asian Tectonic Plates, and it is possible to stand astride several landmasses in a single spot. The weather is extremely variable, with towns and villages located at a higher altitude than Yerevan actually having warmer temperatures in the dead of January. In fact, the major towns in the region, Ijevan and Noyemberian, have the same climactic zones as Meghri. Meanwhile, a neighboring town just a few kilometers away will be snowed in and freezing.

The diversity is astounding. Every type of vegetation in Armenia inhabits the region, including small valleys that can grow the same plants as Meghri. Forests include Dry and Arax Oak, Eastern Beech, Caucasian Pine, a coniferous tree called the 'Tis', Elm, Tulip, Georgian Oak, evergreen and other deciduous tress. Marshlands and forests vie for attention with meadows teeming with wildflowers. All are inhabited by the largest diversity of animals in the country. The largest population of Royal Stag and deer are found in Tavush, along with kites, eagles, wild cats, bears, lynx and caucasian squirrels.

The region is coursed by the Aghstev, Khndsorut, Tavush, Hakhum, Sarnajur, Spitakjur, Aksipara and Koghb Rivers, each of which feed the Kur River in Azerbaijan. The Aghstev River is the largest River in the region, with its headwaters in Lori Region. The rivers all run from South to North, dropping more than 2500 meters before they enter Azerbaijan. As such they form the greatest potential for hydroelectric generation in the country.

Tavush District has the largest Nature Preserve in Armenia, the Dilijan Preserve. This technically prevents locals from logging the trees, but the energy blockade and a lack of adequate jobs in the region has meant this restriction is largely ignored. What is surprising when one visits the region is that while perhaps 5% of the forest has been logged since 1990, it is renewing itself in a relatively short period of time. Until substitute employment is created, though, the region is in danger of serious ecological damage.

Lori Marz is known for its steep mountain passes, breathtakingly protecting mountain monasteries and medieval academies. Bordered by the Halab, Gugarats, Pambak and Bazum Mountain Ranges on the east, south and Southeast; and by the Lori Plateau on the North, Lori is as diverse and abundant as Tavush. Lori adds the contrasts of a complex alpine meadow and wet mountain steppe terrain in the West to complete its diversity. One of the greatest contrasts in Armenia comes from traveling by road from Vanadzor to Alaverdi or Stepanavan.

From Vanadzor to Alaverdi, the road twists and turns through the Pambak and Debed River Canyons, which lie far below the peaks of the Gugarats Mountain Range. The weather system changes less than 10 kilometers outside of Vanadzor, supporting verdant green forests like those found in Tavush. Even in the height of summer, the hillsides and mountains in Lori are covered with green grass and wildflowers. Alaverdi lies in the same climactic zone as Meghri, and seldom receives more than a few weeks of freezing weather each year.

Lori also lies on the edge of tectonic plates, but the Western plateau does not absorb tremors as well as the complex of plates in Tavush District. In 1988, near the town of Spitak, one of the most devastating earthquakes in Armenia occurred, killing 25,000 people in a wide swath of land between Giumri and the Gugarats Range. Spitak was leveled, as was much of Giumri and parts of Vanadzor.

By taking the other road out of Vanadzor, to Stepanavan is an even more striking route. The road rises above Vanadzor through a gorge that is sparsely vegetated, lined with red and golden tuf, limestone and basalt. A tunnel passes through the Bazum Mountains to the other side, where a deciduous forest of mixed oaks, tis and elm covers the hills, while the Lori plateau stretches off in the distance. Rich loam supports an agricultural system that does not need irrigation. The rolling mountain meadow gradually gives way to mountains and mid-level forests near the Georgian border.

Minerals, Stones, Gems Tavush and Lori both have large deposits of limestone, marble and granite, along with a mixture of tuf, perlite, pumice and diatomite. Minerals include the entire range found in Ararat (gold, silver, tin, molibden, tungsten, mercury, sulfur, sodium chloride and barium), but it is not exploited on a large scale.
The bulk of Armenia's copper is mined in Lori District, along with polymetal. Gems found in teh region include agate, diamonds, emeralds, quartz, carnelian, turquoise and lapis lazuli. Geologists believe that the region may prove to be the richest in the country.

Flora Mountain pass flora includes Iris furcata, Anemone fasciculata, A. raminculoides, Primula ruprechtii, P. macrocalyx, Trollius patulus, Caltha polypetala, Veratium lobelianum, Palsatilla armena, Corydalis persica, Fritillaria caucasica, Betonica grandiflora, Prunus spinosa, Sedum pilosum, Sempervivum transcaucasicum, Malus orientalis, Pyrus caucasicus.

Mountain Flora include Tulipa florensvyi, T. confusa: f. pink, f. red, f. yellow, Iris grossheimii, I. Paradoxa, I. Caucasica, I. Pseudocaucasica, I. Atropatana, Mesendera candissima, Colchicum zangezurum, Hyacintella atropatana, Fritillaria kurdica, F. armena, Orchis simma, O. schelvcornikovii, O. stvenii, O. coriphora, Steveniella satyroides, Cephalanthera epipactoides, Epipactis latifolia, Acantholimon fedorovii, Reseda globulosa, Cercis griffithii, Gladiolus szovitsii, G. atroviolaceus, G. italicus, Punica granatum (wild), Tournefortia siberia, Calendula persica.
Northern flora include Iris imbricata, Tulipa sosnovskyi, Fritillaria pinardii, F. armenia, Colchicum ninae, C. Szovitsii, Merendera raddeana, Crocus asamii, Corydalis persica, Ornithogalum sigmoideum, O. transcaucasicum, Genista transcaucasica, Mespilus germanica, Scilla mistscheukoana.

River Gorge flora include Iris lineolata, I. Paradoxa, I. Caucasica, Allium stamineum, Bellevalia paradoxa, B. longystila, Muscari atropatana, M. sosnovskyi, Tulipa Sosnovskyi, Punica granatum, Vinca Vitis sylvestris, Ficus carica (wild).

Sub-region flora include Alkanna orientalis, Cerasus incana, Prus, salicifolia, Cerasus mahaleb, Amygdalus ferzlinia, Spirala crenata, Saxifraga cymbalaria, Linaria armeniaca, Acantholimon bracteatum, Illium akana, Tulipa julia, Corydalis augustifolius, Orni-thogalum mountanum, O. gussonei, Campanula choziatorskyi, Bellevalia longystila, Muscari neglecta, Lotus goebelia, Astragalus strictifolius, Serratula serratuloides, Tomanthea aucheri, Malus oreientalis, Prunus divaricata, Sorbus graeca, S. persica, S. aucuparia, Crataegus orientalis, C. lacimiata.

Other flora include Iris lineolata, I. Caucasia, Merendera mirzoeval, Colchicum szovitsii, Gagea ssp., Puschninia scilloides, Draba ssp., Lallemantia caneseens, Ranunculur ssp., Myosotis alpestris, Pedicularis ssp., Trifolium ssp., Gladiolus kotschyanus, Silene ssp.

Birds (Cross refrence with Birds by Habitat p. 25) Mountain Steppe Wetland, Valley / Lowland, Scrub, Semi-Desert to Mountain Steppe, Mountain Steppe, Rocky Cliff / River Gorge, Mountain Slope, Upper Mountain Cliff and Gorge, Woodland / Farmland / Orchard, Subalpine / Mountain Meadow, Alpine.

Other Fauna Notable fauna include sylvan wildcat, reed wildcat, lynx, fox, royal stag, deer, caucasian squirrel, porcupine, bear, wild bore, marten.

Thermal and Mineral Springs Tavush and Lori are covered with natural mineral springs, most of them naturally carbonated Calcium and Sodium calcium cold springs. Other springs are naturally carbonated, sulfur, and sodium chloride. Springs can be found near Alaverdi, Katnaghpyur, Stepanavan, Tsater, Dzoraget, Vahagnadzor, Spitak, Vanadzor, Dilijan, Haghartsin, Voskepar, Berd and Nerkin Karmiraghpiur.

CENTRAL ARMENIA ECOLOGY

ARAGATSOTN – KOTAIK MARZ

Overview Aragatsotn is dominated by Mt. Aragats, the tallest mountain in the Republic. A category 1B mountain (tourist category 3) makes Mt. Aragats accessible to most mountain climbers and naturalists wanting to explore its four crowning peaks. Formed by volcanic activity, the crest is actually a rim of a massive crater which blew itself open more than 500,000 years ago, as mankind began to settle the region in earnest. The four peaks look down into the crater and to the surrounding territory. From the of Aragats it is possible to see most of the Transcaucasus Mountain range as far as Europe's tallest mountain, Mt. Elbrus (alt. 5642m/18,506f) which straddles the Georgian and Russian border 500 kilometers to the north. To the west you have excellent views of the Ararat Valley, Mt. Ararat and Turkey, while to the Southeast lie Lake Sevan and the Karabakh Uplands. Covered with snow except for 4-6 weeks between July 15-August 15 or 30th, Mt. Aragats has two high elevation lakes, Lessing and Kara, formed from crystal clear glacial waters. Even in the heat of summer mini glaciers can be found in some lower elevation forests and alpine fields of wildflowers.

For the naturalist, lower Mt. Aragats is the place to go to find wildlife and relief from the broiling summer heat. The mountain is the base for numerous dachas, pensions (a kind of summer resort popular in the former Soviet Union), camps and hiking trails. The base of the mountain is covered with canyons and rivers that run to the Ararat Valley to the West and the mountain plateau in Kotaik District to the North and East. Canyon walls plummet as much as 500 meters (984 feet), protecting a microenvironment distinct from that above. While above canyon rims meadows are bare except for rock outcroppings and a carpet of mountain grass and wild flowers, the canyon floor is covered with trees and thick bush, supporting forest animal life. The Amberd River forms one of the natural paths to the upper elevation, flowing from its source just below the of the mountain, past a 10-13th cc fortress and summer residence for Armenia's kings, the Byurakan observatory (the second largest n Eurasia) to the Ararat Valley floor. Wildflowers literally carpet the mountain 8 months of the year, beginning in February at the mountain base with winter crocus and anemones, continuing in seasonal bands up the mountainside through mid-August. Autumnal flowers retreat down the mountainside in Mid-August, and continue to November, when the peaks are already covered with snow.

Native poppies, goldenrod, blue yellow and red straw flowers--even deep green clover cover the mountain meadows from Amberd up, making prime grazing for flocks of sheep maintained by Yesdi villagers. Yesdis are a Zoroastrian pastoral community, descendants of Kurds that refused to adopt Christianity or the Moslem faith. Most of them live along the lower sides of the mountains in Aragatsotn, Kotaik, Lori and Shirak Districts. In April and May they form an annual exodus to the upper reaches of the mountains. Along with stunning views of Ararat and Lake Sevan, you might just run across a friendly shepherd below the rim, living in a caravan style tent, tending his flock.

Kotaik District is primarily a mountain steppe region, rimmed in by the Geghama Lehr on the East, Mt. Aragats on the West, and the Pambak Range on the North. The region is rocky and arid on the Southern approach from Yerevan, with wildlife and settlements hugging the Hrazdan River that cuts through the heart of the district. The Hrazdan is the second largest river in Armenia and the location where one million BCE skulls were recently uncovered. It is also a unique ecosystem like that found on the Amberd river. A natural divide between mountain ranges, the Hrazdan has carved a canyon that winds its way to the Ararat Valley floor, supporting small forests and a diversity of wildlife along the way. The contrast is most startling in the area from Bjini to Yerevan, where the drop in altitude (and temperature) from the canyon rim to the river bed is most dramatic, with multi-colored basalt, granite and tuf mountains seem to spring from the river forests.

Kotaik is also home to a native forest at Tzaghkadzor, which supports forest, mountain steppe and alpine flora and fauna species, including bear, wild cat, and the red book listed Armenian gazelle and leopard. Mountain steppe wildflowers are found in abundance in Kotaik district. The best time to see them is May-July, when the spring rains and melting snows feed seas of green mountain grass that seem to cover even the rocky mountains, the grass itself covered with a patchwork quilt of lavender, yellow, orange and red flowers.

Minerals, Stones, Gems Aragats is a dormant volcano, and as such contains large concentrations of volcanic rock (tuf, pumice, perlite) as well as basalt, gypsum, pumice, andesite, limestone, marble, granite. Minerals include quartz, agate, obsidian, silver and copper. Kotaik has large deposits of peat, perlite, basalt, gypsum, pumice, andesite, limestone, marble, granite. Metals include iron, while minerals include quartz, agate, obsidian, silver and copper. There is a working gold mine near Hankavan (alas, visitors not allowed).

Flora Flora in Aragats and Kotaik (Geghama Lehr) include Merendera trigyna, M. raddeana, colchiam bifolium, Purdminia scilloides, Scilla armenia, S. siberica, Tulipa julia, Iris caucasia, Muscari caucasicum, Bellevalia pycnantha, Ornithogalum schelkovnikovii, O. brachystachys, O. hyastanum, Fritillaria caucasia, Nectarosordum tripedale, Osp of gagea, Myosotis alpestre, Amenone caucasia, Orchis coriophora, Gladiolus tenuis.

Lower Elevation sagebrush steppe flora includes Gladiolus atroviolaceus, Nigella oxypetala, Actynolema macrolema, Gundelia tournefort, Verbascum saccatum, Lallemanita iberica, Roemeria retracta, Scabiosa argentea, Scorronera paposa, Muscari beglecta, Stchys inflata, Astragalus distyophysus, A. kochianus, Achillea tenuifolia, Helichrysum rubicundum, Silena spergulifolia.

River Gorge flora include Alkanna orientalis, Cerasus incana, Prus, salicifolia, Cerasus mahaleb, Amygdalus ferzlinia, Spirala crenata, Saxifraga cymbalaria.

Geghard Gorge is particularly unique, with Linaria armeniaca, Acantholimon bracteatum, Illium akana, Tulipa julia, Corydalis augustifolius, Ornithogalum mountanum, O. gussonei, Campanula choziatorskyi, Bellevalia longystila, Muscari neglecta, Lotus goebelia, Astragalus strictifolius, Serratula serratuloides, Tomanthea aucheri, Malus oreientalis, Prunus divaricata, Sorbus graeca, S. persica, S. aucuparia, Crataegus orientalis, C. lacimiata.

Mountain Steppe flora includes Gladiolus atroviolaceus, Nigella oxypetala, Actynolema macrolema, Gundelia tournefort, Verbascum saccatum, Lallemanita iberica, Roemeria retracta, Scabiosa argentea, Scorronera paposa, Muscari beglecta, Stchys inflata, Astragalus distyophysus, A. kochianus, Achillea tenuifolia, Helichrysum rubicundum, Silena spergulifolia.

Birds (Cross refrence with Birds by Habitat p. 25) Mountain Steppe Wetland, Scrub, Semi-Desert , Mountain Steppe, Rocky Cliff, Mountain Slope, Woodland / Farmland / Orchard, Forests / Open Forests, Mountain Forest Areas, Subalpine / Mountain Meadow, Alpine.

Other Fauna On Aragats, mountain leopard (very rare), caucasian wildcat, caucasian ram and mountain goat (very rare), mole, lynx, porcupine, squirrel and marten. In Kotaik, deer, wildcat, mountain leopard (very rare), squirrel, wild bore, lynx, nutria, white panther (extremely rare), fox and bear.

Thermal and Mineral Springs In Aragatsotn, calcium cold water springs are located by Kari Lich, with hundreds of fresh water, sodium and natural hydrocarbonate springs located throughout the mountain area. Thermal Springs in Kotaik include several types of minerals, including calcium, sodium and natural hydrocarbonate. Kotaik is very rich with natural cold water springs, including those at Bjini. Springs are located at Bjini, Hrazdan, Hankavan, and along the Hrazdan River. Warm and Hot Springs are also located along the Hrazdan River at Bjini, as well as Hankavan and Arzni, which have Spas.

GEGHARKUNIK (SEVAN) MARZ

Overview Gegharkunik is surrouned by dormant volcanic mountains. On the Southwestern edge are the Geghama Lehr (Geghama Mountain Range), on the south and southeastern rim lie the Vardenis Mountain Range, and to the east and northeast lie the Sevan and Areguni Mountain Ranges. All the mountains were formed over millions of years by a series of volcanic eruptions.

The heart of Gegharkunik is Lake Sevan, which was known in ancient times as the Gegham Sea. Lake Sevan is divided into two sections: Big Sevan and Small Sevan. Big Sevan is 972 square kilometers, with a maximum depth of 46 meters. Small Sevan is 284 square kilometers, with its maximum depth at 99 meters. The lake is 1897 meters above sea level. The lake is fed by 28 rivers and streams, and is the source for the Hrazdan River, which connects Sevan with the Arax River in the Ararat valley, and is the site where a 1 million BCE Homo sapiens skull was discovered near Bjini.

The lake is graced with pebble and granular sand beaches on all sides, and the formation of a Nature Preserve in the 1970's has created some of the most dramatically beautiful wilderness areas in the country. A rare mountain lake marshland on the Southernmost side is home to wetland birds never seen at this altitude in other parts of the world, among them the Stork and Pelican. The lake itself is home to a protected species of Ishkhan (a trout called the Prince of fish) and Sig, which are officially protected from capture, but often appear on beachside restaurant menus.

The lake is in jeopardy and has been the focus of constant study (but little actual assistance) from the United Nations, the World Bank, and before that, the Soviet regime. For more information, see Ecological Concerns.

Minerals, Stone, Gems

The mountains are formed from lava rocks like basalt, perlite and limestone, while tectonic plate compression created marble, and granite. Minerals and soil include clay, peat, molibden, gold, copper and silver, while gems include diamonds. Since most of the region is protected, very few mines are in operation (or admitted to be operating), the most notable exception being the gold mine at Sodk.

Flora Sevan Shore flora include Prangos ferulacea, Eremurus spectabilis, Tulipa julia, Iris paradoxa, iris caucasica, Scutellaxia orientalis, Crambe orientalis, Cleome ornithovodioides, Gypsophila elegans, Senecio vernalis, Silene chlorantha, Reichardia dichotoma, Srophularia olgae, S. armeniaca, S. grossheimii, Artemisia absinthium, Spiraea crenata.

Sevan Pass and mountain flora include Iris furcata, Anemone fasciculata, A. raminculoides, Primula ruprechtii, P. macrocalyx, Trollius patulus, Caltha polypetala, Veratium lobelianum, Palsatilla armena, Corydalis persica, Fritillaria caucasica, Betonica grandiflora, Prunus spinosa, Sedum pilosum, Sempervivum transcaucasicum, Malus orientalis, Pyrus caucasicus.

Birds Click for Birds By Habitat: Mountain Steppe Wetland, Rocky Cliff, Mountain Slope, Woodland / Farmland / Orchard, Forests / Open Forests, Subalpine / Mountain Meadow.

Other Fauna Wild Armenian Goat, Wild Ram, mountain leopard (endangered species), wild bore, fox, wildcat, Ishkhan and Sig.

Thermal and Mineral Springs Most of the springs in Gegharkunik are by Gavar and Martuni, including fresh water, naturally chlorinated, naturally carbonated and sulfur carbonate. The springs are located by Gavar, Martuni, Karadzi at Argichi River, Sarukhan, Tzovak and close to the Sulemi Pass in the Geghama Lehr. One spring lies at T'tujur, north of Chambak.

ARARAT VALLEY ECOLOGY

ARMAVIR-ARARAT MARZ

Overview Ararat Valley has one of the greatest diversities of flora and fauna in the country, beginning with Desert and Semi-Desert terrain West of Ashtarak that evolves through the irrigated valley floor with marshlands and lakes rolling up to river canyons, mountain steppes, forests and alpine meadows on the Geghama Lehr.

The rich deposits of lava that streamed into the Ararat Valley created spectacular rock formations and one of the largest deposits of tuf and basalt in Europe and Western Asia. Covering huge primordial lakes and swamps, the enriched soil 'fermented' over millions of years to create one of the two most fertile lands in Western Asia, the other being the land around Van in historic Armenia, present day Anatolia. As late as 1300 BCE the valleys were noted by Urartian and Assyrian chroniclers as teeming with wildlife and deciduous forests. The museums at Erebuni displays wood trestles logged in the Urartu period, while excavations at Metsamor have uncovered wooden fragments more than 6000 years old. What remains of that great valley forest now are a few woodlands along river beds, hundreds of small marshlands, semi-desert terrain on the Western and Southeastern edges and the heavily farmed valley floor.

Most of the deforestation was probably complete before the rise of the Urartu Empire in the 10th century BCE and its adverse affects were recorded as early as the reign of Argishti I and King Russa, who both left behind cuneiform tablets attesting to turning "deserts into paradise" with their new irrigation systems. The same irrigation canals can be found throughout the valley around Yerevan, and modern extensions begun in the 1930's have reclaimed much of the semi-desert areas in the Valley. Irrigation was restricted in the mid-1980's, and the area between Artik and Aruch and Southeast of Ararat City have returned to their semi-desert state.

The entire valley lies between the Shirak Plateau, Mt. Aragats, the Geghama Lehr and Mt. Ararat in present day Turkey. Ararat has two peak, the larger called "Masis" (5165m/16,942f) and the smaller "Sis" (3925m/12,875f). Sis is a perfectly shaped cone, like Mt. Fuji in Japan, and together with Masis forms one of the most beautiful vistas in the world. Legends ascribe the beginning of modern mankind to Mt. Ararat, the place where Noah's ark is recorded in the bible to have landed after the Great Flood.

Though stripped of its primordial forests, Ararat Valley does have one of the largest of the nature

preserves in Armenia, the Khosrov Argelots (Preserve) or Khosrov Antar (forest), named after King Khosrov II Kotaka (reigned 332-339 CE), the founder of the capital at Dvin. Khosrov ordered the planting of a forest on both sides of and running the length of the Azat River. The forest remains to this day, having grown beyond it original boundaries to encompass most of the Goghi River above Garni and Geghard, and a large area between the Azat, Khosrov, Mankuk and Vedi Rivers on the eastern side of Ararat District.

Ararat Valley has extensive water resources that continue to support large wetland areas. Marshlands can be found by Masis, Metsamor, Artashat and Ararat City, home to a diverse waterfowl population, including storks, cranes, seagulls and Dalmatian pelicans. Much of the water has been shepherded into ponds and lakes for breeding fish, which has encouraged additional diversity in water flora and fauna. Several varieties of reeds, water lilies and ferns thrive in these marshland areas, which themselves are surrounded by cultivated land or semi-desert terrain.

Irrigation The Ararat valley is heavily irrigated to produce agricultural crops though a system of canals dating back to the 5th millennium BCE, expanded by the Urartu Empire between 900-600 BCE. Traces of the original canals can still be found in the Hrazdan canyon in Yerevan, including the Dalma canal, which begins with a 400 meter tunnel bored into the side of solid rock to allow passage of Hrazdan river waters into the historic Dalma Vineyards. The engineering feat of this Urartian tunnel and canal is the forerunner of the "Klahreezes" which were later built throughout Asia Minor, and the canal and tunnel are the oldest functioning hydra projects of their kind. Other ancient canals can be seen along the road to Ashtarak and Echmiadzin, including the misnamed Semiramis or Shamiram canal, attributed by legend to the Babylonian queen Semiramis, but in fact engineered by King Menuas I or earlier. Further expansion of the canal network beginning in the 1930's opened up vast tracks of semi-desert land West of Ashtarak and the area around the town of Ararat.

Minerals, Stones, Gems Ararat Valley contains large concentrations of volcanic rock (tuf, pumice, perlite) as well as basalt, gypsum, andesite, limestone, marble and granite. Minerals include quartz, agate, obsidian, silver and copper. Minerals and gems include obsidian, amethyst, andesine, andelusite, emerald, garnet, beryl, turquoise, several grades of quartz, carnelian, aquamarine and lapis lazuli.

Flora Flora in Ararat Valley includes Gladiolus atroviolaceus, Nigella oxypetala, Actynolema macrolema, Gundelia tournefort, Verbascum saccatum, Lallemanita iberica, Roemeria retracta, Scabiosa argentea, Scorronera paposa, Muscari beglecta, Stchys inflata, Astragalus distyophysus, A. kochianus, Achillea tenuifolia, Helichrysum rubicundum, Silena spergulifolia.

Birds The Ararat Valley has the greatest variety of birds in Armenia, and the largest population of water birds. In the Spring time, the marshes, fish ponds, river beds and lakes are filled with nesting birds. (Cross refrence with Birds by Habitat p. 25)

Widespread, Urban / Suburban, Lakes / Reservoirs / Fish Ponds / Wetlands, Mountain Steppe Wetland, Valley / Lowland, Scrub, Semi-Desert to Mountain Steppe, Mountain Steppe, Rocky Cliff / River Gorge, Mountain Slope, Upper Mountain Cliff and Gorge, Woodland / Farmland / Orchard, Subalpine / Mountain Meadow, Alpine.

Other Fauna Endangered species include the wild bore, leopard, royal stag, wild ram and mountain goat (Khosrov Nature Preserve). Others include the lynx, deer, wild bore, wildcat, reed wildcat, prairie dog, mole and nutria.

Thermal and Mineral Springs Thermal Springs in Ararat Valley include several types of minerals, including calcium, sodium and natural Hydrocarbonate. Cold mineral and sweet water springs are located near Yerevan, Metsamor, Massis, Jerahovit and Artashat. Warm and Hot Mineral Springs are located near Vedi and Ararat.

SOUTH ARMENIA ECOLOGY

VAYOTS DZOR MARZ

Overview Vayots Dzor is bordered by the Vardenis, Zangezur and Nakhichevan Mountain Ranges, with the Vaik mountains crossing its southern area. The district's northern border was formed by volcanoes along the Vardenis Mountain Range, the most beautiful of which is Vayots Sahr, a hangats herabukh (dormant volcano). Active in the Pleistocene era, the volcano is 2580 meters (8,463 feet) high. The crater's diameter is 600 meters (1,968 feet) across. Descending 125 meters to the crater floor, you can sense the immense explosions that spewed fertile lava and closed off Lake Sevan from its old southern territory. Inside the crater is a 14th century stone chapel.

The district encompasses semi-desert terrain on west that rises to towering basalt, granite and tuf rock formations at the Geghama Lehr pass before tumbling into the Yelpin and Arpa river valleys. The apex of the mountain pass has a stunning view of Ararat, and a few bends in the road give ample opportunity to photograph the majestic mountain, which seems much smaller than from the Ararat valley floor. Myriad shades of red, black and chalk colored rock jut from the sides of the mountains, looking like they were dropped by spoonfuls of lava from the sky, or precision cut into quartz formations. Still other formations are reminiscent of the American Southwest, where sheer masses of rocks suddenly erupt into view, slashes of red, black and ochre in a desert landscape.

The Yelpin valley drops from the side of the highway almost half a kilometer, with "stacked rock" formations rising even with the road. The effect is like a Technicolor Chinese ink painting, where lonely pines cling to towering rocks over lush vegetation. And this is only the beginning of the district called "the jewel of Siunik" by a 10th c. royal princess. The main highway though Vayots Dzor follows the Arpa River, which itself has carved a path through otherwise impassable mountains. The Arpa supports a ribbon of green growth through the otherwise arid rocky terrain, including the vineyard region of Areni, known for the dry and semi-sweet wine which bears its name. In fact the valley produces more apricots and wild rice than grapes. The wild rice thrives along the wet marshlands, just as when it was first cultivated around 15,000 years ago.

Tributaries to the Arpa wind through spectacular rock formations and cliffs into the deep recesses of the district, where the bulk of the wildlife and early settlements can be found. Deciduous and conifer woodlands rise above the riverbeds, while the rocky cliffs support mountain scrub and pine. Above all this is a huge mountain steppe, alpine and forest ecosystem, supporting a diversity of flora and fauna second only to that in Siunik. Literally within five kilometers one passes through semi-desert, high plateau brush and mountain steppe to forests and alpine meadows. Officially in a semi-desert zone, much of Vayots Dzor is blessed with year-round precipitation so that extensive deciduous and conifer trees vie with rocky deserts for domain. Spring begins early in Vayots Dzor, with the first signs of growth beginning in the river valleys in late January, continuing through late October and early November. Winters are mild, except for the mountain peaks, which are snow-covered from late November to March.

The unique rock mountains in Vayots Dzor were formed as much by shifting tectonic plates as they were by volcanoes, the earthquakes forcing basalt, limestone, marble, obsidian and granite into tightly compacted formations throughout the district. The earthquakes also destroyed a series of settlements and royal cities, beginning with prehistoric cave settlements in the area around Yeghegnadzor through one of the most beautiful medieval cities in Armenia, Yeghegis.

Photograph courtesy Tigran Nazaryan ©

Caves Vayots Dzor is also noted for its extensive cave system, including the Archeri (Bear's), Magili and Jerovank caverns, rated the three best in Europe by members of the French Speleological Society. Archeri and Magili are two of the largest in the Transcaucasus, and home to several rare species of fruit bat. The bats are the non blood-sucking types, and crucial to the pollination and cultivation of fruit in the region, including some of the oldest apricot plantations in Asia Minor. Archeri and Magili Caverns are home to hundreds of stalagmites and stalactites. Formed by thousands of years of calcite deposits dripping from ground water, the formations and varieties of colors are stunning, some pure white, others a translucent smoky glass, still others gold and red in color. Jerovank is the site of pagan sacrificial rites going back to the 4th millennium BCE, human and animal. The canyon outside the cave is thickly forested and a hiker's paradise. All the caves hold a constant year-round temperature of 14 C (58 F).

Minerals, Stones, Gems Vayots Dzor's natural resources are relatively unexplored, though the area holds large deposits of iron, copper, silver, tin, marble, granite, tuf, perlite, basalt, andesite, obsidian, quartz, barium, sulfur, Sodium chloride, clay, aluminum ore and limestone. It is believed that Vayots Dzor was the location of gold, turquoise, diamond and lapis lazuli mines during the Bronze Age, along with other precious jewels, but if this is true, the mines have not been found in the modern age.

Flora River Gorge flora include Alkanna orientalis, Cerasus incana, Prus, salicifolia, Cerasus mahaleb, Amygdalus ferzlinia, Spirala crenata, Saxifraga cymbalaria, Linaria armeniaca, Acantholimon bracteatum, Illium akana, Tulipa julia, Corydalis augustifolius, Orni-thogalum mountanum, O. gussonei, Campanula choziatorskyi, Bellevalia longystila, Muscari neglecta, Lotus goebelia, Astragalus strictifolius, Serratula serratuloides, Tomanthea aucheri, Malus oreientalis, Prunus divaricata, Sorbus graeca, S. persica, S. aucuparia, Crataegus orientalis, C. lacimiata.

Other flora include Iris lineolata, I. Caucasia, Merendera mirzoeval, Colchicum szovitsii, Gagea ssp., Puschninia scilloides, Draba ssp., Lallemantia caneseens, Ranunculur ssp., Myosotis alpestris, Pedicularis ssp., Trifolium ssp., Gladiolus kotschyanus, Silene ssp.

Noravank Canyon includes Clematis orientalis, C. vitalba, Reichardia dichotoma, Vitis sylvestris, Pistacia mutica, Noaea minuta, Mixauxsia laevigata, Leus orientalis, Serratula serratuloides, Yurinea arachnoidea, Y. pulchella, Silene megeri.

Birds (Cross refrence with Birds by Habitat p. 25) Wetlands, Mountain Steppe Wetland, Valley / Lowland, Scrub, Semi-Desert to Mountain Steppe, Mountain Steppe, Rocky Cliff / River Gorge, Mountain Slope, Upper Mountain Cliff and Gorge, Woodland / Farmland / Orchard.

Other Fauna Primary species include caucasian goat, ram, mountain leopard (endangered species), wild bore, caucasian bear, jackal, lynx, mole, porcupine, fox, wildcat, squirrel, marten.

Thermal and Mineral Spring Volcanic activity continues at Vayots Dzor, though it is buried far below the surface and erupts in one of the thousands of thermal springs scattered throughout the region. The largest are located at Jermuk, at the of the Okhak Lehr Canyon, where one of two virgin forests in the district lay. The thermal springs include several types of minerals, including calcium, sodium and natural Hydrocarbonate. Other thermal springs are located near Yeghegnadzor, Noravank, Martiros and Vaik. Cold mineral and pure spring water springs are located at just about every bend in the road, river and stream, but large pools for wading or swimming can be found near Jerovank, Jermuk and Yeghegis.

SIUNIK MARZ

Overview Siunik has the greatest variety of terrain in Armenia, including the dry sub-tropic and dry mediterranean zones near Meghri. The longest mountain range in Armenia, the Zangezur Mountains, divides the District from Vayots Dzor and from its eastern border with Nakhichevan. Three of the five tallest mountains in Armenia lie along this range, Kaputiugh (3904m/12,805f), Ghazangiol (3829m/12,559f) and the Aychingil Mountain Pass (3707m/12,159f), all in Kapan District.

Sissian District is noted for its vast stretch of alpine meadows, hemmed in by the Zangezur Mountain Range to the West and Southwest, the Karabakh Upland to the Northeast and the Bargushat Mountain Range to the South. The region was made from a mixture of volcanic and tectonic plate movements, with the "young" Karabakh Upland mountains (a mere 1.5 to 2 million years old) mixing with the old folks in the central plains and Bargushat mountain range (up to 60 million years in age). The Northern area is mostly made from volcanic lava (andesite, basalt), while the southern, jagged peaks are made from tuf, granite, marble and iron.

Next to the Ararat Valley, Sissian's alpine zone has the richest stretch of fertile land, much of which was planted with wheat during Soviet times, particularly adjacent to Sissian City. Sissian even has a small museum devoted to wheat, located inside "Hotsatun", also Sissian's best restaurant. Ancestral Armenians first settled the area in the Mesolithic period, developing a specific culture that framed its rich soil and mined the area for iron, precious minerals and copper.

Goris District shares the same mountainous borders as Sissian, but the Karabakh Uplands form the bulk of its landmass, with large limestone and basalt "needle stones" crowding the river canyons and mountainsides. Rising up to half a kilometer each, the needle stones are concentrated in the city of Goris (built in the 19th century by German Swiss and the De Gaulle family, who built the first gold and diamond mines in the region), and Khundzoresk. Goris lies deep inside a river gorge surrounded by pristine pine, oak and elm trees. Khundzoresk is called Armenia's "Lost Valley ". One of nature's splendors, Khundzoresk was a town built entirely from hundreds of caves carved since the early Bronze Age. The canyon is terraced, with homes interconnected by carved tunnels, in case of invasion by Persians, Seljuks or Turks. The caves were inhabited until as late as until 1980, when the last family moved out.

Goris region also holds the Vorotan River Canyon, with its headwaters at two lakes in the Karabakh Uplands. By the time it reaches Goris District, the river has carved a canyon more than a kilometer deep and wide. Called Armenia's Grand Canyon, entire sub mountains lie in the center of the canyon, and millions of years of volcanic eruption and compression reveal strata of red, yellow, black, bronze, ochre, and white striated granite, basalt, tuf and marble. Tatev Monastery is perched on the edge of the canyon, near Devil's Gorge, a hot spring that gushes more than a million gallons of water a day.

Hydroelectric plants lie at the base of the gorge, which supplied surplus power for the country until the 1989 energy blockade by Turkey and Azerbaijan. Additional development will continue to harness the waters of the Vorotan and its tributaries, contributing 10% to the country's needs.

Just south of Goris City a vast forest begins, the second largest in Armenia. Stretching to the Iranian border at Meghri, the forest is teeming with wildlife. The are is covered with coniferous and deciduous forests that suddenly plunge into semi-desert land on the eastern borders. Evergreen, Large Oak, Dry Oak, and Georgian Oak fill the region with some of the most lush flora and fauna in the country.

Kapan and Meghri Kapan and Meghri Districts are the most varied and stunning districts of the country, the rich forestland a part of a unique microclimate. While the river canyon may be hot and humid in summertime, moisture building up over Mts. Khustup and Ghazangiol blanket upper elevations with fog, bringing cooler temperatures and afternoon showers in the lower regions. The mountains also protect the region from the harshest winter weather. The mountains are covered with deep white snow, but the valley itself experiences suprisingly mild weather--the first freeze may not occur until January, and spring resumes by mid February. Blessed with pure natural resources, Kapan district holds a treasure trove of natural splendors. Not so easy to reach as other districts of the country, Kapan is also blessed by being relatively unvisited, so with an extra few days on your schedule, a sturdy car, and a wandering spirit, you can experience traditional life unhampered by tourist hoards.

Kapan City lies at the opening of the Voghji River canyon onto the Arax River plain to the Southeast. Two of Armenia's five tallest mountains lie in Kapan District. Mts. Kaputiugh (3904m/12,805f) and Ghazangiol (3829m/12,559f) lie on the Zangezour Range, which forms the Western border between Kapan District and Nakhichevan. The Bargushat Range forms the Northern border with Sissian and Goris Districts, while the Meghri Mountain Range lie between Kapan and Meghri Districts. The Eastern border with Azerbaijan is formed by ever decreasing mountains and hills that suddenly give way to the Giogian Steppe. Mt. Khustup, at 3201 meters (10,499 feet) is one of the most forbidding challenges for mountain climbers, with sheer walls of granite requiring expert climbing skills. Moderate to Advanced hiking is available throughout the district, and required to see some of the most interesting historic and natural sites.

The town of Meghri, on the southern border with Iran lies in a Dry Sub-Tropic and Mediterranean zone, and has the longest growing season of all the districts. Here it is possible to find non-native palms, palmettos and citrus plants (lemon, lime), as well as native Mediterranean ferns, pomegranate and olive trees.

Minerals, Stones, Gems High quality marble is mined just north of Sissian, along with limestone, tuf, basalt and granite. Goris includes the same, adding iron and diatomite. Kapan and Meghri hold vast quantities of granite, aluminum, polymetal, molibden, tungsten, perlite, and limestone, along with tuf and basalt.

Minerals found throughout Siunik include molibden, obsidian, quartz, barium, sulfur, Mercury, Barium, Sodium Chloride, gold, diamonds, copper, tin, silver and high-quality ceramic clay. Especially in Goris and Kapan there may be large deposits of precious gems (quarts, amethyst, carnelian, aquamarine, lapis lazuli and diamonds), but they are not currently being mined.

Flora Sissian and Goris flora include Iris lineolata, I. Caucasica, Merendera mirzoeval, Colchicum Szoritsii, Gagea ssp., Puschkinia scilloides, Draba ssp., Lallemautia caneseeus, Ranunculus ssp., Myosotis alpestris, Pedicularis ssp., Trifolium ssp., Gladiolus kotschyanus, Silene ssp.

Kapan and Meghri Mountain Flora include Tulipa florensvyi, T. confusa: f. pink, f. red, f. yellow, Iris grossheimii, I. Paradoxa, I. Caucasica, I. Pseudocaucasica, I. Atropatana, Mesendera candissima, Colchicum zangezurum, Hyacintella atropatana, Fritillaria kurdica, F. armena, Orchis simma, O. schelvcornikovii, O. stvenii, O. coriphora, Steveniella satyroides, Cephalanthera epipactoides, Epipactis latifolia, Acantholimon fedorovii, Reseda globulosa, Cercis griffithii, Gladiolus szovitsii, G. atroviolaceus, G. italicus, Punica granatum (wild), Tournefortia siberia, Calendula persica.

Northern Meghri and Kapan flora include Iris imbricata, Tulipa sosnovskyi, Fritillaria pinardii, F. armenia, Colchicum ninae, C. Szovitsii, Merendera raddeana, Crocus asamii, Corydalis persica, Ornithogalum sigmoideum, O. transcaucasicum, Genista transcaucasica, Mespilus germanica, Scilla mistscheukoana.

Kapan and Vorotan flora include Iris lineolata, I. Paradoxa, I. Caucasica, Allium stamineum, Bellevalia paradoxa, B. longystila, Muscari atropatana, M. sosnovskyi, Tulipa Sosnovskyi, Punica granatum, Vinca Vitis sylvestris, Ficus carica (wild).

Another treat from the flora kingdom in Siunik are the giant mountain mushrooms that appear in the spring and early summer. Huge white specimins are sold by the roadside near Sissian. They are wonderful treats, with a slightly nutty taste. Excellent cooking!

Birds (Cross refrence with Birds by Habitat p. 25) Wetlands, Mountain Steppe Wetland, Valley / Lowland, Scrub, Semi-Desert to Mountain Steppe,

Mountain Steppe, Rocky Cliff / River Gorge, Mountain Slope, Upper Mountain Cliff and Gorge, Woodland / Farmland / Orchard, Forests / Open Forests, Subalpine / Mountain Meadow, Alpine.

Other Fauna Kapan City and its immediate surroundings lie on the Iranian Plateau, a semi-arid land inhabited by field deer, jackals and marten. Immediately to the West of Kapan City, between Goris and Meghri the landscape suddenly changes, marking the border of the Caucasian Land mass, with wild mountain goats, lynx, porcupines and sylvan wild cats. There are still a few wild boars in the deepest parts of the forest, and even the rare Caucasian leopard in the most remote mountain areas. This territory is pocked with small sections of the Asia Minor Plateau, with a few jackals, reed wildcats, hawks and eagles crossing between nature zones. Sissian is home to part of the surviving Caucasian bearded goat and wild ram.

Thermal and Mineral Springs Sissian and Goris have many mineral springs, including carbonated calcium, carbonated sodium, calcium, carbonated pure, and fresh water springs. Best known springs are located in Sissian District at the Karbakh Upland, Spandarian Reservoir, Angeghakot, Sissian (3), Hastavan, Akhlatian, Shamb and Lor. In Goris District, springs can be found in Goris, and by Khundzoresk, Karahundj, Halidzor and Bartsravan.

Kapan is covered with hundreds of mountain springs, among them two large hot carbonated springs. The water is naturally calcium carbonate, and a welcome respite for sore feet, muscles and bones. The two hot springs are located in the Eastern part of the district, one at Kapan City, and one by Nerkin Hand (about 12 kilometers below Kapan City on one of the most scenic roads in the district). The two heated springs are rated between 20-37 degrees C, or 68-95 degrees F, but our "soak test" gave them a rating on the upper temperature range. In Meghri District, Carbonated Sodium Cold Water Springs are located near Lichk, Aldara and Maratzami, Carbonated Calcium and Calcium warm water springs are located near Meghri, and Carbonated Calcium and Calcium warm cold springs by Maratzami.

ECOLOGICAL PROBLEMS ▲

LAKE SEVAN
By diverting part of its water resources to increase irrigation and to generate electricity, the lake was a key component of the Soviet era technological development of the country. As a result, though, the water table dropped dramatically, endangering the entire ecosystem, and the water supply for the country. In the 1970 ├s to 1980 ├s, partial restoration of water tables was achieved with several reservoirs built near the lake as well as the massive 49 kilometer Arpa-Sevan water tunnel, which was bored through the Vardenis Mountain Range to supplement water supplies. Several other reservoirs and canals were planned to divert water to the lake, but with the collapse of the Soviet Union, the plans were never implemented, and the energy blockade on the country by Turkey and Azerbaijan forced the government to further deplete water levels by increasing hydro-electric production.

Now thje lake suffers from too much suiccess in solving its problems, the new Arpa tunnel funneling so much water at such afst rate it further endangers the ecosystem, threatengin to literally drown the eocology that struggles along the shoreline.

ENDANGERED SPECIES
CAUCASIAN Bearded Goat: (capra aegagrus F. rxl.) Listed in the Red Book for endangered species, the Caucasian Bearded Goat inhabits rocky mountains between altitude 2000-3900 meters. Their main habitat is in the Khosrov Nature Preserve and the mountains of Vayots Dzor. The Caucasian Bearded Goat population has decreased dramatically, from about 700 in 1970 to no more than 70 or 80 today. The decrease in population is due to illegal poaching and agricultural development into their natural environment, and preservation depends on breeding and artificial insemination in carefully controlled environs. Caucasian Bearded Goats can also be found in Israel, the mountains of Syria and Anatolia.

Armenian Muflon (ovis ammon gmelin Blyth). Endangered Species listed in the Red Book. In 1970 there were between 200-400, now there are only 42 known alive. Habitat is the Khosrov Preserve, and they live between 800-3900 meters altitude. They live on mountain slopes and on mountain field plateaus. The sheep are endangered because of illegal poaching and the development of agriculture in Armenia. Preservation depends on artificial insemination in carefully controlled environments for later release.

Leopard (panthera pardus tullianus), lives in mountain forests and high altitude canyons. There are no more than 25 leopards in Armenia, due to encroachment and illegal hunting in their environment.

Programs to Help: Members of the Mountain Sports Union and other Eco NGO's are actively involved in the preservation of these endangered species. A cooperative program with Israel to breed the bearded goats continues, but additional support is badly needed.

ECO-NGOs

Non-governmental ecological organizations in Armenia have grown at a steady pace since the days of Glasnost, despite the difficulties of the past seven years. Despite skepticism from a population doing anything it can simply to make money, and a government that is still searching for a definition of conservation, agencies do exist which are working at the grass roots level to protect and maintain valuable eco-systems. A few of the better known local non-profits:

Mountain Sports Union provides Ecological education awareness, ecological summer camps for school children, cleanup and nature maintenance, and endangered species programming. The founders of the MSU are also co-founders of the EcoTourism Association of Armenia, formed in 1997 to coordinate Eco-NGO efforts to provide environmental sensitive, sustainable ecotourism in Armenia. MSU derives funding for their ecological programming by giving professionally guided mountain climbing, hiking, horseback riding, Sevan Sailing and Water sports and camping trips througout the country. They also arrange exchange programs and specific expeditions for biologists, botanists, geologists, naturalists and ecologists. For information about their tours, contact Shahen at Tel (37410) 56-86-90.

Ecological and Cultural organization KHAZER
Amalia Hambartsumyan (Chairman)
35 Moskovian St.,Yerevan, Republic of Armenia, 375002, tel. (37410) 53 44 72, (37410) 53 81 87
khazer@nature.am, Preservation of the Armenian Cultural inheritance, increasing the awareness of ecologically relevant issues. Assistance to UNEP ideas expansion in Armenia.

Armenian Foresters' Association Karen Ter-Ghazarian (President) 35, Moskovian St, Yerevan, Republic of Armenia, 375002, tel. (37410) 53 07 52; 56 63 35; 58 36 55; frec@mail.freenet.am
Teach refugees to choose and chop the trees correctly; create a greenhouse, organize a woodworking center (to produce ashtrays, toothpicks, etc.); pottery.

Computers for Saving the Earth Ivan Vardanian (President) 1, Toumanyan St, Apt.31, Yerevan, Republik of Armenia, 375002 (37410) 58 23 87.
Create a system of an appropriate use of computers and information technologies to stabilize the Earth's environment.

Ecological Assembly of the Women of Armenia Rita Aivasova (President) 68, Abovian St. Yerevan, Republic of Armenia, 375025, tel. (37410) 26 80 04. (37410) 58 02 54 ecocentr@pnas.sci.am
Increase awareness of ecologically relevant issues; ecological research; elaboration of environmental projects; support of professional women; peace and human rights.

Ecology Fund of Armenia Boris Mehrabian (President) 49 Komitas Ave., Rms 302-304 ,Yerevan, Republic of Armenia, 375051, tel. (37410) 23 69 00; 22 30 58 (37410) 285 030 nih1@pnas.sci.am Scientific evaluation of the ecological situation in RA based on recent research

ECOTEAM of Armenia non-governmental organization Artashes Sarkissian (Chairman) 22a Abovian St., Apt.53 Yerevan, Republic of Armenia, 375002, tel. (37410) 52 92 77 ecoteam@arminco.com ecoteam@freenet.am Design complex projects based on renewable sources of energy and energy saving technologies

Greens Union of Armenia Hakob Sanasarian (President) 1/5 P.Sevaki, Yerevan, Republic of Armenia, 375000, tel. (37410) 28 14 11, (37410) 25 76 34 armgreen@ipia.sci.am, Protect the environment and promote ecology; getlaws passed to protect environment; promote alternative and safe sources of energy.

Sustainable Development Victoria Ter-Nikoghosian (President) 1a, Roubiniants St., Apt. 34, Yerevan, Republic of Armenia, 375069, tel. (37410) 22 50 63, Increasing awareness of the public of the ecologically relevant issues and importance of the ecologically safe environment elaboration of environmental draft laws and projects

BYARAKN Melania Davtian (President) 19, Nalbandian St., Apt. 34, Yerevan, Republic of Armenia, 375002, tel. (37410) 52 44 84; 57 22 46; 56 37 19, bee@arminco.com, Ecological education of different layer of the society, education of children; ecological research and dissemination of ecologically relevant information.

Armenian Branch of International Academy of Ecology Gevork Pirumian (Chairman) 40b, Tigran Metci Ave., Apt 6, Yerevan, Republic of Armenia, 375005, (37410) 55 86 35, Development of ecological technologies, ecological research at the request of governmental and non-governmental agencies; training courses in ecology; exchange of specialists.

Youth Ecological Group – YEG Sergey Arevshatian (President) 68 Abovyanvv St., EcoCenter, Yerevan, Republic of Armenia, 375025, tel. (37410) 56 22 45; 72 07 98; 56 03 57, (37410) 58 02 54, ecocentr@pnas.sci.am, Increase the awareness of the youth of ecological issues; ecological actions against environmental pollution

Environmental Survival Organization Boris Gabrielian (President) 24 D, Baghramian Ave., Rm. 907, Yerevan, Republic of Armenia, 375019, (37410) 27 92 68; 56 80 27 (Hakobian), rhovan@sci.am, Support research on biodiversity issues of Armenia and contribute to scientific educational activities.

EPAC Environmental Public Advocacy Center Aida Iskoyan (President) 11, Parpeci St., apt.2, Yerevan, Republic of Armenia, 375002, tel. (37410) 53 06 69, (37410) 53 06 69, epac@arminco.com, Increase public participation in environmental decision -making in Armenia by representing and advocating the interests of individuals and citizen groups.

Union of Armenian Ecologists Rafael Hovhannisian (President) 24 D, Baghramian Ave., room 1112, Yerevan, Republic of Armenia, 375019, tel. (37410) 27 34 28, rhovan@sci.am, Help to improve Armenia's ecological state through consultancy, dissemination of information and publishing activities.

Ecotourism Association Zhanna Galyan (President) 2 Hakob Hakobyan St., Apt.22, Yerevan, Republic of Armenia, 375000, tel. (37410) 27 87 28, zhanna@freenet.am, Contribute to the development of ecotourism in Armenia, as a means of achieving harmony between the society and nature, rehabilitation of the human being's cultural and natural environment and its preservation.

Armenian Botanical Society Eleonora Gabrielian (President) Avan-63, Institute of Botany of the National Academy of SciencesYerevan, Republic of Armenia, 375063, tel. (37410) 52 77 68, (37410) 614 241, Active development and preservation of fundamental directions of contemporary botanical portions of Armenia; preservation of Armenia's botanical cover

EDEM Plant protection Union Aramais Khachikian (President) 58, Komitas St., Apt. 53, Yerevan, Republic of Armenia, 375051, tel. (37410) 23 41 83, Contribute to the preservation of plants in Armenia; explore new species; help to monitor the areas with rare plants; conduct training for public at large on preservation of rare plants.

Mountaineering Sports Union Araik Nersisian (Chairperson) 13, Paronian Str., Yerevan, Republic of Armenia, 375000, tel. (37410) 53 49 61; 35 27 02; 58 85 93, Promote mountaineering sports in Armenia; provide ecological education to sportsmen; plant trees mountainous regions in Armenia.

Union of Young Biologists Areg Tatevosian (President) 12, Nor Aresh St. 32, Yerevan, Republic of Armenia, 375000, tel. (37410) 45 88 63, To advance the ecological science in Armenia; to help develop the professional skills of young biologists; to help develop the public health sector in Armenia.

Speleological Center of Armenia Samvel Shahinian (President) 68, Abovian St., Yerevan, Republic of Armenia, 375025, tel. (37410) 56 02 35; 65 72 10, Scientific research in the field of speleology, ecological issues, nature preservation

"Nature protectors" Eduard Javruian (Chairman) 8, Charents Str., Biology Faculty of the Yerevan State University, Yerevan, Republic of Armenia, 375000, tel. (37410) 63 31 89; 55 67 78, To assist in protection against poaching and lumbering; to protect natural areas.

Environmental Organizations Union of Armenia Armen Saghatelian 68, Abovian Str., Yerevan, Republic of Armenia, 375025, tel. (37410) 55 13 61, (37410) 58 02 54, ecocentr@pnas.sci.am, Armenian environmental organizations colaboration and coordinaton.

Alternative education and cultural Center of Armenia Marine Khachatur (Chairman) 13 Hrachia Kochar Str., Apt. 23, Yerevan, Republic of Armenia, 375033, tel. (37410) 27 37 24, To increase public awarenes in environmental issues; evaluate, organize and implement education programs with alternative measures.

Assosiation of Nature Protection Dorik Poghosyan (Chairman) 68, Abovian St., Yerevan, Republic of Armenia, 375025, tel. (37410) 56 34 31: 25 40 68, ecocentr@pnas.sci.am, To promote natural resources maintenance, effective use and their reproduction in Armenia, top organize adopted environmental legislation propaganda, to assist the population to be the participant in environmental activities.

Ecological survival, Dr. Arevik Hovsephyan, Dr. Dshkhuhi Sahakyan, Dr. Evelina Ghukasyan, 908, 24D, Marshal Bagramyan ave. Yerevan, epublic of Armenia, 375019, tel. 52-54-24, 27-93-35, (37410) 52-38-30, esu@sci.am http://caucasus.virtualave.net, The mission of the Organization is biodiversity conservation in Armenia and Transcaucasus region, improvement of water resources quality to meet the interests of wider population by means of scientific research, expertise, public advocacy and publishing activities.

"Environmental monitoring" non- governmental organization Satenik Ter-Minasyan (Chairman) 7, Bagratuniac, 3-rd by street, Yerevan, Republic of Armenia, 375006, tel. (37410) 64-23-61, (37410) 64-23-61, ecomon@yahoo.co.uk, To implement ecological monitoring of RA, promote development of natural history and education. Promote and contribute to increasing knowledge of community about problems related to ecological monitoring of RA and their popularization.

GOVERNMENT

The Ministry for Nature Protection (Vice-Minister Office: Tel (37410) 53-31-81; fax: 53-49-02; 35 Moskovian St. Yerevan 375002) includes environmental engineering, zoology, biology, biodiversity, forestry, parks and land departments, as well as many of the most informed ecology specialists in the country. The ministriy sells lumber and mining concessions to investors and is considerd one of the most corrupt mionsteries in the country.

FLORA AND FAUNA

FLOWER ARMENIA

With 17 vegetation zones, the variety of plant-life in Armenia is truly astounding. The country has everything from desert plants to oak, beech and

pine forests, wet marshland and sub-tropic plants to alpine meadows teeming with wild flowers.

There are even virgin fields of wild grain, the forebears of the first wheat in the ancient world, believed to have been cultivated in Armenia 12-15,000 years ago. Known by their genus names Triticum Urartu and Triticum Araraticum, the wheat is native to the Ararat valley and can be found in small protected fields between Yerevan and Garni.

Armenia's flora is so diverse and rich it seems all you would have to do is add cacti, palms and a rain forest, and your would pretty much complete the world's diversity of plant life.

Armenia has over 3,500 species of plants, more than half of the 6,000 that can be found in the entire Transcaucasus region. While Europe has around 20,000 species, and the entire North American continent holds 40,000 species, with a total landmass of just under 30,000 sq. kilometers (about the size of Belgium), Armenia's diversity and close proximity of so many different types of flora is often breath-taking.

Literally within an hour's drive of Yerevan, 5 completely unique topographies lie, each with its own varieties of flora, many lying on opposite sides of the highway. While one side will hold forests teeming with woodland species, the other may be semi-desert, Mediterranean marshland, mountain steppe or alpine meadow. Forests are home to particular species unique to the Transcaucasus, including the Arax Oak, Eastern Beech, Caucasian Pine, and a coniferous tree called the 'Tis'.

Native to Armenia are the apricot and peach. The apricot was taken by Alexander the Great's army back to Greece, where the Romans then spread it throughout Southern Europe. Other fruits that grow in the country include apples, pears, cherries, mazzards, plums, pomegranates and an amazing variety of grapes. The Ararat Valley sustained a large cotton industry before vineyards were promoted, with further diversification in vegetables and melons.

POPULAR FLORA BY REGION

Note: We use the Latin names for flora, a standard form of description for botanical specialists and tourists on flora expeditions. List compiled by Professor Eleanora Gabrielian, Botanical Institute of Armenia and co-author of Flowers of the Trans- caucasus and Adjacent Areas, including Armenia, to be released 2007 (89 euros, Koeltz Scientific Books www.koeltz.com, search: Gabrielian, Eleonora)

M. Aragats: Flowers in Aragats include Merendera trigyna, M. raddeana, Colchicum bifolium, Puschkinia scilloides, Scilla armena, S. siberica, Tulipa julia, Iris caucasica, Muscari caucasicum, Bellevalia pycnantha, Ornithogalum schelkovnikovii, O. brachystachys, O. hajastanum, O. gabrielianae, Fritillaria caucasica, Nectaroscordum tripedale, different species of Gagea, Myosotis alpestre, Amenone caucasica, Orchis coriophora, Gladiolus tenuis.

Lower Elevation sagebrush semidesert with Artemisia fragrans includes different species of Trigonella, Astragalus kochianus, Iris elegantissima, Gladiolus atroviolaceus, Verbascum saccatum, Lallemanita iberica, Roemeria refracta, Astragalus kochianus, Achillea tenuifolia, Helichrysum rubicundum and others.

River Gorge flora include different species of Salix, Populus, Fraxinus excelsior, Humulus lupulus, Calystegia silvestris, C. sepium, Alkanna orientalis, Cerasus incana, Pyrus salicifolia, Cerasus mahaleb, Amygdalus fenzliana, Spiraea crenata, Saxifraga cymbalaria.

In ***Ararat Valley*** there is an Erebuni reserve -- the unique wild crop formation accompanied with very rare and interesting species, many of which are included into the Armenian Red Data Book. From wild wheats 3 occur in Erebuni reserve: Triticum Urartu, T. araraticum, T. baeoticum, Amblyopyrum muticum, many species of Aegilops, Secale vavilovii, wild barley accompanied by Phalaris paradoxa, Nigella oxipetala, Actynolema macrolema, Gundelia tournefortii, Chardinia macrolema, Gladiolus atroviolaceus, Iris elegantissima, Roemeria refracta, Scabiosa argentea, Scorzonera papposa, Stachys inflata, Astragalus distyophysus, A. caragana.

SHIRAK MARZ

M. Arteni: Flora of this very interesting mountain include Iris elegantissima, I. pumila, I. caucasica, Merendera greuteri, Colchicum szovitsii, Campanula massalskyi, different species of the genus Gagea(ssp.), Puschkinia scilloides, Draba ssp., Rindera lanata, Centaurea takhtajanii, Lallemantia canesens, Ranunculus ssp., Myosotis alpestris, Pedicularis ssp., Trifolium ssp., Gladiolus kotschyanus, wild beet species, Silene ssp., etc.

Northern Shirak flora include Iris demetrii, I. pumila, rarest very beautiful endemic Centarea hajastana, C. carduiformis, C. glehnii, C. polypodiifolia, very rare Verbascum hajastanicum, endemic Alcea sophiae, Asphodeline taurica, Tomanthea aucheri, aucheri, Tulipa julia, Papaver orientale, P. pseudoorientale, Hedysarum elegans, H. formosum, Convolvulus, calvertii, C. lineatus, Delphinium ochroleucum, D. freynii, Linaria grandiflora, Scabiosa caucasica, endemic of Armenia, Sambucus tigranii included into the International Red Data Book, etc.

In Akhurian River Gorge there are Armenian endemic black currant Ribes achurjanii, Cerasus incana, Spiraea crenata, nice light forest with Populus tremula, between rocks rather rare wild onion with blue flowers, Linum subbiflorum, L. angustifolium, Fumana procumbens, different species of Papaver, Saxifraga cymbalaria, etc.

LORI MARZ

In season flowers: Terrain to 2100 m. alt.: Caucasian endemic, Gladiolus caucasicus, Georgian and Armenian endemic G. dzhavakheticus, G. tenuis, G. kotschyanus, Zingeria trichopoda, Papaver pseudoorientale, Papaver orientale, very rare Scilla rosenii, Rhododendron caucasicum, Caltha polypetala, Viola somchetica, Betonica grandiflora, Colchicum umbrosum, Atropa belladonna, etc.

Broadleaf forest and subalpine meadow, 1300-1800 m alt.: Gentiana gelida, G. septemfida Geranium sanguineum, Gymnadenia conopsea (orchid), Dictamnus albus, Lilium szovitsianum, Psephellus somcheticus, Campanula alliariifolia (with white flowers), Delphinium freynii (endemic to Transcaucasus), Gladiolus caucasicus, Gladiolus dzhavakheticus, Cephalaria gigantea, Aconitum nasutum, Delphinium freynii, Linaria schelkovnikovii.

Lakes near Stepanavan: Water lily, Nymphaea alba, Nymphoides peltata, Utricularia intermedia with pale yellow flowers, U. vulgaris with bright yellow flowers, Butomus umbellatus, etc.

Wild relatives of crop plants: Fruit trees include the Cherry (Cerasus avium), Mahaleb (Cerasus mahaleb L. Mill), wild plum Prunus cerasifera, Blackthorn (Prunus spinosa).

Wild berries: red currant (Ribes biebersteinii), black currant (Ribes armena, R. achurjanii) including the woodland strawberry (Fragaria vesca L.), and Bilberry (Vaccinium myrtillus).

TAVUSH MARZ
Sevan Pass:
Mountain pass flora include Iris furcata, Anemone fasciculata, A. ranunculoides, Primula ruprechtii, P. macrocalyx, Trollius patulus, Caltha polypetala, Senecio aurantiaca, Lilium armenum, L. szovitsianum, Linum hypericifolium, Gladiolus tenuis, Papaver pseudoorientale, P. orientale, Myosotis alpestris, Verathrum lobelianum, Tanacetum coccineum, etc.

In ***Sevan Basin***, along the Aregoony mts. there are open juniper forests with Juniperus polycarpos, J. foetidissima, remainings of depressed oak-forest, mountain ash, Sorbus aucuparia, ornamental endemic of the Sevan basin S. hajastana, S. roopiana, Fraxinus excelsior, Amelanchier rotundifolia and others.

Between rocks and on screes, endemic Cousinia fedorovii, Astragalus calycinus, A. sevangensis, Acantholimon gabrielianae, cushions of Onobrychis cornuta covered by purple, pink or white flowers and many other are growing.

SIUNIK MARZ (ZANGEZUR AND MEGHRI REGIONS)
Mountains usually covered by luxury oak forests: Quercus iberica, Q. macranthera or hornbeam, Carpinus betulus, C. orientalis forests. Under the forest, there are endemic snow drop, Galanthus artjuschenkoae, Scilla caucasica, Allium paradoxa, Teucrium hyrcanicum, Atropa belladonna etc.

In the southern part of Zangezur along the river Tsav there are the large natural Platanus orientalis forests together with wild Juglans regia, Periploca graeca and others. On screes or rocks there are Tulipa florenskyi, T. confusa with pale yellow, pink or red flowers which has fragrance, Fritillaria kurdica, F. pinardii subsp. hajastanica, F. armena, endemic Colchicum ninae, endemic Iris grossheimii and Scrophularia takhtajanii.

In open juniper forest there are Iris paradoxa, I.pseudocaucasica, I. lineolata, Allium stamineum, Gladiolus szovitsii, G. italicus, Corydalis persica, C. verticillaris, Ornithogalum sygmoideum, endemic Symphyandra zangezura, Linaria zangezura, Psephellus zangezuri, Cousinia gabrielianae, C. megrica, Thlaspi zangezurum, Merendera candidissima and Amygdalus naurica; very rare species Vavilovia aucheri, Viola caucasica, Acantholimon fedorovii and many others.

Wild relatives of crop plants: wheat, Secale vavilovii, barley, Aegilops species. Fruit trees include the Greek Walnut (Junglans regia), Mahaleb Cherry (Cerasus mahaleb), Pears (Pyrus takhtadzianii, P. zangezura, P. raddeana and many other wild pears), fig (Ficus carica), almond (Amygdalus naurica), wild plum (Prunus cerasifera), pistachio (Pistacia mutica), wild apple (Malus orientalis), Mespilus germanica, cornelian cherry (Cornus mas).

Wild Berries include the grape (Vitis sylvestris), strawberry (Fragaria vesca L.), blackberries (Rubus armeniacus Focke).

SAMPLE FLOWER TOURS

FLORA SPRING
7 Day Itinerary in Ararat, Sevan and Siunik

This sample Itinerary shows the type of flowers that should be in season late May to mid June. While no one can guarantee that all flowers listed will be in bloom at this exact time period (mother nature follows her own rhythms), the majority of these listed are the most likely to be found.

This itinerary also requires you know botany or have an expert guide--it requires driving into remote areas of the central and Northern regions of the country and a great deal of slogging through terrain. Without expert guidance, your chances to see many of these flowers is severely limited

Guides: Nora Gabrielian, Professor at the Botanical Institute and internationally recognized scholar, is the most renowned botanical specialist in Armenia, and is can guide or find guides for serious botanical groups. Her personal guidance is must be arranged well in advance. If unavailable, she will point you to equally qualified persons. Her e-mail is botany@web.am. She normally is out of the country from December - March of each year.

Also contact Ori Fragman at ofragman@about.com. Ori works hand in hand with Nora on Armenia Botanical tours, as well as guiding tours himself to Israeli flora (East Mediterranean) in the Spring time. Shinwa Tours, the largest botanical and bird watching association in Japan, always combine the two for an extraordinary flower watching tour.

DAY 1: YEREVAN-GARNI-GEGHARD-YEREVAN
Garni-Geghard Gorges
In-Season Flowers: Terrain up to 1650 m alt.

Between Yerevan and Garni along the road in mountainous sagebrush steppe:
Gladiolus atroviolaceus, Nigella oxypetala, Actynolema macrolema, Gundelia tournefort, Verbascum saccatum, Lallemanita iberica, Roemeria retracta, Scabiosa argentea, Scorronera paposa, Muscari beglecta, Stchys inflata, Astragalus distyophysus, A. kochianus, Achillea tenuifolia, Helichrysum rubicundum, Silena spergulifolia.

Garni, Azat River Canyon, 1350 m. alt.
Alkanna orientalis, Cerasus incana, Prus, salicifolia, Cerasus mahaleb, Amygdalus ferzlinia, Spirala crenata, Saxifraga cymbalaria.

Geghard Canyon (Monastery), 1650 m alt.
Linaria armeniaca, Acantholimon bracteatum, Illium akana, Tulipa julia, Corydalis augustifolius, Orni-thogalum mountanum, O. gussonei, Campanula choziatorskyi, Bellevalia longystila, Muscari neglecta, Lotus goebelia, Astragalus strictifolius, Serratula serratuloides, Tomanthea aucheri, Malus oreientalis, Prunus divaricata, Sorbus graeca, S. persica, S. aucuparia, Crataegus orientalis, C. lacimiata.

DAY 2: YEREVAN - Mt. ARAGATS - YEREVAN
In-Season Flowers: Terrain up to 3200 m alt.

Mt. Aragats, Amberd fortress and canyon, 2100-2200 m alt.
Merendera trigyna, M. raddeana, colchiam bifolium, Purdminia scilloides, Scilla armenia, S. siberica, Tulipa julia, Iris caucasia, Muscari caucasicum, Bellevalia pycnantha, Ornithogalum schelkovnikovii, O. brachystachys, O. hyastanum, Fritillaria caucasia, Nectarosordum tripedale, Osp of gagea, Myosotis alpestre, Amenone caucasia, Orchis coriophora, Gladiolus tenuis.

DAY 3: YEREVAN - MEGHRI
Flora at Meghri Mountainous Region:
Tulipa florensvyi, T. confusa: f. pink, f. red, f. yellow, Iris grossheimii, I. Paradoxa, I. Caucasica, I. Pseudocaucasica, I. Atropatana, Mesendera candissima, Colchicum zangezurum, Hyacintella atropatana, Fritillaria kurdica, F. armena, Orchis simma, O. schelvcornikovii, O. stvenii, O. coriphora, Steveniella satyroides, Cephalanthera epipactoides, Epipactis latifolia, Acantholimon fedorovii, Reseda globulosa, Cercis griffithii, Gladiolus szovitsii, G. atroviolaceus, G. italicus, Punica granatum (wild), Tournefortia siberia, Calendula persica.

DAY 4: MEGHRI - KAPAN GORGE
Flora of Northern Meghri & Kapan Region:
Iris imbricata, Tulipa sosnovskyi, Fritillaria pinardii, F. armenia, Colchicum ninae, C. Szovitsii, Merendera raddeana, Crocus asamii, Corydalis persica, Ornithogalum sigmoideum, O. transcaucasicum, Genista transcaucasica, Mespilus germanica, Scilla mistscheukoana.

DAY 5: KAPAN - VOROTAN GORGE - GORIS
Flora of Kapan and Vorotan River Gorge:
Iris lineolata, I. Paradoxa, I. Caucasica, Allium stamineum, Bellevalia paradoxa, B. longystila, Muscari atropatana, M. sosnovskyi, Tulipa Sosnovskyi, Punica granatum, Vinca Vitis sylvestris, Ficus carica (wild).

DAY 6: GORIS - SISSIAN - YEREVAN
Flora of Sissian and Goris Region:
Iris lineolata, I. Caucasica, Merendera mirzoeval, Colchicum Szoritsii, Gagea ssp., Puschkinia scilloides, Draba ssp., Lallemautia caneseeus, Ranunculus ssp., Myosotis alpestris, Pedicularis ssp., Trifolium ssp., Gladiolus kotschyanus, Silene ssp.

Flora of Noravank Canyon:
Clematis orientalis, C. vitalba, Reichardia dichotoma, Vitis sylvestris, Pistacia mutica, Noaea minuta, Mixauxsia laevigata, Leus orientalis, Serratula serratuloides, Yurinea arachnoidea, Y. pulchella, Silene megeri.

DAY 7: YEREVAN - SEVAN PASS - YEREVAN
Flora of Sevan Pass:
Iris furcata, Anemone fasciculata, A. raminculoides, Primula ruprechtii, P. macrocalyx, Trollius patulus, Caltha polypetala, Veratium lobelianum, Palsatilla armena, Corydalis persica, Fritillaria caucasica, Betonica grandiflora, Prunus spinosa, Sedum pilosum, Sempervivum transcaucasicum, Malus orientalis, Pyrus caucasicus.

Flora of Sevan Shore:
Prangos ferulacea, Eremurus spectabilis, Tulipa julia, Iris paradoxa, iris caucasica, Scutellaxia orientalis, Crambe orientalis, Cleome ornithovodioides, Gypsophila elegans, Senecio vernalis, Silene chlorantha, Reichardia dichotoma, Srophularia olgae, S. armeniaca, S. grossheimii, Artemisia absinthium, Spiraea crenata.

FLORA SUMMER

7 Day Flora Itinerary in Ararat Valley, Sevan, Lori and Shirak

This sample Itinerary shows the type of flowers that should be in bloom in early July (season: mid-late June-mid July). While no one can guarantee that all flowers listed will be in bloom at this exact time period (mother nature follows her own rhythms), the majority of these listed are the most likely to be found. This itinerary also requires you know botany or have an expert guide--it requires driving into remote areas of the central and Northern regions of the country and a great deal of slogging through terrain. Without expert guidance, your chances to see many of these flowers is severely limited

Guides: Nora Gabrillian, Professor at the Botanical Institute and internationally recognized scholar, is the most renowned botanical specialist in Armenia, and is can guide or find guides for serious botanical groups. Her personal guidance is must be arranged well in advance. If unavailable, she will point you to equally qualified persons. Her e-mail is botany@web.am. She normally is out of the country from December - March of each year.

Also contact Ori Fragman at ofragman@about.com. Ori works hand in hand with Nora on Armenia Botanical tours, as well as guiding tours himself to Israeli flora (East Mediterranean) in the Spring time. Shinwa Tours, the largest botanical and bird watching association in Japan, always combine the two for an extraordinary flower watching tour.

DAY 1: YEREVAN-GARNI-GEGHARD-YEREVAN
In-Season Flowers: Terrain up to 1650 m alt.

Near Voghjaberd, Charents Arch, mountain steppe, 1650 m alt.
Acanthophyllum mucronatum, Centaurea carduiformis, Cnicus benedictus, Phlomis pungens

Garni, Azat River Canyon, 1350 m. alt.
Alkanna orientalis, Campanula choziatowskyi, Michauxia laevigata, Scabiosa micrantha, Astragalus, finitimus, Acantheolimon armenum

Geghard Monastery, 1650 m alt.
Achillea filipendulina, Serratula serratuloides, Rindera lanata, Arenaria graminea, Lotus gebelia, Pseudosophora alopecuroides, Stachys lavandulifolia

DAY 2: YEREVAN-Mt. ARAGATS-AMBERD-KARI LICH-YEREVAN
In-Season Flowers: Terrain up to 3200 m alt.

Mt. Aragats, Amberd fortress and canyon, 2100-2200 m alt.
Nectaroscordum tripedale, Inula maria,e Papaver orientale, Astragalus hyalolepis, Medicago dzhavakhetica, Trifolium bordzilovskyi, Ornithogalum najastanicum, Dianthus cretaceus, Solenanthus stamineus

Mt. Aragats, near Kari Lich, alpine meadow 3200 m alt.
Doronicum oblongifolium, Taraxacum stevenii, Primula algida, Campanula tridentata, Gentiana pontica, Oxytropis albana, Androsace raddeana, Pedicularis crassirostris, Erodium armenum, Daphne kurdica, Delphinium freynii, Hedysarum caucasicum

DAY 3: YEREVAN-HADIS-TZAKHADZOR
In-Season Flowers: Terrain up to 2200 m alt.

Mt. Hadis mountain steppe, 1800 m alt.
Acanthus dioscoridis, Podospermum armeniacum, Onosma gehardica, Crambe

orientalis, Dinathus subulosus, Vicia cracca, Phlomis tuberosa, Cerastium purpurasceus, Papaver orientale, Papaver paucifoliatum (even larger than P. orientale), Linaria grandiflora, Dianthus cretaceus, Aster alpinum, Centaurea cheuizanthifolia (c. fischeri), Doronicum macrophyllum, Anemone fasciculata, Filipendula hexapetala

DAY 4: TZAKHADZOR-L'CHASHEN-GEGHAM RANGE-TZAKHADZOR
In Season Flowers: Terrain up to 2200 m alt.

Subalpine meadow, 2100-2200 m alt.
Iris furcata, Lilium armenum, Allium aucheri, Anthyllis boissieri, Lathyrus cyaneus, Vicia truncatula, Linum densiflorum, Senecio integrifolinus, Centaurea cheiranthifolia, Gladiolus kotschyanus, Gladiolus hajastanicus

DAY 5: TZAKHADZOR - SEVAN PASS - PUSHKIN PASS - STEPANAVAN

In season Flowers: Terrain to 2100 m alt.
Gladiolus tenuis, G. kotschyanus, Zingeria trichopoda, Papaver paucifoliatum, Papaver orientale, Caltha polypetala

Subalpine meadow, con. Forest, hornbeam forest, 1300-2100 m alt.
Gentiana gelida, Geranium sanguineum, Gymnadenia conopsea (orchid), Dictamnus albus, Lilium szovitsianum, Psephellus somcheticus, Campanula alliarii folia (white), Delphinium freynii (endemic to transcaucasus)

DAY 6: STEPANAVAN - ASHOTSK - SHAHNAZAR - STEPANAVAN
In-season Flowers: Terrain up to 1800 m alt.

Lakes near Stepanavan
Water lily

Subalpine meadow, lakes, 1300-1800 m. alt.
Gladiolus caucasicus, Gladiolus dzhavakheticus, Cephalaria gigantea, Nymphaea alba, Aconitum nasutum, Delphinium freynii, Nymphoides peltata, Utricularia intermedia (pale yellow), U. vulgaris (bright yellow)

DAY 7: STEPANAVAN - SPITAK - SPITAK PASS - APNAGIUGH - YEREVAN

In season Flowers: Mountain steppe terrain
Centaurea polypodiifolia, C.glehnii, C.carduiformis, Asphodeline taurica, Convolvulus calvertii, Convolvulus lineatus, Hedisarum formusum, Linaria grandiflora, Scabiosa caucasica, Galium verum, Tomanthea aucheri

FAUNA ARMENIA

BIRDING ARMENIA
rmenia has an extraordinary 349 species of birds. By comparison, the whole of Europe has 550 species and the entire landmass of the former Soviet Union has 750. Of the 29 orders and 187 families of birds worldwide, Armenia is home to 18 orders and 58 families.

The country lies on the main migration route between the Northern and Southern Hemispheres, with species flying from as far away as South Africa. With its diverse terrain and vegetation zones overlapping each other in such a compact area, Armenia attracts diverse bird species that do not normally inhabit the same terrain.

Thus it is possible to observe desert and forest birds, waterfowl, high plains and alpine species living in the same area (sometimes in the same square mile).

Birds in Armenia - by species

LOONS: Gaviidae
- Red-throated Loon
- Arctic Loon

GREBES: Podicipedidae
- Little Grebe
- Horned Grebe
- Red-necked Grebe
- Great Crested Grebe
- Black-necked Grebe

CORMORANTS: Phalacrocoracidae
- Great Cormorant
- Pygmy Cormorant

PELICANS: Pelecanidae
- Great White Pelican
- Dalmatian Pelican

HERONS & BITTERNS: Ardeidae
- Grey Heron
- Purple Heron
- Great White Egret
- Cattle Egret
- Little Egret
- Squacco Heron
- Black-crowned Night-Heron
- Little Bittern
- Great Bittern

STORKS: Ciconiidae
- Black Stork
- White Stork

IBISES, et al: Threskiornithidae
- Glossy Ibis
- Eurasian Spoonbill

FLAMINGOS: Phoenicopteridae
- Greater Flamingo

OSPREYS: Pandionidae
- Osprey

BUZZARDS, et al: Accipitridae
- European Honey-Buzzard
- Red Kite
- Black Kite
- White-tailed Eagle
- Lammergeier
- Egyptian Vulture
- Eurasian Griffon
- Eurasian Black Vulture
- Short-toed Snake-Eagle
- Northern Harrier
- Pallid Harrier
- Montagu's Harrier
- Western Marsh-Harrier
- Shikra
- Levant Sparrowhawk
- Eurasian Sparrowhawk
- Northern Goshawk
- Common Buzzard
- Long-legged Buzzard
- Rough-legged Buzzard
- Lesser Spotted Eagle
- Greater Spotted Eagle
- Steppe Eagle
- Imperial Eagle
- Golden Eagle
- Booted Eagle

FALCONS: Falconidae
- Lesser Kestrel
- Common Kestrel
- Red-footed Falcon
- Merlin
- Eurasian Hobby
- Lanner Falcon
- Saker Falcon
- Peregrine Falcon

SWANS, GEESE, DUCKS: Anatidae
- Mute Swan
- Whooper Swan
- Tundra Swan
- Greater White-fronted Goose
- Lesser White-fronted Goose
- Greylag Goose
- Red-breasted Goose
- Ruddy Shelduck
- Common Shelduck
- Eurasian Wigeon
- Gadwall
- Common Teal
- Mallard
- Northern Pintail
- Garganey
- Northern Shoveler
- Marbled Teal
- Red-crested Pochard
- Common Pochard
- Ferruginous Pochard
- Tufted Duck
- Greater Scaup
- White-winged Scoter
- Common Goldeneye
- Smew
- Red-breasted Merganser
- Common Merganser
- White-headed Duck

GROUSE: Tetraonidae
- Caucasian Grouse

PHEASANTS, QUAIL, et al: Phasianidae
- Caspian Snowcock
- Chukar
- Black Francolin
- Pheasant
- Grey Partridge
- Common Quail

CRANES: Gruidae
- Common Crane
- Demoiselle Crane

RAILS, CRAKES, et al: Rallidae
- Little Crake
- Baillon's Crake
- Water Rail
- Spotted Crake
- Common Moorhen
- Purple Swamphen
- Common Coot
- Corn Crake

BUSTARDS: Otididae
- Little Bustard
- Great Bustard
- Houbara Bustard

OYSTERCATCHERS: Haematopodidae
- Eurasian Oystercatcher

LAPWINGS, PLOVERS: Charadriidae
- White-tailed Lapwing
- Northern Lapwing
- Spur-winged Lapwing
- Grey Plover
- Sociable Lapwing
- Eurasian Golden-Plover
- Common Ringed Plover
- Little Ringed Plover
- Kentish Plover
- Greater Sand Plover
- Caspian Plover
- Eurasian Dotterel

SANDPIPERS, et al: Scolopacidae
- Black-tailed Godwit
- Bar-tailed Godwit
- Eurasian Curlew
- Whimbrel
- Common Sandpiper
- Terek Sandpiper
- Wood Sandpiper
- Marsh Sandpiper
- Green Sandpiper
- Caspian Tern
- Common Redshank
- Common Greenshank
- Spotted Redshank
- Jack Snipe
- Great Snipe
- Common Snipe
- Eurasian Woodcock
- Sanderling
- Little Stint
- Dunlin
- Curlew Sandpiper
- Broad-billed Sandpiper
- Temminck's Stint
- Ruddy Turnstone
- Ruff

STILTS & AVOCETS: Recurvirostridae
- Black-winged Stilt
- Pied Avocet

PHALAROPES: Phalaropodidae
- Red-necked Phalarope

STONE-CURLEWS: Burhinidae
- Stone-Curlew

PRATINCOLES: Glareolidae
- Collared Pratincole
- Black-winged Pratincole

JAEGERS: Stereorariidae
- Pomarine Jaeger
- Long-tailed Jaeger
- Parasitic Jaeger

GULLS & TERNS: Laridae
- Little Gull
- Lesser Black-backed Gull
- Mediterranean Gull
- Great Black-headed Gull
- Common Black-headed Gull
- Mew Gull
- Slender-billed Gull
- Yellow-legged Gull
- Armenian Gull
- Whiskered Tern
- White-winged Tern
- Black Tern
- Caspian Tern
- Gull-billed Tern
- Common Tern
- Little Tern

SANDGROUSE: Pteroclididae
- Pin-tailed Sandgrouse
- Black-bellied Sandgrouse

PIGEONS & DOVES: Columbidae
- Rock Dove
- Stock Dove
- Common Wood-Pigeon
- European Turtle-Dove
- Eurasian Collared-Dove
- Laughing Dove

CUCKOOS: Cueulidae
- Great Spotted Cuckoo
- Common Cuckoo

OWLS: Strigidae
- Eurasian Scops-Owl
- Eurasian Eagle-Owl
- Boreal Owl
- Little Owl
- Tawny Owl
- Long-eared Owl
- Short-eared Owl

NIGHTJARS: Caprimulgidae
- Eurasian Nightjar

SWIFTS: Apodidae
- Alpine Swift
- Common Swift

KINGFISHERS: Aleedinidae
- Common Kingfisher

BEE-EATERS: Meropidae
- European Bee-eater
- Blue-cheeked Bee-eater

ROLLERS: Coraciidae
- European Roller

HOOPOES: Upupidae
- Eurasian Hoopoe

WOODPECKERS: Picidae
- Eurasian Wryneck
- Eurasian Green Woodpecker
- Black Woodpecker
- Lesser Spotted Woodpecker
- Middle Spotted Woodpeckers
- Great Spotted Woodpecker
- White-backed Woodpecker
- Syrian Woodpecker

LARKS: Alaudidae
- Bimaculated Lark
- Calandra Lark
- Lesser Short-toed Lark
- Greater Short-toed Lark
- Crested Lark
- Horned Lark
- Wood Lark
- Eurasian Skylark

SWALLOWS & MARTINS: Hirundinidae
- Sand Martin
- Eurasian Crag-Martin
- Barn Swallow
- Northern House-Martin
- Red-rumped Swallow

WIGTAILS & PIPITS: Motacillidae
- Yellow Wagtail
- Citrine Wagtail
- White Wagtail
- Grey Wagtail
- Tawny Pipit
- Tree Pipit
- Meadow Pipit
- Red-throated Pipit
- Water Pipit

SHRIKES: Laniidae
- Red-backed Shrike
- Woodchat Shrike
- Lesser Grey Shrike
- Northern Shrike
- Isabelline Shrike

WAXWINGS: Bombycillidae
- Bohemian Waxwing

DIPPERS: Cinclid
- White-throated Dipper

WRENS: Troglodytidae
- Winter Wren

ACCENTORS: Prunellidae
- Alpine Accentor
- Radde's Accentor
- Dunnock

THRUSHES, CHATS, et al: Turdidae
- Rufous-tailed Scrub-Robin
- European Robin
- Thrush Nightingale
- Common Nightingale
- Bluethroat
- White-throated Robin
- Black Redstart
- Common Redstart
- White-winged Redstart
- Whinchat
- Common Stonechat
- Northern Wheatear
- Isabelline Wheatear
- Rufous-tailed Wheatear
- Finsch's Wheatear
- Black-eared Wheatear
- Pied Wheatear
- Desert Wheatear
- Rufous-tailed Rock-Thrush
- Blue Rock-Thrush
- Ring Ouzel
- Eurasian Blackbird
- Dark-throated Thrush
- Fieldfare
- Redwing
- Song Thrush
- Mistle Thrush

PARROTBILLS: Panuridae
- Bearded Reedling

WARBLERS: Sylviidae
- Firecrest
- Common Goldcrest
- Cetti's Warber
- Grasshopper Warbler
- Eurasian River Warbler
- Savi's Warbler
- Moustached Warbler
- Sedge Warbler
- Marsh Warbler
- Great Reed-Warbler
- Eurasian Reed-Warbler
- Paddyfield Warbler
- Olivaceous Warbler
- Upcher's Warbler
- Icterine Warbler
- Willow Warbler
- Eurasian Chiffchaff
- Greenish Warbler
- Wood Warbler
- Garden Warbler
- Mountain Chiffchaff
- Blackcap
- Greater Whitethroat
- Lesser Whitethroat
- Barred Warbler
- Orphean Warbler
- Menetries's Warbler

FLYCATCHERS: Museicapidae
- Spotted Flycatcher
- European Pied Flycatcher
- Collared Flycatcher
- Semi-collared Flycatcher
- Red-breasted Flycatcher

TITS: Aegithalidae
- Long-tailed Tit

PENDULINE TITS: Remizidae
- Eurasian Penduline Tit

TITS: Paridae
- Great Tit
- Coal Tit
- Blue Tit
- Crested Tit
- Sombre Tit

NUTHATCHES: Sittidae
- Eurasian Nuthatch
- Western Rock-Nuthatch
- Eastern Rock-Nuthatch
- Wallcreeper

TREE-CREEPERS: Certhiidae
- Eurasian Tree-Creeper

BUNTINGS: Emberizidae
- Yellowhammer
- Corn Bunting
- Rock Bunting
- Grey-necked Bunting
- Ortolan Bunting
- Black-headed Bunting
- Pine Bunting
- Reed Bunting
- Snow Bunting

FINCHES: Fringillidae
- Common Rosefinch
- Crimson-winged Finch
- Red-fronted Serin
- Twite
- Trumpeter Finch
- Mongolian Finch
- Eurasian Siskin
- Eurasian Linnet
- Chaffinch
- Brambling
- European Greenfinch
- European Goldfinch
- Eurasian Bullfinch
- Common Crossbill
- White-Winged Snowfinch
- Hawfinch

SPARROWS: Ploceidae
- Eurasian Tree Sparrow
- House Sparrow
- Spanish Sparrow
- Pale Rock-Finch
- Rock Sparrow
- White-winged Snowfinch

STARLINGS: Sturnidae
- Rose-coloured Starling
- Common Starling

ORIOLES: Oriolidae
- Eurasian Golden-Oriole

CROWS, et al.: Corvidae
- Black-billed Magpie
- Carrion Crow
- Eurasian Jay
- Red-billed Chough
- Yellow-billed Chough
- Eurasian Jackdaw
- Rook
- Common Raven

Birds in Armenia - by habitat

WIDESPREAD

HOOPOES: Upupidae
- Eurasian Hoopoe

NIGHTJARS: Caprimulgidae
- Eurasian Nightjar

SPARROWS: Ploceidae
- Eurasian Tree Sparrow
- House Sparrow

STARLINGS: Sturnidae
- Common Starling

CROWS, etc.: Corvidae
- Black-billed Magpie
- Carrion Crow

URBAN, SUBURBAN AREAS

PIGEONS & DOVES: Columbidae
- Rock Dove
- Eurasian Collared-Dove
- Laughing Dove

OWLS: Strigidae
- Little Owl

SWIFTS: Apodidae
- Common Swift

SWALLOWS & MARTINS: Hirundinidae
- Northern House-Martin

WAXWINGS: Bombycillidae
- Bohemian Waxwing

WIGTAILS & PIPITS: Motacillidae
- White Wagtail

THRUSHES, CHATS, et al: Turdidae
- Black Redstart

SPARROWS: Ploceidae
- House Sparrow

CROWS, et al: Corvidae
- Black-billed Magpie
- Carrion Crow
- Rook

LAKES, RESERVOIRS, FISH PONDS, WETLANDS

LOONS: Gaviidae
- Red-throated Loon
- Arctic Loon

GREBES: Podicipedidae
- Little Grebe
- Horned Grebe
- Red-necked Grebe
- Great Crested Grebe
- Black-necked Grebe

CORMORANTS: Phalacrocoracidae
- Great Cormorant
- Pygmy Cormorant

PELICANS: Pelecanidae
- Great White Pelican
- Dalmatian Pelican

HERONS & BITTERNS: Ardeidae
- Great White Egret
- Grey Heron
- Purple Heron
- Cattle Egret
- Little Egret
- Squacco Heron
- Black-crowned Night-Heron
- Little Bittern
- Great Bittern

STORKS: Ciconiidae
- White Stork

CRANES: Gruidae
- Demoiselle Crane

IBISES, et al: Threskiornithidae
- Glossy Ibis
- Eurasian Spoonbill

FLAMINGOS: Phoenicopteridae
- Greater Flamingo (rare)

OSPREYS: Pandionidae
- Osprey

BUZZARDS, et al: Accipitridae
- Western Marsh-Harrier

SWANS, GEESE, DUCKS: Anatidae
- Lesser White-fronted Goose
- Red-breasted Goose
- Greater White-fronted Goose
- Greylag Goose
- Mute Swan
- Whooper Swan
- Tundra Swan
- Eurasian Wigeon
- Gadwall
- Common Teal
- Mallard
- Northern Pintail
- Garganey
- Northern Shoveler
- Marbled Teal
- Red-crested Pochard
- Common Pochard
- Ferruginous Pochard
- Tufted Duck
- Greater Scaup
- White-winged Scoter
- Common Goldeneye
- Smew
- Red-breasted Merganser
- Common Merganser
- Ruddy Shelduck
- Common Shelduck
- White-headed Duck

RAILS, CRAKES, et al: Rallidae
- Little Crake
- Baillon's Crake
- Water Rail
- Spotted Crake
- Common Moorhen
- Purple Swamphen
- Common Coot

STILTS & AVOCETS: Recurvirostridae
- Black-winged Stilt
- Pied Avocet

OYSTERCATCHERS: Haemaodidae
- Eurasian Oystercatcher

LAPWINGS, PLOVERS: Charadriidae
- White-tailed Lapwing
- Northern Lapwing
- Spur-winged Lapwing
- Grey Plover
- Sociable Lapwing
- Eurasian Golden-Plover
- Common Ringed Plover
- Little Ringed Plover
- Kentish Plover
- Greater Sand Plover

PHALAROPES: Phalaropodidae
- Red-necked Phalarope

SANDPIPERS, et al: Scolopacidae
- Ruddy Turnstone
- Ruff
- Black-tailed Godwit
- Bar-tailed Godwit
- Eurasian Curlew
- Whimbrel
- Common Sandpiper
- Terek Sandpiper
- Wood Sandpiper
- Marsh Sandpiper

Green Sandpiper
Caspian Tern
Common Redshank
Common Greenshank
Jack Snipe
Great Snipe
Common Snipe
Sanderling
Little Stint
Dunlin
Curlew Sandpiper
Broad-billed Sandpiper
Temminck's Stint
JAEGERS: Stereorariidae
Pomarine Jaeger
Long-tailed Jaeger
Parasitic Jaeger
GULLS & TERNS: Laridae
Little Gull
Lesser Black-backed Gull
Mediterranean Gull
Great Black-headed Gull
Common Black-headed Gull
Mew Gull
Slender-billed Gull
Yellow-legged Gull
Armenian Gull
Whiskered Tern
White-winged Tern
Black Tern
Caspian Tern
Gull-billed Tern
Common Tern
Little Tern
SWALLOWS & MARTINS: Hirundinidae
Sand Martin
Red-rumped Swallow
KINGFISHERS: Aleedinidae
Common Kingfisher
WIGTAILS & PIPITS: Motacillidae
Citrine Wagtail
White Wagtail
Grey Wagtail
Tawny Pipit
Red-throated Pipit
Water Pipit
WARBLERS: Sylviidae
Cetti's Warber
Grasshopper Warbler
Cetti's Warber
Grasshopper Warbler
Eurasian River Warbler
Savi's Warbler
Moustached Warbler
Sedge Warbler
Marsh Warbler
Great Reed-Warbler
Eurasian Reed-Warbler
Paddyfield Warbler
PARROTBILLS: Panuridae
Bearded Reedling
BUNTINGS: Emberizidae
Reed Bunting
Snow Bunting

MOUNTAIN STEPPE WETLANDS, LAKES, FISH PONDS

CRANES: Gruidae
Common Crane
STORKS: Ciconiidae
Black Stork
RAILS, CRAKES, et al: Rallidae
Corn Crake
BUZZARDS, et al: Accipitridae
Common Buzzard
White-tailed Eagle
Valleys, Lowlands
BUZZARDS, etc.: Accipitridae
Egyptian Vulture
CUCKOOS: Cueulidae
Great Spotted Cuckoo
OWLS: Strigidae
Short-eared Owl
WOODPECKERS: Picidae
Syrian Woodpecker
PENDULINE TITS: Remizidae
Eurasian Penduline Tit
BUNTINGS: Emberizidae
Yellowhammer
SPARROWS: Ploceidae
Eurasian Tree Sparrow
Spanish Sparrow

SCRUB

WAXWINGS: Bombycillidae
Bohemian Waxwing
SHRIKES: Laniidae
Red-backed Shrike
ACCENTORS: Prunellidae
Dunnock
THRUSHES, CHATS, et al: Turdidae
Rufous-tailed Scrub-Robin
Common Stonechat
WARBLERS: Sylviidae
Lesser Whitethroat
BUNTINGS: Emberizidae
Black-headed Bunting
Snow Bunting
FINCHES: Fringillidae
Eurasian Linnet
SPARROWS: Ploceidae
Eurasian Tree Sparrow
SHRIKES: Laniidae
Isabelline Shrike

SEMI-DESERT TO MOUNTAIN STEPPE

FALCONS: Falconidae
Lesser Kestrel
Common Kestrel
Saker Falcon

PHEASANTS, QUAIL, et al: Phasianidae
Chukar
SANDGROUSE: Pteroclididae
Pin-tailed Sandgrouse
Black-bellied Sandgrouse
BUSTARDS: Otididae
Little Bustard
Great Bustard
Houbara Bustard
PRATINCOLES: Glareolidae
Collared Pratincole
Black-winged Pratincole
STONE-CURLEWS: Burhinidae
Stone-Curlew
LAPWINGS, PLOVERS: Charadriidae
Eurasian Dotterel
Caspian Plover
BEE-EATERS: Meropidae
European Bee-eater
Blue-cheeked Bee-eater
ROLLERS: Coraciidae
European Roller
LARKS: Alaudidae
Bimaculated Lark
Calandra Lark
Lesser Short-toed Lark
Greater Short-toed Lark
Crested Lark
Horned Lark
WIGTAILS & PIPITS: Motacillidae
Tawny Pipit
SHRIKES: Laniidae
Red-backed Shrike
Woodchat Shrike
Lesser Grey Shrike
Northern Shrike
THRUSHES, CHATS, et al: Turdidae
Rufous-tailed Scrub-Robin
Bluethroat
White-throated Robin
Northern Wheatear
Isabelline Wheatear
Rufous-tailed Wheatear
Finsch's Wheatear
Black-eared Wheatear
Pied Wheatear
Desert Wheatear
Ring Ouzel
WARBLERS: Sylviidae
Olivaceous Warbler
Upcher's Warbler
Orphean Warbler
Menetries's Warbler
BUNTINGS: Emberizidae
Yellowhammer
Corn Bunting
Ortolan Bunting
Black-headed Bunting
CROWS, et al: Corvidae
Black-billed Magpie
Eurasian Jackdaw
Rook
Common Raven

MOUNTAIN STEPPE

BUZZARDS, et al: Accipitridae
Long-legged Buzzard
Rough-legged Buzzard
Red Kite
Greater Spotted Eagle
Short-toed Snake-Eagle
Steppe Eagle
Northern Harrier
Pallid Harrier
Montagu's Harrier
Shikra
Lanner Falcon
Peregrine Falcon
WIGTAILS & PIPITS: Motacillidae
Yellow Wagtail
THRUSHES, CHATS, et al: Turdidae
Common Stonechat
BUNTINGS: Emberizidae
Corn Bunting
Ortolan Bunting
Black-headed Bunting
Pine Bunting
Snow Bunting
FINCHES: Fringillidae
Common Rosefinch
Crimson-winged Finch
Red-fronted Serin
Twite
Trumpeter Finch
Mongolian Finch
Eurasian Linnet
CROWS, et al: Corvidae
Red-billed Chough
Yellow-billed Chough

ROCKY CLIFFS, RIVER GORGES

PIGEONS & DOVES: Columbidae
Rock Dove
OWLS: Strigidae
Eurasian Eagle-Owl
SWIFTS: Apodidae
Common Swift
Alpine Swift
SWALLOWS & MARTINS: Hirundinidae
Eurasian Crag-Martin
Northern House-Martin
Red-rumped Swallow
ACCENTORS: Prunellidae
Dunnock
THRUSHES, CHATS, et al: Turdidae
Black Redstart
White-winged Redstart
NUTHATCHES: Sittidae
Western Rock-Nuthatch
Eastern Rock-Nuthatch
Wallcreeper
FINCHES: Fringillidae
Eurasian Linnet
CROWS, et al: Corvidae
Red-billed Chough
Yellow-billed Chough

MOUNTAIN SLOPES

FALCONS: Falconidae
Red-footed Falcon
Merlin
Eurasian Hobby
THRUSHES, CHATS, et al.: Turdidae
Rufous-tailed Rock-Thrush
Blue Rock-Thrush
TITS: Paridae
Sombre Tit
BUNTINGS: Emberizidae
Rock Bunting
Grey-necked Bunting
FINCHES: Fringillidae
Crimson-winged Finch
Red-fronted Serin
Trumpeter Finch
Mongolian Finch
Eurasian Linnet
White-Winged Snowfinch
SPARROWS: Ploceidae
Eurasian Tree Sparrow
Spanish Sparrow
Pale Rock-Finch
Rock Sparrow
White-winged Snowfinch
STARLINGS: Sturnidae
Rose-coloured Starling

UPPER MOUNTAINS WITH CLIFFS, GORGES

BUZZARDS, et al.: Accipitridae
Golden Eagle
Imperial Eagle
Booted Eagle
Lammergeier
Eurasian Black Vulture
Eurasian Griffon
SWALLOWS & MARTINS: Hirundinidae
Eurasian Crag-Martin
CROWS, et al.: Corvidae
Black-billed Magpie
Carrion Crow
Red-billed Chough
Yellow-billed Chough
Common Raven

WOODLANDS, THICKETS, FARMLAND, ORCHARDS

BUZZARDS, et al: Accipitridae
Levant Sparrowhawk
Eurasian Sparrowhawk
Northern Goshawk
PHEASANTS, QUAIL, et al: Phasianidae
Black Francolin
Pheasant
SANDPIPERS, et al: Scolopacidae
Eurasian Woodcock
PIGEONS & DOVES: Columbidae

- Common Wood-Pigeon
- European Turtle-Dove

CUCKOOS: Cueulidae
- Common Cuckoo

OWLS: Strigidae
- Eurasian Scops-Owl
- Tawny Owl

SWALLOWS & MARTINS: Hirundinidae
- Barn Swallow

LARKS: Alaudidae
- Wood Lark

WIGTAILS & PIPITS: Motacillidae
- Red-throated Pipit

WARBLERS: Sylviidae
- Firecrest
- Common Goldcrest
- Icterine Warbler
- Willow Warbler
- Eurasian Chiffchaff
- Greenish Warbler
- Greater Whitethroat

WRENS: Troglodytidae
- Winter Wren

THRUSHES, CHATS, et al: Turdidae
- Dark-throated Thrush
- Fieldfare
- Redwing
- Song Thrush
- Mistle Thrush
- Eurasian Blackbird

TITS: Paridae
- Crested Tit

BUNTINGS: Emberizidae
- Corn Bunting
- Pine Bunting

FINCHES: Fringillidae
- Red-fronted Serin
- Twite
- Eurasian Siskin
- Chaffinch
- Brambling
- European Greenfinch
- European Goldfinch
- Eurasian Bullfinch
- Hawfinch

SPARROWS: Ploceidae
- Eurasian Tree Sparrow

STARLINGS: Sturnidae
- Rose-coloured Starling
- Common Starling

CROWS, et al: Corvidae
- Black-billed Magpie
- Eurasian Jay
- Rook

FORESTS, OPEN FORESTS

PIGEONS & DOVES: Columbidae
- Stock Dove

OWLS: Strigidae
- Long-eared Owl

WOODPECKERS: Picidae
- Eurasian Wryneck
- Eurasian Green Woodpecker
- Black Woodpecker
- Lesser Spotted Woodpecker
- Middle Spotted Woodpeckers
- Great Spotted Woodpecker
- White-backed Woodpecker

WIGTAILS & PIPITS: Motacillidae
- Tree Pipit

ORIOLES: Oriolidae
- Eurasian Golden-Oriole

ACCENTORS: Prunellidae
- Dunnock

THRUSHES, CHATS, et al: Turdidae
- European Robin
- Thrush Nightingale
- Common Nightingale
- Common Redstart
- Eurasian Blackbird

WARBLERS: Sylviidae
- Wood Warbler
- Garden Warbler
- Blackcap
- Barred Warbler

FLYCATCHERS: Museicapidae
- Spotted Flycatcher
- European Pied Flycatcher
- Collared Flycatcher
- Semi-collared Flycatcher
- Red-breasted Flycatcher

TITS: Aegithalidae
- Long-tailed Tit

TITS: Paridae
- Great Tit
- Coal Tit
- Blue Tit

NUTHATCHES: Sittidae
- Eurasian Nuthatch

TREE-CREEPERS: Certhiidae
- Eurasian Tree-Creeper

FINCHES: Fringillidae
- Eurasian Siskin
- Chaffinch
- Brambling
- European Greenfinch
- Eurasian Bullfinch
- Common Crossbill
- Hawfinch

CROWS, et al: Corvidae
- Eurasian Jay

MOUNTAIN FOREST AREAS

BUZZARDS, et al: Accipitridae
- European Honey-Buzzard
- Black Kite
- Lesser Spotted Eagle

OWLS: Strigidae
- Boreal Owl

SUBALPINE, MOUNTAIN MEADOWS

GROUSE: Tetraonidae
- Caucasian Grouse

PHEASANTS, QUAIL, et al: Phasianidae
- Grey Partridge
- Common Quail

LARKS: Alaudidae
- Eurasian Skylark

WIGTAILS & PIPITS: Motacillidae
- Tree Pipit
- Meadow Pipit
- Water Pipit

THRUSHES, CHATS, etc.: Turdidae
- Whinchat

ACCENTORS: Prunellidae
- Radde's Accentor

THRUSHES, CHATS, et al.: Turdidae
- Ring Ouzel

WARBLERS: Sylviidae
- Mountain Chiffchaff

BUNTINGS: Emberizidae
- Corn Bunting
- Ortolan Bunting
- Black-headed Bunting

FINCHES: Fringillidae
- Crimson-winged Finch
- White-Winged Snowfinch

ALPINE

PHEASANTS, QUAIL, et al: Phasianidae
- Caspian Snowcock

ACCENTORS: Prunellidae
- Alpine Accentor

CROWS, et al: Corvidae
- Red-billed Chough
- Yellow-billed Chough

BIRDING SPRING TOUR

7/8 Day Itinerary in Ararat Valley, Sevan, Lori, Shirak,

The following Itinerary is one that was presented in 1999 and is a sample to help guide you in preparing your own. Migrations begin in March and April and continue in the autumn. Contact us with species you are interested in seeing.

Guides The Birds In Armenia Project is the greatest advocate for conservation and the most knowledgeable sources about the impact of environment on Birds. They are the authors of the field guide, "The Birds of Armenia", the only printed source on this topic. They are also the only group working to exclusively conserve bird habitats. They offer tours and guided visits, for a fee. You can reach them in Yerevan by calling Dr. Martin Adamian or his assistants Levan and Luba at (+37410) 28-15-02).

The birds listed in this itinerary are the species most common to the itinerary's habitats. Those listed are only about 25% of the species the group are probable to find on this expedition. This list focuses on endemic and other species most probable to find in the latter half of May.

KEY:

No asterisk ("*") means common to locale.
* = possible
**=uncommon or rare sightings, unable to predict ahead of trip

DAY 1: YEREVAN - GARNI GORGE-GEGHARD - YEREVAN

Habitats: River gorge, mountain steppe Terrain up to 1650 m alt.

Species:
Melanocorypha bimaculata (Bimaculated Lark)
Merops apiaster (European Bee-eater)
Apus melba (Alpine Swift)
Sitta neumayer (Western Rock-Nuthatch)
Emberiza melanocephala (Black-Headed Bunting)
Coracius garrulus* (European Roller)
Dendrocopus major* (Great Spotted Woodpecker)
Sturnus roseus* (rose-colored Starling)

DAY 2 : YEREVAN-ARAGATS-YEREVAN

Habitats: semi-desert, mountain steppes, subalpine and alpine up to 3200 m alt.

Species:
Sturnus roseus (Rose-colored Starling)
Circaetus gallicus* (Short-Toe Snake-Eagle)
Neophron percnopterus* (Egyptian Vulture)
Lanius senator (Woodchat Shrike)
Upupa epops (Eurasian Hoopoe)
Eremophila alpestris (Horned Lark)
Prunella ocularis (Radde's Accentor)

DAY 3 : YEREVAN-APARAN-STEPANAVAN-TASHIR-STEPANAVAN

Habitats: High meadow, mountain steppes, canyon, forest and alpine meadows.

Species:
Lanius Collurio (Red-Backed Shrike)
Carpodacus erytrinus (Common Rosefinch)
Pernis apivorus (European Honey Buzzard)
Ciconia nigra* (Black Stork)
Anthropoides virgo * (Demoiselle Crane)
Dendrocopus major* (Great Spotted Woodpecker)

DAY 4 : STEPANAVAN-ARDENIS-ARPILICH-GIUMRI

Habitats: Upper mountain meadow, marsh and lakeland, scrub, alpine

Species:
Circus pygargus (Montagu's Harrier)
Buteo rufinus (Long-Legged Buzzard)
Larus armenicus (Armenian Gull)
Larus ridibundus (Common Black-Headed Gull)
Tadorna tadorna (Common Shelduck)
Motacilla citreola* (Citrine Wagtail)
Pelecanus crispus* (Dalmatian Pelican)
Grus grus* (Common Crane)
Luscinia svecica* (Bluethroat)
Bubulcus ibis** (Cattle Egret)
Egretta Garzetta** (Little Egret)
Pelecanus onocrotalus** (Great White Pelican)

DAY 5 : GIUMRI-YERKATGIDZI KAYARAN-ANI-ARAGATS-YEREVAN

Habitats: Mountain scrub, semi-desert, desert, marshland, lowland scrub

Species:
Oenanthe hispanica (Black-Eared Wheatear)
Oenanthe isabellina (Isabelline Wheatear)
Carpospiza brachydactyla (Pale Rock-Finch)
Burhinus oedicnemus* (Stone Curlew)
Sturnus roseus* (Rose-Colored Starling)

DAY 6: MASIS-VEDI-ARMASH-YEGHEGNADZOR-VAIK

Habitats: Lowland scrub, marshland, lakelands, semi-desert

Species:
Ciconia ciconia (White Stork)
Phalacrocorax pygmeus (Pygmy Cormorant)
Himantopus himantopus (Black-Winged Stilt)
Recurvirostra avosetta (Pied Avocet)
Ardea pupurea (Purple Heron)
Sitta tephronota (Eastern Rock-Nuthatch)
Panurus biarmicus (Bearded Reedling)
Rhodopechys githaginea (Trumpeter Finch)
Emberiza buchanani (Grey Necked Bunting)
Merops persicus (Blue-Cheeked Bee-Eater)
Sylvia mystacea (Menetries's Warbler)
Hippolais languida (Upcher's Warbler)
Alectoris chukar (Chukar)
Bubulcus ibis** (Cattle Egret)
Egretta Garzetta** (Little Egret)
Pelecanus onocrotalus** (Great White Pelican)
Platalea leucorodia** (Eurasian Spoonbill)
Plegadis falcinellus** (Glossy Ibis)

DAY 7/8: YEGHEGNADZOR-MARTUNI - SEVAN - HRAZDAN GORGE - YEREVAN

Subalpine, Lake shore, reed marshlands, forest, mountain meadows, cliff valleys.

Species:
Colony of Larus Armenicus (Armenian Seagull)
Podiceps cristatus (Great Crested Grebe)
Fulica atra (Common Coot)
Vanellus vanellus (Northern Lapwing)
Charadrius alexandrinus* (Kentish Plover)
Garrulus glandarius* (Eurasian Jay)

OTHER FAUNA

Armenia holds a large diversity of fauna, including the Wild Armenian Goat, Deer, Wild Ram, Leopard, Caucasian Bear (all endangered), lynx, wildcat, Reed Wildcat, Wild Bore, Porcupine, Squirrel, Jackal, Mole, Prairie Dog, Marten, Royal Stag and Nutria. Other species normal to vegetation zones elsewhere will be found in Armenia. Unique fish found in Armenia are the Ishkhan (red-spotted trout) and Sig. Most popular habitats for specific fauna are listed under each Region.

POPULAR FAUNA BY REGION:

NORTH

Shirak The largest prairie dog population in Armenia is in Shirak, located west of Maralik. Nutria, moles, jackals and wildcats are frequently seen in the region as well.

Lori / Tavush Notable fauna include sylvan wildcat, reed wildcat, lynx, fox, royal stag, deer, caucasian squirrel, porcupine, bear, wild bore, marten.

CENTRAL

Aragatsotn / Kotaik On Aragats, mountain leopard (very rare), caucasian wildcat, caucasian ram and mountain goat (very rare), mole, lynx, porcupine, squirrel and marten. In Kotaik, deer, wildcat, mountain leopard (very rare), squirrel, wild bore, lynx, nutria, white panther (extremely rare), fox and bear.

Gegharkunik – Sevan Wild Armenian Goat, Wild Ram, mountain leopard (endangered species), wild bore, fox, wildcat, Ishkhan and Sig.

ARARAT VALLEY

Armavir - Yerevan – Ararat Endangered species include the wild bore, leopard, royal stag, wild ram and mountain goat (Khosrov Nature Preserve). Others include the lynx, deer, wild bore, wildcat, reed wildcat, prairie dog, mole and nutria.

SOUTH

Vayots Dzor Primary species include caucasian goat, ram, mountain leopard (endangered species), wild bore, caucasian bear, jackal, lynx, mole, porcupine, fox, wildcat, squirrel, marten.

Siunik Kapan City and its immediate surroundings lie on the Iranian Plateau, a semi-arid land inhabited by field deer, jackals and marten. Immediately to the West of Kapan City, between Goris and Meghri the landscape suddenly changes, marking the border of the Caucasian Land mass, with wild mountain goats, lynx, porcupines and sylvan wild cats. There are still a few wild boars in the deepest parts of the forest, and even the rare Caucasian leopard in the most remote mountain areas. This territory is pocked with small sections of the Asia Minor Plateau, with a few jackals, reed wildcats, hawks and eagles crossing between nature zones. Sissian is home to part of the surviving Caucasian bearded goat and wild ram.

ARMENIAN BATS

Six species of bast in Armenia are a godsend to farmers and orchards, but they need a little understanding

Bats Armenia is also home to millions of Vespertilio otherwise known as bats. The only mammals capable of true flight, bats are an important part of the ecological system. Misunderstood and thought to be dangerous, the bats have lost much of their breeding grounds are now endangered. Myth: bats feed off of human blood and carry rabies. Truth: the bats found in Armenia feed off of insects (up to 3 times their weight per day) and pollinate nearby orchards and vineyards. They do not carry rabies and do not bite humans.

Bats in Armenia live in tree hollows, caves and crevices in cliffs, and hibernate 7-8 months during the year, being most active in the summer time. They live in large groups, colonies in Armenia can be up to 2 million. Bats give birth 1 time a year, normally one or two at a time, and live up to 20 years. Their sophisticated sense of radar (sending 0.2/100 milimicron pulses at 130 kilohertz amplitude ultra-voice) allows them to unerringly swerve out of the path of anything larger than a June bug. One of nature's spectacles is at dusk, as the nesting bats fly out of the cave in a fluttering cloud that twists and turns in the evening air.

There are six species of bats in Armenia: Rhinolophus euryale, Rhinolophus mehelyi, Myotis nattereri kuhl, Barbastella leucomelas, Miniopterus schreibersi kuhl and Tadaria teniotis rat. Bats are categorized in Latin as Vespertilio , in the order Chiroptera, with suborders Desmodus, Diphylla and Diaemus. Fruit bats are known as Megachiroptera.

ECOTOURING

Eco-Tours are all managed by local specialists, members of the scientific community and avid promoters of Armenia's natural world. These are special tours, not anything like the structured travel normally associated with group eco-tours, and they provide few of the amenities expected in other locales. These are fairly rustic, adventurous expeditions that explore the more remote areas of the country.

They can be taken for adventure only (paragliding, climbing, hiking, water sports, camping, horse-back riding), or to assist in species observations (birding, flower atching, tracking endangered species).

Note: those listed below are considered reputable people, and they strive to be as eco-friendly as possible, but you will not find any eco-tour provider or guide to be able to comply to standards set by western eco associations. This is not for trying, it is for lack of funding. In a country still struggling to fed its people, ecology often takes the back door.

If you take an eco tour with one of these , you are supporting continued work to help Armenia's ecology, if only by supporting the individuals so that they can afford to stay in Armenia and work to rectify the situation.

Ayrudzy Riding Club, (tel. 032 34 628 cell. 091 42 45 70), 3 Mushegh Bagratuni Street, Ashtarak, email: stallion@ayrudzy.am, URL: www.ayrudzy.am, offers riding lessons and trial rides in and around Ashtarak. Riding lessons from $10 an hour to trial rides from $15 per person.

Haik Melkonian, tel. 091-71-73-82, email: ajdahag@yahoo.com, organizes hiking/climbing/camping trips in Armenia with his team of professionals. The group specializes in Mt. Aragats and the Geghama Lehr, especially Mt. Ajdahak, with its unique eco-system, Crater Lake and petroglyph-covered stones. They also service nature trips throughout the republic. Melkonyan is also a professional photographer, whose photos grace the pages of Erivan magazine.

Ashot Levonian (tel. 010 57 03 28, mob. 091 49 58 34), e-mail: levash77@mail.ru is an expert hiking/climbing/camping guide; his team arranges hiking, mountain climbing, caving, geology tours, churches and fortresses. They will arrange hotels in Yerevan, airport pickup, transport, sight-seeing, etc. Group support includes guide, translator, cook, rescue doctor and driver. Standard tour is a two-week hiking trip averaging 5-10 km walking a day: Yerevan - Mt. Aragats - Alaverdi - Ijevan - Dilijan - Sevan - Martuni - Yeghegnadzor - Kapan - Meghri - Jermuk - Yerevan.

One of the most experience mountain climbers in Armenia is *Andrei Chesnokov*, (tel. 010 57 67 57), 10 Vardanants p, Apt. #49, Yerevan, Armenia 375010, email: ruzan@aua.am, who has climbed most of the mountains in Armenia and is a recommend, reliable guide.

Avarayr Adventure Tours, (tel. 010 56 36 81, 52 40 42, Fax: 010 56 36 81), 1 Pavstos Biusand p, Yerevan, E-mail: avarayr@arminco.com, URL: www.avarayr.am/ has been arranging cultural and adventure tours to Armenia for more than 12 years, one of the first to provide fully equipped hiking, climbing and adventure tours. Tours include expert guides, cooks and support staff for all tours. Tours run the gamut from hiking and climbing in the wilderness to cultural visits for the more comfort-minded. Their best seem to be tours that combine both aspects. A good, solid company.

Armenian Mountain Rescue Teams "Spitak" (tel: 010 35 00 06), 50 Halabian p, Yerevan, email: spitak@yerphi.am, moon.yerphi.am/~spitak/adventure.htm, stationed in both Yerevan and Stepanavan, can organize hiking, rock climbing and mountain expeditions. Guides are experienced rescuers-rock climbers, and they can also arrange horse riding along picturesque routes, by a horse cave and "Ancient Armenian horse games."

Armenian Green Cross Ecological NGO ("AGCE"), 14-10 Batumi, Vanadzor (tel. 0 322 24066, fax. 58449, mob. 093 32 32 84) is a local NGO that provides eco-tours as part of its mission to preserve and enlarge ecologically vital areas of the country. Eco-tours are expert-led hiking, climbing and camping tours, including hiking and climbing equipment, tents, sleeping-bags, emergency and first aid facilities and the services of their professional rescue group (EU certification).

The Eco-Tour Center (tel. 010 27 87 28 / 27 40 12), 2 H Hakobian St. apt. 22, 375033 Yerevan, Armenia, email: zhanna@netsys.am, www.ecotourismarmenia.com, arranges nature tours, climbs and camping, as well as birding, flower watching and other nature tours. Contact Zhanna.

Hike & Go, (tel. France (+33 6) 88 34 04 11, local cell: 091 20 41 38), email: info@hikeandgo.com an adventure travel group operating out of Armenia and France (English spoken) is an interesting group that features tours of Armenia combining traditional touring with hiking into Armenia's wilderness and off-the–beaten-path

monuments, some of which can only be reached by hiking. See web site (www.hikeandgo.com/)

AdvenTour Travel (tel. 010 53 96 09, cell: 091 42 67 45), Email: adventour@netsys.am, URL: www.armeniaexplorer.com, 39 Pushkin p, Yerevan, Armenia, 375002, arranges adventure, birding, botanical and historic tours.

Oxalis Tours, (tel. UK (+44 20) 78 70 80 37, USA (+1 201) 984 1420; Fax: (+44 20) 76 81 31 31) 68 Landseer Road, London N19 4JP UK, URL: www.oxalis-adventures.com/armenia/index.php provides trekking, climbing and botanical tours to Armenia, specializing in combining off-the-beaten paths with primary sites. They hire expert guides from in and out of the country and provide full tour services. Worth looking into, well organized.

Flower Tours

Professor Nora Gabriellian is Armenia's preeminent expert on flowers in Armenia, personally discovering several new species of endemic flowers, the latest in 2006. She is the author of the upcoming Field Guide to Armenian Flowers, the culmination of 50+ years work in the field. This seventy-something still out-hikes the fittest members of her tours and combines expert data with humor, enthusiasm and great good will. She is not easy to book (she continues to do her research and is not for the casual tourist), but if you can arrange for her to take you on a 1 to 8 day flower tour, you will never see Armenia the same way again. She doesn't have a travel agency but contact her through Rafi at (tel: 010 53-24-55) who can check her schedule and make arrangements.

Archeological Tours

MassTour (tel./fax. 010 27 78 32), 8 Komitas, Yerevan, e-mail: info@masstours.com, URL: www.masstours.com, specialize in archeological tours and participation in archeological digs supervised by working archeologists include the Urartian fortress Erebuni (Arin Berd) forerunner of present day Yerevan, the Bronze Age temple-city of Agarak, Bronze -Iron Age tomb field of Aghavnatun, Paleolithic caves in the Kasakh River Canyon near the village of Apnagiugh, guided visits to the petroglyphs in the Geghama mountain range. They also run basic tour packages with expert guides. Excavation packages begin from $750/week for full service land-expeditions.

Paragliding Paragliding is an excellent way to take in the wonders of the Aremnia. The slopes have good opportunities, and paragliders glide from summit to basin, summit to summit, over lake Sevan and photograph archeological sites.

If you don't bring your own gear, it is expensive. A wing, harness and helmet can cost $ 2,500. In addition, a month of training costs 4,000 drams (9 dollars), but students pay half that. And one flight day costs 2,500 AMD including all expenses such as food and transport. The Armenian Aviation Club, which provides paragliding opportunities, can arrange gear rental and flight days.

For details talk to *Armenian Aviation Club*, 24 Khorenatsi p, Yerevan, email: aac@unesco-clubs.am

You can also contact Dan Retz with questions about Armenian flights at dan_retz@yahoo.com, or visit www.xcaucasus.org/armenian.html.

EXPLORING NATURAL ARMENIA

Most of these trips can be done in a single day by car, depending on how many sites you visit and how long you spend at each stop. Sites in UPPER CASE are considered major sites definitely worth stopping at while those marked in parenthesis *( )* are called side trips, meaning they are worth a visit if you have the time but may be too far off the main route or too many to include all of them in a single trip.

camping possible
overnight
food and drink
thermal, mineral spring

THE OTHER SIDE OF GARNI

GARNI GORGE - KHOSROV PRESERVE - HAVUTS TAR – BAIBERD – METS GILANLAR - AGHJOTS VANK

Though these trips are marked as major stops, they take a half day or more to visit and are not for the casual tourist. But if you have the time and don't mind hiking uphill they are well worth the effort, exploring parts of Armenia few tourists ever see. They include **Garni Gorge**, the wilderness area that runs along the Azat and Goghti Rivers and makes for a fine drive through, picnic or hiking, the western part of the **Khosrov Preserve** with its abandoned settlements and the rarely visited **Havuts Tar** convent and **Aghjots Vank**.

➲ *To get to the other side of Garni, continue E about 500 m past Mashtots Hairapet Church on the same road until it descends into the gorge. The road is badly maintained but passable for most vehicles and gets steeper as the walls of the Goghti River Canyon begin to rise. The nature preserve begins at the canyon proper, and officially cars are not allowed beyond.*

At the bottom of the descent the road ends in a T-intersection; R (W) leads to the forest, picnic areas and a Hangestian Goti (3.5-4 km) and eventually to the Azat Reservoir (about 6 km), while L (E) leads in about 1.5 km past the Fish restaurant to the bridge over the river and then heads back on the other side for another 800 m to the Khosrov Preserve Gate and the hiking trial to Havuts Tar.

First, the R (W) turn to the gorge and reservoir:

GARNI GORGE (ԳԱՌՆԻԻ ՁՈՐ)

The Other Side of Garni. Garni Gorge is one of Armenia's natural wonders and a favorite of locals for lazy summer days. The waters gushing from the basalt and granite cliff walls are ice cold and crystal clear and feed a unique ecosystem (as well as quenching much of Yerevan's thirst).

Note: The nature preserve is home to wild animals, but they are as reluctant to meet you as you are them. All wild creatures have keen sense of smell and hearing, and it is highly unlikely you will run across any. Between May 1 and early June and between September 1 and 20 snakes are most active and may be spotted sunning on warm rocks. All except one are harmless.

The **giurza** is rare but extremely poisonous. The Garni Canyon is close enough to inhabited areas there is scant chance of coming across one, but you can detect it by its sand colored to dark gray coloring and hexagonal shaped markings. If you do happen to spot any snake, simply stop. The snakes avoid contact with humans at all costs. The giurza warns before it strikes by coiling and raising its head. Even at a few inches distance, if you stop moving, the snake is likely to retreat. If you are bitten by a snake, tourniquet the limb about 20 cm from the bite and seek help immediately. Keep your eyes open and look around you and you should be OK.

Symphony Canyon. The Goghti and Azat Rivers meet at Garni, more than 300 feet below the temple site, creating an impenetrable natural fortress above, and a remarkably diverse eco system below. While dry summer winds whip the mountain plain above the canyon rim, below the river forest is always moist and cool: towering trees form a canopy above the foot paths along the river, and wild boar, deer, leopards and bears call the nature preserve home.

Symphony canyon was named for its rock formations, a series of perfectly cut diamond shaped granite, basalt, slag and andesite. Inside the canyon are the remains of a **16th c bridge**, its finely engineered arches at one time leading to a narrow road that surmounted the Geghama mountain range, ending at Lake Sevan.

A few hundred meters west, past a series of caverns yawning in the side of the canyon walls, the Goghti River joins with the Azat, and to the

A Fragile Summer's Day

The road into the Azat River canyon has spectacular views of the Garni gorge, with cold water for soaking, pleasant hikes under the towering canopy of trees, picnic areas and summer camps. It is also a narrow road, carved from the canyon slag and graded annually. The dirt road is one-way for most of the 200 m drop, with passing zones wide enough for two vehicles half way down.

We were navigating our way up on the west side of Garni, watching at a distance a line of cars following an old bus coming down. The passing zone was just ahead, a relief since I did not want us to have to navigate the steep incline to the canyon floor in reverse. I lazily looked down at the river floor as it grew smaller, the children playing in a river pool at a hangestian goti (I 'rest area', though it translates as a camp ground for paying weekend picnickers), their splashing and shrieks of delight receding as we rose, when out of the corner of my eye I saw a puff of dust on the road ahead and while the shrieks of delight below were drowned out by screams of terror ahead. I thought, "that sounds like a carnival ride, but where is it?"

I think it was Rafi who first said, "My God! They went over the edge!" but I cannot be sure. Both lines of cars stopped, we scrambled out to follow the line of dust which by now was a thin cloud arcing down the steep Cliffside to the campground below. Staring up at us was the bottom side of a Volga. A crowd of onlookers, children crying, parents rushing to grab their kids, others running around crying for help, everything slowed down to a crawl, nothing in real time. People below started to open the car, a large van pulled up, ready to take the wounded (or the bodies, we never found out) away.

A car passed us on the way down, a white Volga. The driver smiled, oblivious to what had happened. I realized, that white Volga, that smiling man, he was the one that forced the car off the road, two cars passing each other on a single car path, one going to the left and skydiving to the river, the other hugging the cliff side and getting by, oblivious to what he had done.

No one talked. It took 30 minutes to reach the top. Beyond the obvious (don't try to pass on a one-lane road) the fragility of life overwhelmed me. A car of people out for a Sunday picnic were now wounded or dead, another carload continued to their rendezvous, unknowing of what they had done. How the grace of God could bless thisday I did not know.

right is one of the most beautiful sights in Armenia: About 600 meters away and 300 feet above is the **temple of Garni**. In the morning it is yellow gold. In the evening it drips red with the setting sun. Inside the canyon, the upper rim and sky are soon blocked from view: tangled vines wrap themselves around century's old trees that shade the hot sun from the fetid ground. In spring swarms of blue, yellow, gold and violet butterflies nest along the sun-dappled river bed, as many as a thousand might be resting on the banks or the side of a tree.

The canyon is also a habitat for birds and other fauna. Among them is the loti, which we spotted on our hike. Looking every bit like a lime green snake, loti actually has gills for breathing and projections where a million years ago or so it had legs. Harmless, the loti is endangered and listed on the Red Book, an official listing of endangered species in the former Soviet Union. As we walked, a cloud of pale blue butterflies suddenly flutters into view, flying in a circle in a pool of sunlight. Above it is close to 37°c, but here in the forest it rarely gets above 24°c.

About 3 km from Garni is an **electric station and picnic area.** The electric station is gratefully partially hidden from view with thick trees and greenery, and several huge wild rose bushes. An old wisteria vine clings to the sides of the deserted station, and the pastel purple blossoms hand like grapes, sweetly scenting the air.

From here the canyon grows wilder and more beautiful, with occasional meadows and fields of sweet hay and goldenrod covering the patches of open land. In May the river swells and covers some of the natural path, but the terrain is easily navigated. Just after a narrowing in the canyon, the land widens into a **dense forest**, and it seems to be the most remote place on earth, with only the sounds of birds and a startled fox keeping company. A little beyond are the signs of civilization in the ruins of stone buildings covered with moss.

Once a thriving village, the **forest settlement** was forcibly removed to the canyon rim by revolutionists, and for a while residents hid in caves and rock outcroppings on Mt. Yeranos (1823.7 m), which plunges to the river edge on the other side., its slopes covered with rose-red, cream and violet slabs of marlaceous limestone. What are left of the settlement are a few white-washed walls standing alone in the thick underbrush and a chimney that juts defiantly into the trees. When we visited there was also a single family dwelling butted up against the edge of the canyon wall, inhabited by descendants of those who hid on the opposite side of the river. A mother and her daughter greeted our party as we wandered through the settlement ruins, mama calling out at us, "If you see Ashot, tell him to come back for supper," as if we were neighbors from just across the street. Do the good thing and look out for Ashot as you plod on.

The river widens long before it reaches the lake which suddenly appears in one bend on the path, the rumbling sound of the river crashing over rocks disappearing, replaced by a few cicada and the faint cry of a seagull off in the distance. Backing up more than a kilometer from the tip of the lake, in the spring the water floods the forest floor and entire tree trunks torn from their base form a log jam and natural bridge from one side of the river to the other. After a few ledges you will reach the lake. "

The lake, **Azat Reservoir (Ազատի Ջրամբար)** is a welcome respite after a day's hike, but beware its waters—fed by the ice cold springs bursting from the Azat River Canyon, even on the hottest day a dip in the lake will suck the breath out of most swimmers (the locals preferring to call it 'bracing'. I think 'nut-nesting' is more accurate). Shallower waters are warmer, but the deep are to be taken seriously. Fishermen on the lake will take you to the other side, where a cold water **mineral spring** feeds a stone pool on a mound encrusted with

The Young Man and the Sea

It was a long summer day. The clear blue waters of the lake lap softly against the rocks, stippled by jumping Tzknor, Sazan, Koghak, Carp and the rare Karmera Khait thrusting into the afternoon light. On the far side of the lake there was a large mound encrusted with mineral salts and traces of a natural spring while further up the scrub hill sat a caravan tent and a flock of sheep. And perched above the middle of the lake was a small house on piers. After a few echoing calls across the lake, one of the men on the far side waved and slowly made his way to the lake's edge. Soon a motorboat appeared with two men inside.

The men were Robert and Armen. Armen's taut body, sinewy arms and grizzled face made him look much older than his 25 years. Deep set eyes and a sun weathered face shone as he smiled and welcomed us on board for a tour of the lake, 'his home'. A few minutes later the boat landed on the other side, and we settled into a carved stone pool of water fed by mineral springs. The water was cold and rich, a natural salve for weary legs that just hiked 6 kilometers from Garni. Armen smiled and then called to a circling hawk, perfectly imitating a mating call. The hawk swerved in its flight and began to descend, swerving away just as it spotted the human source of the cry, furiously flapping its wings and shrieking in anger.

The peace and natural beauty of this area is hard to imagine when it is so close to Yerevan. Calling the city 'a place for machines', Armen seemed to thrive on the solitude of the lake. 'People are people,' he shrugged as he looked off to a jumping fish about to be entangled in one of the nets he set in the lake. "On the lake, everything is understood. I know my place." Robert nodded in assent. Neither spoke except when asked, then only after a deep silence, carefully considering the question. Armen used to swim in the lake when he was a boy, and as soon as he completed his time in Karabakh, he and Robert decided they didn't want to go back to the city, they remembered the pristine world on the shores of the lake and decided to make it a home. Tending sheep on the far side of the lake, they also fish for a living, living in the tent or in the house set in the center of the lake.

Neither man had much to say about their time in Karabakh, it was "our duty and it was necessary," as Armen put it, and they would do it again if they had to. But a weariness in their faces showed as they spoke about their time as soldiers, a weariness of age too soon. I told him about the story "The Old Man and the Sea", and he quickly dubbed himself a "Young Man of the Sea," saying he had always loved the lake, diving and swimming in it when as a boy, that he and Robert got through the long winters in Karabakh by reminiscing about the lazy afternoons swimming and fishing by the lake, promising each other they would set up a fishing business at their boyhood lake. He proudly gestured at their private kingdom as he said, "we got our dream."

Neither man shunned companionship, they seemed to thrive on it and they welcomed visitors, repeatedly asking us to return with more guests--they had fish ready to fry, could build a campfire on the lake shore, and there is plenty of room on the pier for people to sleep. The offer was good for anyone who found their way to their little sea kingdom, "just call across the waters when you reach the reservoir's edge. We'll hear you." True hosts, they almost grew angry when we offered to help them out with the fuel for their motorboat.

But as we boarded the boat to return to the nature preserve and the temple of Garni, the sun set on the crystalline waters that formed diamonds of light on the canyons walls and underneath the pier, the sound of a gull hung in the air, and I thought that if this life was not perfect, it was the most nearly perfect these men could have made at that time; in the solitude of nature, in an island on piers in the center of a beautiful lake, by a campfire on a mountainside with each his own thoughts and the star studded night for companionship, free from the restraints of the other side, the side we call civilization.

mineral salts. Mud from the lake is considered medicinal, locals alternating from the mineral bath to the river to mud baths.

***Camping** is possible in the river gorge or nearby, and along the lake shore (ask if people are nearby), and at the Hangestian Goti; **Overnight** in Garni (rustic, 3000-5000 AMD for B&B is fair); **Springs** along river bed and across the lake.*

KHOSROV FOREST PRESERVE - ԽՈՍՐՈՎԻ ԱՆՏԱՌ ՊԵՏԱԿԱՆ ԱՐԳԵԼՈՑ

Directly across from Garni temple are the Khosrov Mountains and the western entry to the **Khosrov Forest Preserve**. The preserve is one of Armenia's largest protected areas and its most unique, hosting dozens of rare or endangered species of insects, birds and mammals, including the Caucasian Bearded Goat and the extremely rare Persian Leopard.

The preserve covers land once inhabited by Armenians, Kurds and Turkish settlers and numerous village ruins dot the 30,000 hectare preserve. Among the more important, and within a day's hike from Garni are the Chalcedonian monasteries **Havuts Tar** and **Aghjots Vank**, and the ruined villages **Baiburt** and **Mets Gilanlar**.

Khosrov Preserve

Khosrov Forest Preserve was established in the 3rd c CE by the Arshakuni King Khosrov the Great, grandfather to T'rdat III. Khosrov is reputed to have had planted over one million trees, creating a private hunting preserve while saving a piece of Armenia's unique ecosystem for generations. Most of the forests from his time are gone, clear-cut by Mongols, Safavid Persians and modern Armenians on illegal logging expeditions.

The preserve is still important and quite large, consisting of 29,196 hectares, 9000 of which have trees, mostly scrub and cedar. The national park protects more than 1800 species of plants, 156 of which are considered rare, endangered or on the verge of extinction, listed in the Red Book. Fauna include rare insects, amphibians, snakes, the Armenian mouflon (*Ovis orientalis gmelinii*), Caucasian Bearded Goat (*Capra aegagrus*) and the Caucasian or Persian Spotted Leopard.

The *Caucasian Bearded Goat* (also called the Bezoar or Persian Ibex, or the wild goat by scientists who believe it is the ancestor of the domestic goat) is an endangered species that has almost been hunted to extinction in Armenia.

Male bearded goats are marked by large, scimitar-shaped horns, their front edges in a sharp keel with a series of bold, sharp-edged, widely separated knobs above. Females are smaller than males and have short, slender horns, but no beard. The goat favors rugged country at all levels, descending into the lower valleys in the winter and upper regions in the summertime. The bearded goat is listed in the Red Book and in the IUCN list of Endangered Species.

The *Caucasian or Persian leopard* is said to be the largest of all subspecies of leopards. It can grow to up to 1.5 to 2.7 feet tall and weigh as much as 155 lbs. Before 1990, when Armenia, Azerbaijan, Georgia, Russia, and Turkmenistan were the Soviet republics, the scientific names of the leopard used in these countries were *P.p. tulliana* and *P.p. ciscaucasica*, whereas the name *P.p. saxicolor* had been traditionally used by the western specialists for the cats in Iran and, partially, Afghanistan.

Most Leopards are light tan or fawn with black spots, but their coats are very variable. The spots tend to be smaller on the head, larger and have pale centers on the body. The name Leopard is a combination of *leo (Latin for lion)* and *pard* ("panther"), the animal believed to be a hybrid of lions and panthers. Interestingly, the panther is simply a darker version of the spotted leopard, they are very much related. The leopards are remarkable felines, able to hunt in trees as well as on the ground, feeding on everything from insects and rodents to fish and large game. Excellent tree climbers, leopards often protect their larger kills by carrying them up a tree.

In Armenia, the Persian leopards live in the juniper sparse forests and, to a lesser extent, in arid and mountain grasslands, subalpine and alpine meadows. Their haunts are extremely rough terrain; rock outcroppings and cliff sides. The leopard uses the same trails during regular movements, enabling researchers to find and study the reclusive animals. Unfortunately this also enables poachers to hunt the animals (see side column). The leopard in Armenia is threatened by disturbance, poaching and wild fire, but perhaps mostly by the wholesale slaughter of their main food, the mouflon and bearded goat, both almost poached out of existence in their main hunting grounds. For more information visit the Persian Leopard web site at www.persianleopard.com/index.htm

ECOLOGICAL ALERT

The preserve is under ecological attack by international and local huntsmen and an ambivalent to cynical government that instead of protecting endangered species or those at risk instead actively hunts or sponsors hunts into the officially protected area. Reports of military officers organizing helicopter hunting trips into the preserve, where protected species are hunted down with automatic weapons are common. While gatekeepers stop eco-tourists from entering the area, generals, ministers and wealthy international hunters use the park as their private hunting grounds, further endangering the species that attempt to survive in the park.

I don't mind hunting per se, images of Bambi aside and despite my own repugnance of the sport. Responsible hunting does have its purposes and it brings important income to local communities as well as helps to preserve the environment by seeking to preserve it. **However, Armenia is blighted with hunting firms that organize the hunting of endangered species in Armenia, including the Armenian muflon and the Bearded Goat (Ibex) these three easily found online:**

Outfitters hunting endangered species:

Safari International
info@safariinternational.com

Blue Water Big Game
106 Medalist
Austin, TX 78734
ph: 1-512-261-1990
fax: 1-203-774-2002

Powers Internationale
powersint@aol.com

Please contact these companies and tell them how you feel about their targeting endangered species in Armenia, and contact Green Peace (www.greenpeace.org) and World Wildlife Federation (www.worldwildlife.org) to lend your support to stop animal extinction in Armenia.

Other fauna in the preserve include Eurasian lynx (Lynx lynx), Wild cat (Felis silvestris, ornata group), Jungle cat (Felis chaus), Brown bear (Ursus arctos), Red fox (Vulpes vulpes), Gray wolf (Canis lupus), Stone marten (Martes foina), Roe deer (Capreolus capreolus), Wild boar (Sus scrofa)

Indian porcupine (Hystrix indica), European hare (Lepus europaeus), Jay (Garrulus glandarius)

Among the 67 types of **birds** registered in the Armenian Red Book are sixteen in the preserve, including Egyptian, Black and Griffon Vultures, Lammergeier, Golden and Lesser Spotted Eagles and Northern Goshawk.

Flora in the preserve is as rich and varied as its stunning terrain, with over 1800 plant species (more than half of Armenia's total), 156 of which are considered rare, endangered or verging on extinction. A number of species listed in the Red Book grow only here. Khosrov Preserve is the only Caucasian natural preserve of mountain xerophytes; terrain combining semi-deserts, phryganoid formations, arid thin forests and tragacanthys steppes.

Permission to enter the preserve is required, officially from the ministry of Nature Protection in Yerevan (35 Moskovian, good luck) or from the director, Samvel Shaboyan (still difficult: tel: +234 21-352). As many people who are blocked seem to gain entry by using alternate routes or 'tipping' gate keepers. Sadly, it seems the ones who should be stopped are allowed in to poach while those interested in promoting its preservation are kept away. Other entries into the park are in Ararat marz, and over the Geghama lehr from Lake Sevan.

***Camping** is possible in the river gorge or nearby; **Overnight** in Garni (rustic, 3000-5000 AMD for B&B is fair); **Springs** along river beds.*

➲ ***To Havuts Tar**. From Garni, take the Garni Gorge road into the canyon, and at the T-intersection at the river, take a L (E) and continue on the pitted road about 1 km (and past the excellent fish restaurant) to the Yerevan Water works and the bridge across the river. Take the bridge, turn R (E) and continue uphill to the entrance to the Khosrov Preserve. You are not allowed into the park without a permit, but park outside the gate and you can take a path to the left of the gate that quickly climbs above the gate and slowly trudges uphill about 2 km or 30-45 minutes to **Havuts Tar Vank***

HAVUTS TAR - ՀԱՎՈՒՑ ԹԱՌ

The path to the convent is narrow and surprisingly difficult for such a slight incline. There are few shady spots on the way, in hot weather take a hat and water. A spring is about 2/3rds of the way up. The path has stunning vistas of Garni temple, the village and the area. As you get closer to the convent, you will pass some khachkar fragments, intricately carved pieces of once grand monuments. About 2/3rds of the way there look for a couple of **khachkars** on a hill on the left, plus the base of what was once a great khachkar. Closer to the convent is a bend in the path and a stunning **12th c khachkar**.

Just past this khachkar the **ruins of the village** begin, a myriad of stone foundations of homes, shops and shrines for the once thriving community that supported the convent's work and farmed its lands. The ruins cover the hillsides all around the complex. About 500 m past the 12th c khachkar is the gate to the walled Havuts Tar complex.

Background

Havuts Tar is one of Armenia's most beautiful ruins, its stones dripping with delicate lacework as elaborate as any monastery in Armenia.

A Pagan temple lay on the site during the glory days of Roman rule, replaced with successive shrines and wooden structures during the early Christian period. Its importance as a convent is traced to the 11th c, when Prince Grigor Pahlavuni (990-1058), heir to the prince of Bjini and nephew of the Bagratuni sparapet Vahram Pahlavuni, founded the church of Amenaprkich on the western outcrop of the complex.

Grigor is better known in Armenian history as Grigor Magistros, a title he took once after Byzantium annexed the Kingdom of Ani and Grigor went on to serve as the Governor-general of the province of Edessa. The Byzantine Emperor Constantine IX Monomachus bestowed upon him the title of Duke. An erudite layman, Grigor's letters are a mine of information on theology, literature, mythology, politics and other matters of his time.

They are written in an arcane style by a man with philhellene tendencies. His chief poetical work is a long metrical narrative of the principal events recorded in the Bible. This work, we are told, was written in three days at the request of a Mohammedan noble, who, after reading it, became converted to Christianity.

The convent thrived under Grigor Magistros patronage, becoming a leading center of learning and the arts. Along with housing members of the royalty who dedicated their lives (or were banished for infidelities) to prayer and contemplation at the convent, Havuts tar held important relics, including the 9th c masterpiece *The Savior of All of Havuts Tar, now at the Echmiadzin Treasury*.

The "Kusanats anapat" (convent) continued to find favor with succeeding nakharars, including the Chalcedonian Ivaneh Zakarian who funded its great spurt of growth in the early 13th c, introducing the intricate lace-like design covering the walls of the convent, then by the Khaghbakians (Proshians), well known for their work at Geghard, but equally responsible for the crowning work at Havuts Tar and the nearby Aghjots vank.

The Savior of All of Havuts Tar, 9th century.

The convent was destroyed and rebuilt during Seljuk, Mongol and the Timurid invasions, succumbing to the 1679 earthquake which did the greatest damage. It was finally rebuilt in the 18th c for the Katolikos Astvatsatur, saving the western Amenaprkich Church and the main basilica in the compound. This lasted barely to the 20th century,

when the struggling convent was deserted and left to ruin by the Soviet Armenian government.

The Complex

The complex is large, taking up several hectares inside the walled compound, with the remains of the surrounding village and two churches from the 7th-10 cc on a western hilltop, the site of the original pagan temple and the convent's first Christian structures.

The current **gate** to the site is embedded into the **compound walls**. The foundations of the original wall remains are traced to the 9th c when the convent was established, though there is some thought walls from the Bronze Age may also have existed at the site. Originally made from finely hewn basalt and tufa, the walls were mostly destroyed during the Timurid invasions and the 1679 earthquake. When it was rebuilt in the 18th c, workers used rubble left over from the earthquake, including khachkar fragments and pieces of decorated stones from the original buildings.

The **Red Khachkar** above and the left of the main gate is probably from the 12th c, though its highly stylized design may place it in the Zakarian/Proshian periods. I am not sure who it celebrates, but it seems likely to be a memorial stone to a benefactor or—more likely—the tombstone of a venerated member of the community, the khachkar making a sort of 'talisman' for the reconstructed convent. On the opposite side of the gate there are **three khachkars** in the upper walls, again either for benefactors or venerated saints from the original convent.

In front of the gate and to the left are the foundations of one of the two churches in the walled compound, a **basilica** from the 9th c with major renovations during the 12th-13th centuries. The layout is close in form to pre-Christian temples and may well have been built over a pagan footprint, expanded over time. The walls are made from gray basalt clapped over rubble stone set with lime. The décor is more severe than its neighbor to the north, attesting to its earlier 'iconoclastic' origins.

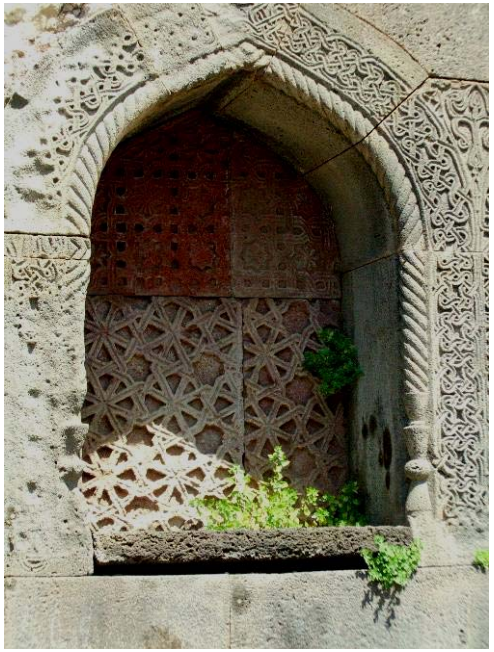
Just to the E and N of the basilica (moving around the compound in a counterclockwise direction), there are a number of fallen stones, heavily decorated with elaborate carvings. These are the remains of a public building, perhaps the **chancellery**. Some think this was a gavit, though it is rare to have one placed to the east of a church. Fallen stones in this section are very elaborate, including some massive capitals for large squat support columns. The northern wall of the 9th c church have a number of carvings, including some beautiful intertwining crosses and examples of the 12th c experimentation with the tree of life symbol, a precursor to the 13th c masterpieces that added the sun symbol.

Continue west through the rubble of the chancellery and you reach the ruins of the magnificent **13th c gavit**, which resembles a public square with columns. The gavit was quite large with a substantial gabled roof, supported by interconnecting cross-arches and barrel vaulting. The girth of the columns indicates the size and weight of the roof, as well as marking out the inner space for the gavit. Columns were placed in the center of a gavit, supporting arches that intersected above at the very center and then continued to the outer walls. Imagine a distance equal to that of the columns to the very center of the room, then mark it to the outside and you can imagine just how large this gavit was, which housed a religious academy, a scriptorium, vestal embroidery, as well as community center and overflow prayer hall.

To your right is a large building with **three vaulted halls**. The 9th-13th cc building was rebuilt in the 18th c and used to house members of the convent. The farthest west is believed to have been the kitchen/dining hall for the dwindling community. Khachkar fragments were incorporated into the walls during reconstruction.

The second church, a **9th-13th cc cruciform** type with a square exterior was built like its southern neighbor, with gray basalt clasped onto strong rubble walls fixed with lime. The church once had a drum and dome set above its central space, supported by protruding wall abutments supporting the main arches. You can detect the slight curve of the arch base inside. The four corners were open to the main space, marked off by the abutments. When erected, it must have had a keen sense of space. Other churches of the time closed off the corners into chambers and focused on a tight space before the apse. This church appears basilica in form, with a large volume of space for worshippers. Its foot print is almost identical to the earliest cruciform churches in Armenia (Echmiadzin), which were universally built over pagan fire temples. The heart of the walled complex, this church is almost certainly pagan in form, "baptized" with stone and Christian iconography to the new religion.

The exterior is elaborate, a precursor to the rich ornamentation that lies inside. Recessed walls, arched niches and faux columns are on the western façade, while deeply incised religious symbols adorn the gray stones, including a royal brand of the Bagratuni or Zakarian dynasty.



The scattered capitals, columns and stones on the ground outside the church, as elaborate and beautiful as they are, they are but a taste of the magnificence that awaits you inside. The 13th c renovation of the church included replacing gray basalt stone with decorative red and black tufa, adding extravagantly carved stone casements and frames throughout the building.

The effect is breath-taking, and unlike any other church we have seen in Armenia. Many churches of the 13th century added florid details on their walls, but none so completely, or luxuriantly as Havuts tar. The comparison to lace embroidery is not an exaggeration, niches, columns and frames are covered with intricate lace patterns of never-ending lines, unbreakable cords and flora and geometric details.

Walk to the south exterior of the church, and you have to wedge between two very large, intricate carved stones, weighing a half a ton or more. Note the back of the one with a large carved handle. This was a **door** for the gavit or church, one of a handful surviving to this day and truly impressive entry to what must have been an extraordinary building.

The southern wall is as elaborately carved as the northern, with crosses, icons and royal markings on the façade.

The south of both churches, abutting the fortress walls is a large **underground chamber**, seen from its western side. The top appears to be a grassy mound and it had an upper chamber that was destroyed before the 18th c renovation. The chamber was used for storage in the original convent, then as a dormitory and dining area in later times.

About 100 m to the west, on a rough path marking the main street of the medieval village is the 10th c Amenaprkich with a 7th c basilica next door. **Amenaprkich** was built in 1013 for the young Grigor Pahlavuni a.k.a. Grigor Magistros, well before he became his nom de plume and during the last heyday of the Bagratuni period.

Amenaprkich is a classic cruciform central dome type with antechambers in the four corners. The building is built from red and black tufa clasped over rubble filled walls. The antechambers on the east side flank the horseshoe-shaped apse and were used as vestal changing room and chapels. The rear chambers were probably chapels as well. The structure was well-built, surviving a number of invasions and attempts to destroy it, succumbing only to the forces of nature, when the 1679 earthquake toppled the dome and severed the western and eastern walls, which no doubt must have seemed a judgment of God's wrath to the faithful, like the rending of the temple cloth in Jerusalem. Even so, the building has survived well the last 300 years, retaining most of its original structure.

There is relatively little of the extravagant decoration found inside the walled compound, window casings and some framing shows signs of 13th c carving, but otherwise the church maintained its original integrity and the beauty of its rich lines. This was a building meant to impress, and it continues to, despite its ruined status. The view of the Garni valley is wonderful from here. Bring your binoculars or zoom lens.

The impressive altar apron is decorated with a series of khachkars with prominent tree of life iconography, popular in the 10th c. The apron is framed with another popular design motif, the pre-Christian water line, representing the Biblical flood and redemption by baptism for early Christians but recognized by lingering pagans as the symbol of life, the primordial 'soup' that spawned all of creation in pagan mythology.

The **7th c church** to the south is also considered a chapel, but its age and position next to the impressive Amenaprkich indicates a more important status. Most of the building has collapse, save the northern wall and part of the arched western façade. Built over a pagan site, the building carefully follows the imprint of the original structure, a single aisle basilica with a gabled roof. The deity worshipped here in Pagan times is not known, but considering it has a companion pagan site inside the walled compound, it is possible this was part of a large site with several temples in honor of Hellenized Armenian gods and goddesses (Artamazd, Anahit, Nuneh, etc.). We may never know.

There are numerous gravestones and khachkars all around the convent, and exploration may uncover signs of medieval plumbing, well worth exploring on a pleasant day.

Camping *is possible at the site or nearby;* ***Overnight*** *in Garni (rustic, 3000-5000 AMD for B&B is fair);* ***Spring*** *about 2/3rd of the way to the site from the preserve gate.*

BAIBERD, METS GILANLAR, AGHJOTS VANK: Permission to enter the Preserve is required to explore Baiburt, Mets Gilanlar and Aghjots Vank. Contact Samvel Shaboyan (tel: +234 21-352)

➲ ***To Baiberd:*** *Start from the gate into the preserve and follow the dirt road (jeep or Vilis/UAZ) upstream along the Azat River about 4.5 km to the Milli Creek (Միլիի Վտակ) bridge, with a locked gate on the other side (key is in the house on the hill to your left and back a little). Before the bridge take the left rough path for about 200 m to* ***Baiberd***

BAIBERD - ԲԱՅԲԵՐԴ

The village is deserted with mostly foundation ruins to commemorate its once thriving community of Armenians, Kurds, and Azeris who inhabited the village at successive times. The last community of Armenians were deported in the 17th c to Persia by the Safavid Shah Abbas I as part of a scorched Earth retreat in the face of Ottoman advances during the Turko-Persian wars of 1602-1620. Also surviving are the remains of a single nave **hall church** with a protruding apse, built over a Pagan temple in the 4th-5th centuries. The church was built from finely hewn stone with chamfered joints (beveled) on its edges. The semi-circular apse has a pentagonal exterior and there are equal crosses carved over the doorway and at the keystone for the apsidal arch, which itself rests on a unique set of columns, their palmettes pattern echoing those on the pilasters in the outer gallery found at other churches (Tekhor). A second church was added to the southern wall in the early Middle Ages.

The village houses a few of the Preserve workers and their families, who may be willing to point you to some of the area's more interesting sites, including graveyards and the remains from the pre-Christian era.

Camping *is possible in the river gorge or village (permission required);* ***Overnight*** *in Garni (rustic, 3000-5000 AMD for B&B is fair);* ***Springs*** *in the area.*

➲ ***To Mets Gilanlar*** *From Baiberd take a northern mountain track (jeep or Vilis/UAZ) uphill for about*

2.3 km of treacherous, cliff-hugging terrain to the remains of ***Mets Gilanlar***

METS GILANLAR - ՄԵԾ ԳԻԼԱՆԼԱՐ

Mets Gilanlar's few huts are all that remain of a village that thrived on sheep herding and simple farming. Like the residents of Baiberd, inhabitants were force-marched to Persia in the 17th c, and later Kurdish and Azeri residents left in the 20th century. The area is now a prime breeding ground for several of Armenia's Endangered species, including the Persian Leopard, Armenian Mouflon and the Armenian/Persian Ibex. The terrain is rough and sparsely vegetated, and while there are some excellent hikes to the North and East, it can get bloody hot in the summertime and sun screen, bottled water and a good hat is required. A good guide is also strongly advised, both to get to the good spots for bird and animal watching, and as part of your permission to enter the preserve. A local guide can be found in Garni (Call Samvel Ohanian at tel. 72076, cell 091-77-87-52) and through one of the Adventure Tour Operators listed at the beginning of this chapter.

***Hikes**. A good 1-3 day hike with overnight on the Geghama Lehr, is to strike out NE following the Gilanlar River (now Karahun River), which in about 10.3 km runs to the south of Vishaplich Lake (the lake is about –1.5 km to the north), a good camping spot and the site of several Pagan monuments. At the end of the river (another 3.5 km) you pass between Mts Vishaplehr (3157.7 m, 3 km to the north) and Geghasar (3443.m, 6 km to the south), with Mt. Ughtusar (3170 m) about 3.5 km to the south of Geghasar. Ughtusar is one of the prime breeding grounds for the Armenian Ibex and prime hunting ground by international hunt expeditions after the endangered species. Be very careful if you come across hunters, they are armed and should be considered dangerous.*

***Camping** is possible in the area (be sure you have permit to stay in the preserve); **Overnight** in Garni (rustic, 3000-5000 AMD for B&B is fair); **Springs** along river beds.*

➲ *Getting to Aghjots vank is a circuitous route. Take the NW path out of Mets Gilanlar (take the left before the village), cross the river and pass the old mill then continue for about 1.5 km to the ruins of Yelijah Village ("Yeh-lee-ja" - **Ելիջա**), where a path strikes out to the east on top of a ridge and in about 1 km ends at the stunning location for the equally beautiful **Aghjots Vank***

You can equally strike out on foot across the valley to the vank from Mets Gilanlar 20-30 minutes), or in half a day of strenuous hiking over mountains from Goght.

AGHJOTS VANK - ԱՂՋՈՑ ՎԱՆՔ

Aghjots vank is perched on a mountain ridge overlooking the Gilanlar River. Local lore traces its founding to Grigor Lusavorich (Gregory the Illuminator) in the 4th c on the site of the martyrdom of S. Stepanos (a companion of Hripsimeh), which places the site in the Pagan era, Grigor spending his time knocking down or converting Pagan temples. The site was part of a Bronze and Iron Age culture in the area, developed into a walled compound by the 2nd millennium BCE. You can find the remains of Bronze Age fortresses and Vishaps in the surrounding mountains.

If the Christian church was established in the 4th century, it was probably a wooden structure, rebuilt in later centuries before becoming an important vank that was greatly expanded in the 13th c, resulting in its current layout. Sacked in 1603 during Shah Abbas' deportation of Armenians, the vank was partially restored in the 18th c along with Havuts tar, only to be sacked again in the same century and permanently ruined during Azeri/Armenian fighting in 1905-06.

The vank was quite large, as big as nearby Havuts Tar and possibly bigger. The **outer walls** once rung around the entire complex but all that remain are on the western and northern edges. The remaining walls contain the ruins of outer buildings, sunken chambers and still to be excavated residential quarters.

S. Stepanos, a central dome type, dates to the 11th c, about the same time as Amenaprkich at Havuts Tar. The dome has collapsed, but the bulk of the church remains, showing its classic cruciform type with antechambers at the four corners. The tall central hall was buttressed by strong corners of basalt stone, which in turn supported the drum arches. The church was made of red and black tufa, now discolored by wear but in their heyday a colorful addition to the hill top. Cornices are edged with smooth ribbing, as are the windows. Inside, the simple lines of the structure are enhanced by ribbing while the apron has geometric patterning and places where a series of painted icons once stood.

The **13th c gavit** was added in 1207 for the vank's benefactors, Atabeg Ivaneh Zakarian and Prince Grigor Khaghbakian. Unlike the gavit at Havuts tar, the gavit at Aghjots Vank has enough remaining walls to give some sense of its large size. And height. The walls tower above the central plan, matching the church walls but increasing the volume of the entire structure exponentially. The roof was supported by interconnecting arches, supported by central columns and columns placed along the outer walls. A 'ghosting' of the arches can be seen on the western façade of the church and the remaining gavit walls, showing how the gavit was divided into 9 square spaces. The aperture, and the roof, no longer remains, but the style is classic, much as the remaining gavits at Haghbat and Hovhanavank. There are a number of inscriptions on the gavit wall and the floor was once paved by tombstones.

The jewel of the vank, and what all that travel was for, abuts the north wall of S. Stepanos, the stellar S. Poghos-Petros (Sts. Peter and Paul) chapel built in 1270. The little chapel is covered on its western façade with extraordinary carvings of khachkars, geometric patterns and two remarkable depictions of S. Petros (Peter, left) and the S. Poghos (Paul, right). The depiction of religious figures this large on the façade of a church is rare in Armenia. I haven't found any other quite this large in the country. Others do exist, in the western Armenia, famously Aghtamar at Lake Van in present day Turkey.

All around the site are the remains of service buildings and the terracing used for farming. Much of the gavit's walls and many of the khachkar

tombstones have tumbled down into the gorge, worth the effort for the physically dexterous.

Camping *is possible in the area (be sure you have permit to stay in the preserve);* ***Overnight*** *in Garni (rustic, 3000-5000 AMD for B&B is fair);* ***Springs*** *in the area, riverbed.*

ARAGATS CLIMBING

KARI LICH - ***SOUTH SUMMIT*** - ***EAST SUMMIT*** - ***NORTH SUMMIT*** - ***WEST SUMMIT***

This trip features the four peaks of Mt. Aragats, the highest point in Armenia (elev. 4090m/13,415 ft) with absolute elevation ranges from 450-4,090m (1,476-13,419 ft) above sea level. It includes tips for hikers and information about each of the peaks, from the relatively easy climb of the southern peak (about 3 hours for the average fit person) to the more challenging peaks that require several days of acclimation and climb from inside the collapsed cone of the now dormant volcano. No matter what your physical aptitude is, you should not miss at least driving to Kari Lich at the base of the cone and gazing on one of Armenia's most magical spots, worshipped for millennia as the home of the gods and source of all power in the kingdom. Spend a couple of hours here and you will feel like you can touch the top of the sky, and you will be amazed at the way the mountain changes, the deep inner cauldron churning up clouds, rain and snow in the same summer's day.

Stay: Camping at Kari Lich and in the cone.
Eat: Concession stand at Kari Lich.
Springs: Dozens of springs and pure water streams on the mountainside.

➲ *The trip begins at Kari Lich (end of Trip 2). From Agarak center, take the Biurakan road N (first right after the Voskevaz T-intersection) road for about 5 km to Biurakan, then another 2.4 to Antarut, another 5 km to the Amberd turnoff and a final 14.3 km to the end of the road at* ***KARI LICH*** *and* ***MT. ARAGATS*** *(DD 40.50 x 44.166666)*

KARI LICH - ԿԱՐԻ ԼԻՃ ("Stone Lake" elev. 3200), for details see Kari Lich at end of trip 2.

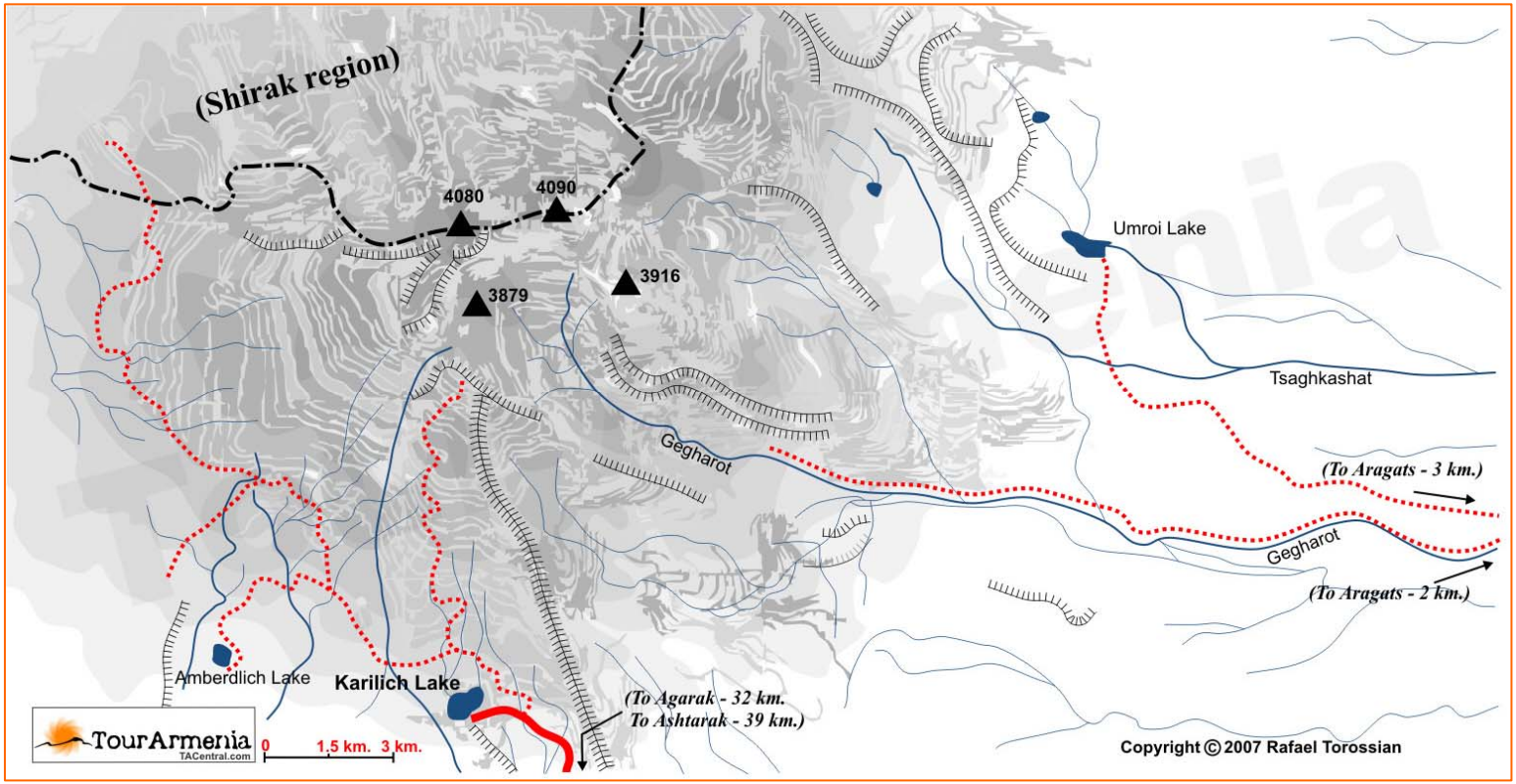
MT. ARAGATS

(DD 40.5333 x 44.20000)

Aragatsotn is dominated by Mt. Aragats (elev. 4090m), a dormant strato-volcano and the tallest mountain in the country. About 40 km from Yerevan, Aragats is a category 1B mountain (tourist category 3, some easy roped climbing) makes Mt. Aragats accessible to most mountain climbers and naturalists wanting to explore its four peaks.

The mountain is massive, covering more than 820 sq km of land in its central elevation, and 18% of the total landmass of the republic There are four summits: North (the highest, 4090m), West (4080m), South (3879m) and East (3916m) forming the jagged edge of the volcanic crater, once a massive cone (10,000+/- m) which blew itself open about 500,000 years ago, just as the first settlers began to inhabit the area. Pictograms found on the mountainside allude to this catastrophic event, which ended an era of warm moist climate and began the continental weather patterns Armenia has today.

The crater spilled lava mostly to the east and NW, which have undulating landscapes; between the S and E crests the wall is broken, the lava filling in the Aparan plateau. Today the Gegharot River flows down to the village of Aragats, past an ancient pagan cave site that was converted into a S. Lusavorich shrine. The Karakatal mountain range, a sharp peak of rock formation, stretches to the south of the mountain (you passed it to get here, on your right). It is matched with another to the N. Between each peak there are saddlebacks of stone with rocky pathways and crevices, each with its own stunning view of the landscape and challenges for the mountaineer.




Photograph courtesy Tigran Nazaryan©

From the top of the mountain you can see most of the Lesser and Great Caucasus Range, even as far as Mt. Elbrus, Europe's tallest mountain at 5642m. Elbrus lies N on the Georgian/Russian border, about 500 km away. Ararat Valley stretches to the south and SW for about 100 km, and there are excellent views of the upper elevations of Mt. Ararat and the Republic of Turkey to the west and southwest. To the east and southeast is the

Aparan plateau and Lake Sevan, the Geghama lehr that separates the lake from the Ararat Valley nearest, the Sevan Mountains and Karabakh further to the east. North is Lori and Tavush and in the NW you can see the city of Giumri, 70 km distant.

Snowbound for most of the year, save a few weeks from mid July through August, the mountain has numerous small lakes, among them Kari Lich, situated at the base of the S summit, Lake Lessing, and inside the crater a "secret pool" of glacial blue water that expands and disappears as the snow melts or falls. There are also several reservoirs capturing the melting snows, the largest of which, to the NW, is Lake Mantash.

The mountain top has several "hidden" pagan and early Christian shrines, hardly surprising given it was considered a cauldron of the gods, its brooding cone generating storms and fair weather several times a day. Now called "Armenia's weather maker", the mountain was worshipped by eons of pagans who only tentatively traded their belief in the all powerful gods of Vahagn, Astghik and Aramazd for the Christian trinity in the 4th c. To this day pagan symbols and sacrifices abound on the mountain side, next to or within Christian shrines.

One legend that descends from the Pagan period, esp. if the legend of the all-burning light of the Zoroastrian religion is applied, is about S. Grigor Lusavorich, who converted the country with King T'rdat III in the 4th c. In it, Grigor climbed to the top of Aragats to pray, an all-burning lamp hanging from the sky lighting his way down in the evening. Probably predating even the Zoroastrians, legends of night lights on mountains, (especially volcanic mountains) are easy enough to trace. The legend continues that the light still burns, seen only by those who are consecrated (i.e. the true believers).

Formation

The original volcanic cone is from the Pliocene-to-Pleistocene age. Satellite cones and fissures on the sides of the volcano were the source of large lava flows that descended to the lower layers, assumed to be from the Holocene age though later Potassium-Argon dating indicated mid- to late-Pleistocene ages. The youngest flows (at the bottom) have not been definitively dated, but are conjectured to be from the end of the late-Pleistocene to 3000 BCE. A 13-km-long, WSW-ENE-trending line of craters and pyroclastic (fluidized masses of rock fragments and gases) formations cut across the northern rim and is the source of young lava flows and lahars (similar to pyroclastic flows but contain more water); the latter characteristic of Holocene summit eruptions.

My first assault on Mt. Aragats (there is no other way to put I, it was a long, arduous assault) was up the "easy" southern peak. I went with friends and we met a group of alpine enthusiasts of all ages, the youngest 4 years old, the oldest in his 70's. The night before we camped out in the cold July air (a relief from the stifling heat of Yerevan below) and sat around a campfire telling Armenian stories and singing folk songs.

The next morning, we began the climb. I quickly learned that no matter how many miles I had slogged in the hot Texas sun to prepare for this climb, I was no match for the Armenian mountain goats around me. I had trained at a relatively low altitude of 1800 ft, while I was starting here at over 10,000 ft. I knew I was a goner when the 4 year old danced by me on the continual 30° incline and waved to me from the top of the mountain, 2 hours into the climb. A few choice thoughts came and vanished from my mind as I weakly waved back, grabbing the air for support.

I nearly gave up several times, the last 50 ft from the peak. I only made it because of Tico and Christine, who kept me going with promises of the great view and the fact I would have "done it".

To add insult to injury, they of course enjoyed several cigarettes en route while I huffed and puff my smoke-free lungs out trying to catch up.

I did make it, but not before the 4-year old's naptime and passing her on the way down while I was still going up. As I caught the last breath I thought I would ever make, I sat on the edge of the south rim and stared into a limitless crater of brown rock and aquamarine blue water coursing through the sunken cone floor.

Minerals. Anhydrite, Chalcedony Agate, Chalcopyrite, Gypsum, Pyrrhotite, and Quartz.

ECOLOGY.

Even in the heat of summer mini glaciers can be found on the mountain side at multiple elevations. Most are on the north end of smaller peaks and hills, the shadows, but several exist year round. In the summer, immediately next to glacial ice are grass and beautiful yellow, white and sky blue alpine flowers, which pop up overnight and can repeat flower throughout the summer season. One of the mountain's delights is straddling both, one foot in ice and snow, the other on lime green grass with thousands of white star flowers. The mountain also has a few standing forests (between Biurakan and Nor Amberd) and numerous alpine meadows. In the spring, the meadows are blanketed with wildflowers, the most common of which is the vivid red Armenian poppy.

Photograph courtesy Tigran Nazaryan©

Birding. Aragats is an excellent area to spot alpine and upper highland species. The slopes east of Kari Lich away from the main road and lower hills can also be productive.

For the most diverse and interesting bird watching and flora/fauna field trips, two base camps are optimal: just below the rim at Kara Lich (alpine and sub-glacier), and 2/3rds up the Mountain, at Amberd. Amberd lies at the dividing line between mountain forest and alpine vegetation zones. Amberd sits over two massive river canyons, each providing excellent hiking, field trips, caving and bird watching potentials (including one of the largest colonies of Caucasian bats in the world). Amberd is at alt. 3000m so a good place to acclimate to the upper elevations.

Bird Sightings: *Horned Lark, Rufus-tailed Rock Thrush, Alpine Accentor, Wallcreeper and Snow Finch* occur in the more upland areas along with high-altitude specialties of the area such as *Caspian Snowcock and Crimson-winged Finch.* More widespread upland birds include *both rock thrushes, Northern Wheatear and Ring Ouzel. Western Rock Nuthatch and Red-billed Chough* are common. *Raptors* are impressive and include *Eastern Imperial and Lesser Spotted Eagles and Long-legged Buzzard* in summer and *Pallid Harrier and Steppe Eagle* in autumn. The lower slopes and scrub around Lake Kari hold more of the area's specialties such as *Radde's Accentor* and the skulking and elusive *White-throated Robin*. *Lesser Grey Shrike* also occurs as well as *Black-eared Wheatear, Cetti's Warbler and Black-headed Bunting*. More wooded areas are home to *Mountain Chiffchaff, Golden Oriole and Syrian Woodpecker*.

All Birds Include *Short-toed Eagle (PM), Pallid*

Safety Tips

- ***Wear sturdy hiking shoes (sneakers not an option)***
- ***Bring plenty of water, lip balm and a hat***
- ***You are close to the sun's UV rays; wear sunscreen and sunglasses***
- ***Bundle up in layers***
- ***Use a hiking stick or cane***
- ***Climb with an experienced leader.***
- ***Rope up for all glacier travel.***
- ***Have at least 2 experienced people per 3 person rope team***
- ***Climbing with less then 3 people in a party is not recommended and is hazardous.***
- ***Be aware of current weather and route conditions.***
- ***Use good judgment and know your limits.***

For more information:
climbing.about.com/
Gear List

Harrier (PM), Levant Sparrowhawk (Su), Long-legged Buzzard, Common Buzzard, Lesser Spotted Eagle (Su), Steppe Eagle (PM), Eastern Imperial Eagle (Su), Golden Eagle, Booted Eagle (Su), Common Kestrel, Lanner Falcon (rare), Northern Hobby (Su), Caspian Snowcock, Chukar Partridge, Common Quail (Su), Woodpigeon, Turtle Dove (Su), Common Cuckoo (Su), Little Owl, Common Swift (Su), Alpine Swift (Su), Hoopoe (Su), Great Spotted Woodpecker, Syrian Woodpecker, Bimaculated Lark (Su), Wood Lark (Su), Eurasian Skylark, Horned Lark, Sand Martin (Su), House Martin (Su), Tree Pipit (Su), Water Pipit (Su), Black-headed Wagtail (Su), Grey Wagtail, Common Dipper, Radde's Accentor, Alpine Accentor, Dunnock, Bluethroat, White-throated Robin (Su), Black Redstart, Common Redstart (Su), Isabelline Wheatear (Su), Northern Wheatear (Su), Black-eared Wheatear (Su), Rufous-tailed Rock Thrush (Su), Blue Rock Thrush, Ring Ouzel (Su), Cetti's Warbler, Common Whitethroat (Su), Mountain Chiffchaff (Su), Western Rock Nuthatch, Wallcreeper, Golden Oriole (Su), Lesser Grey Shrike (Su), Red-billed Chough, Northern Raven, Rock Sparrow, Snow Finch, Twite, Crimson-winged Finch, Common Rosefinch (Su), Rock Bunting, Ortolan Bunting (Su), Black-headed Bunting (Su).

Flowers Aragats has some good flower opportunities, including mid summer (July-early August) flowering of alpine species on the slopes leading to the cone, and spring-summer viewing on the lower elevation around Amberd, which is the diving line between alpine and upper forest strata.

Mt. Aragats Flora: Amberd fortress and canyon, 2100-2200m alt. *Nectaroscordum tripedale, Inula maria,e Papaver orientale, Astragalus hyalolepis, Medicago dzhavakhetica, Trifolium bordzilovskyi, Ornithogalum najastanicum, Dianthus cretaceus, Solenanthus stamineus*

Mt. Aragats Flora: near Kari Lich, alpine meadow 3200m alt. *Doronicum oblongifolium, Taraxacum stevenii, Primula algida, Campanula tridentata, Gentiana pontica, Oxytropis albana, Androsace raddeana, Pedicularis crassirostris, Erodium armenum, Daphne kurdica, Delphinium freynii, Hedysarum caucasicum*


Photograph courtesy Tigran Nazaryan©

Paragliding. The *Armenian Aviation Club*, 24 Khorenatsi p, Yerevan, E-mail: aac@unesco-clubs.am which offers paragliding throughout Armenia, has charted a specific site for Aragats. The *Aragats - T/O – 500m vertical* flying site is in the foothills of Mt. Aragats, the highest mountain in Armenia to the NW of Yerevan. The winds can be high but the site has good thermal potential and provides great views of Mt. Aragats. Hiking to a small rocky T/O takes about 2-3 hours. For more information talk to the folks at the club.

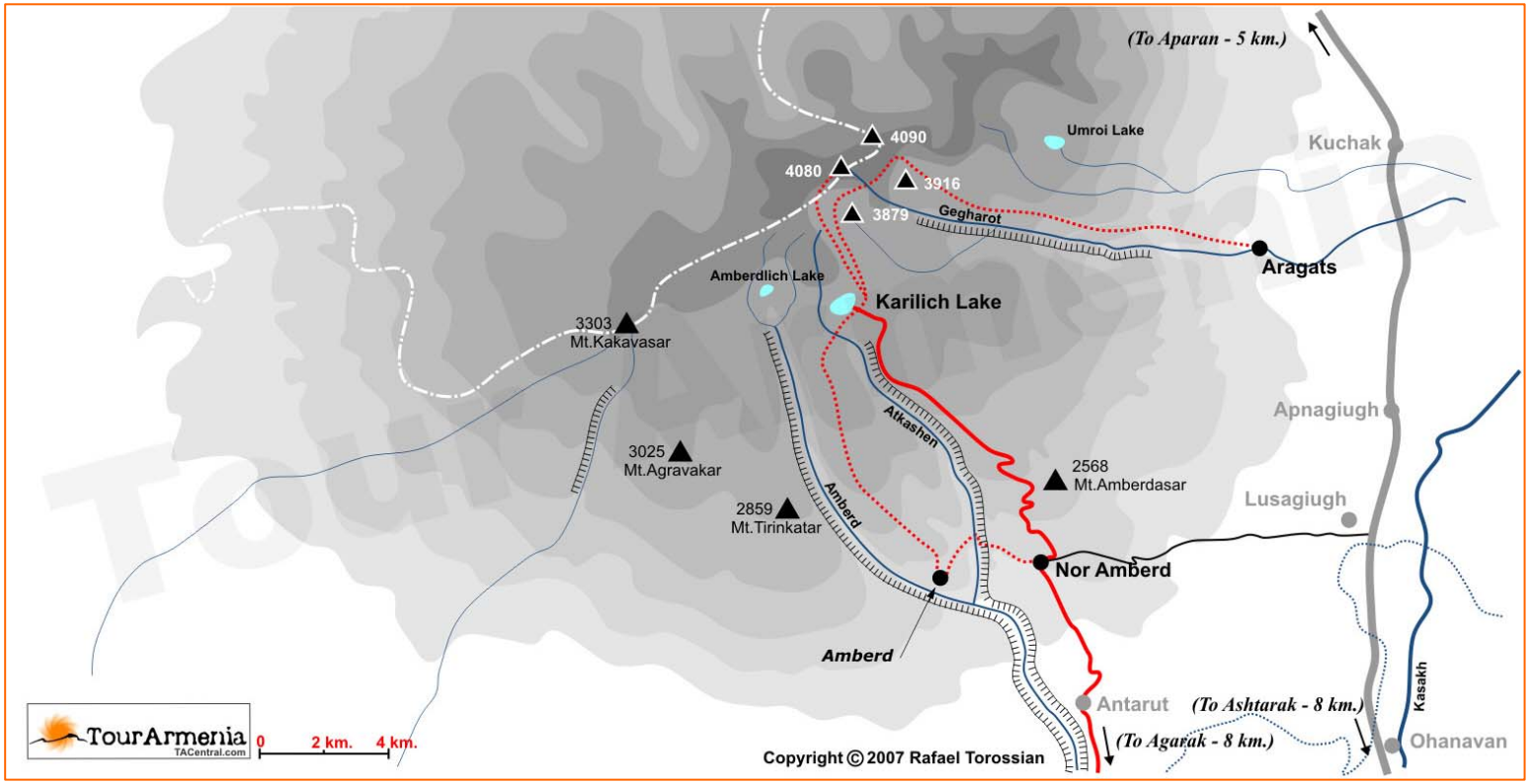
CLIMBING ARAGATS:

When. July 15-August 15 are the optimum times, and begin your climb early (dawn or earlier) though there are no guarantees nature won't decide to give you a few snow showers anyway. The cone is a weather maker; clouds begin to rise in the morning with storms common in the afternoons. Showers don't last long, but inside the crater there is a perpetual ice cover in places, so be aware that at night it will drop to below freezing. Outside the crater it drops to between 0-3° C (32-37° F) at night, and is rarely warmer than 7-10° C (45-50 F) in the daytime.

Outfitting. Sufficient clothes for winter-like weather, sturdy boots, plenty of water and energy food like trail mix are required for these climbs. A professional guide for all by the South summit is also required to safely climb the mountain.

Guides. If you attempt any peak other than the south peak *you need an experienced guide.* They ensure safety and know the ins and outs of the mountain better than any book or map.

Background. The crater of Mt. Aragats is a sub-



polar zone, 750 meters below the rim of the mountain. In warm summers, as ice melts it forms shallow ponds. The tallest peak is 4090m and the crater floor is 3250m.

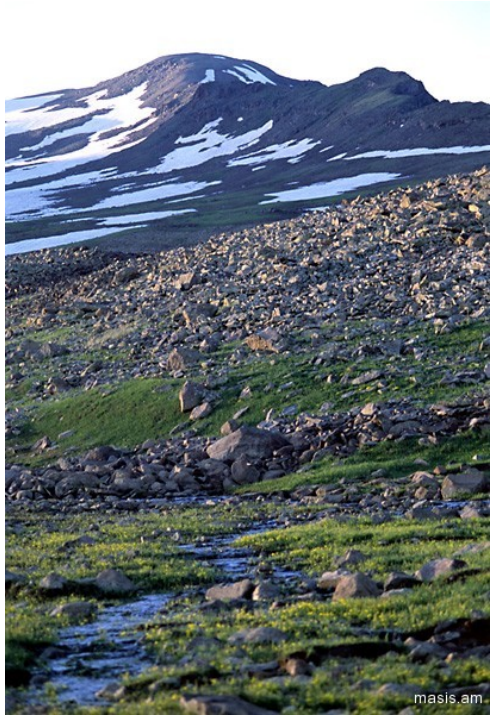
The climbs. Camping inside the crater for a few days is definitely worthwhile, since it has spectacular rock formations and provides incredible star-gazing opportunities at night.
From Kari Lich, each of the four peaks with their saddlebacks (North, South, East and West) can be climbed, camping at base, or inside the crater. Allow one day for each climb, returning to base or camping inside the crater. You are strongly advised to spend 1-2 days before the climb at Kari Lich or higher to acclimate yourself to the thin air and high altitude. Altitude sickness is rare on Aragats. But can occur.

Our climbs begin with the South peak, which is the most popular and easiest to climb of the four, then continues around the rim to the East, spending the night at base camp next to Kari Lich or inside the crater.

SOUTH PEAK (3879m) is the easiest to climb of all four peaks. The hike will be easy for physically fit, but for the rest of us it is a moderately arduous climb, hardest the closer you get to the top, when the high altitude and the constant 30° incline conspire to stop the most determined "weekend hiker". Slogging through the thin air and perspiring climb is well worth it, as the entire landscape of Armenia and Eastern Turkey spread out before you. On the top of the rocky peak there is a metal cross and a number of make-shift altars and shrines, some with matagh (sacrificial) offerings.

➲ Easiest route is to begin hiking upwards from the lake in a zigzag formation, in a northwesterly direction. Eventually (1-2 hours, depending on your lung and leg power), you should meet up with a dirt track (the track begins NE of the concession stand at the lake) and begin to switchback the mountain to the top. The last slog is 30m of real incline, climbing past an abandoned service building and through a crevice up to the summit.

➲ Another way up (for the really fit and macho) is to locate the rock ridge to the east of the lake, climb it and then follow the ridge up. You have to cross onto a bisecting ridge that forms one of the saddlebacks.



Photograph courtesy Tigran Nazaryan©

➲ A third way, preferred by the climbers I went up with, is to begin the climb on the north shore of the lake, over to a ridge overlooking Amberd Lich, then follow the mountain side upwards in a NE pattern until it meets up with the dirt track. This adds an extra hour to the hike, but has some gorgeous views of Shirak and Lori on the way up.

NORTH PEAK (4090m) is Aragats' highest, and one of the most rugged peaks *requiring an experienced guide* to safely mount. The summit has both a marker at its highest point and numerous makeshift shrines or memorials, of successful climbs as well as pagan and Christian purpose. The climb up the peak is much more difficult than the south summit, if for nothing else than the typical climb is to surmount the South Peak first, then descend into the crater and across to the North edge. Longer treks requiring considerably more stamina course across the West peak saddleback then across the steady including saddle to the North peak. Note the real peak is marked with metal tripods; there is a "false summit" that appears to be the top, but is not.

Photograph courtesy Tigran Nazaryan©

It takes 4-5 hours to reach from Kari Lich, or about 3 hours from the crater floor.

➲ The most obvious path from the South summit is to follow the SW saddleback towards the crater, sliding down its gravelly side and skirting the west peak across glacial ice to the North peak. However it is easier to walk to the NE side of the main summit and clamber up its loose rock slopes to the eastern saddle that leads to the North peak.

➲ A more challenging climb, that also takes in more mountain terrain and requires more stamina, is to descend from the south summit to the SW saddleback, and skirting the W peak, descend into the crater then skirt along the western peak to the W end of the north summit, following a cleft in the NW summit to the secondary height and then dip down and up again to the main peak.

➲ A third path is to descend first S from the south summit to the SE saddle (part of one of the routes up) and cross on the East peak, or skirting below it over to the north peak. On the rim there is a trail the leads to the peak.

➲ From Aparan district/Aragats v. and Gegharot River take the approach to the East Peak stopping at the Jrvesh falls (details on p. 43)

WEST PEAK (4080m) is Aragats second tallest peak and its most difficult climb, *requiring an experienced guide*, ropes and gear to mount. It is a solid piece of jagged red rock, windswept and forlorn, but with gorgeous views of the crater, the other peaks and Shirak marz. Below it is Lake Mantash, which one of the ways up the peak.

➲ (*Experienced Guide*) From the South summit, descend to the SW saddleback and across to the W summit. There are ridges leading to the top, your guide will know the best one for you.

➲ (*Experienced Guide*) From the crater you have two options, SW saddle or a steep climb to the NW end, then up to the peak. Your guide will know the best route for the season and your experience level.


Photograph courtesy Tigran Nazaryan©

➲ (*Experienced Guide*) There is a longer (1-2 day) route that begins in Shirak marz, from the N edge of Lake Mantash, returning to the lake, or descending into the crater for an overnight. The trek climbs the longest route to the west peak, but has some of the most dramatic landscapes, from alpine to rocky terrain. This side of the mountain receives less of the pollution of Yerevan, so the skies are bluer; the colors more vivid till you reach the summit. This route leaves just N of Mantash, tracing the Armenia Canal to the Geghadzor River, following the latter to the western peak. Your guide will have the best route for the season and your level of experience.

EAST PEAK (3916m) can be almost as difficult as the western peak, or as easy as the North Peak, depending on your trek. *An experienced guide is recommended for this peak*. Connected by a saddle to the North peak, it is separated by a wide crevice from the SE saddle, from which lava poured eastward during the Holocene Era, creating the rich alluvial souls of the

Aparan plateau. It also created the widest gap in the crater rim, the source of the rushing waters of the Gegharot River that flows to the Aparan plateau.


Photograph courtesy Tigran Nazaryan©

➲ (*Experienced Guide*) From the South summit you can backtrack on the S ridge to the SE saddleback, descending into the crater on the E end and across the waters of the Gegharot and its delta, then up the S ridge of the East Peak. Or descend into the crater following the N/NE slopes, then cross the crater to the peak. Your guide will advise the best route.

➲ (*Experienced Guide*) From North Summit follow the NE saddleback down and then up to the East Peak, either on the ridge path or up the face of the mountain peak, depending on the challenge you want.

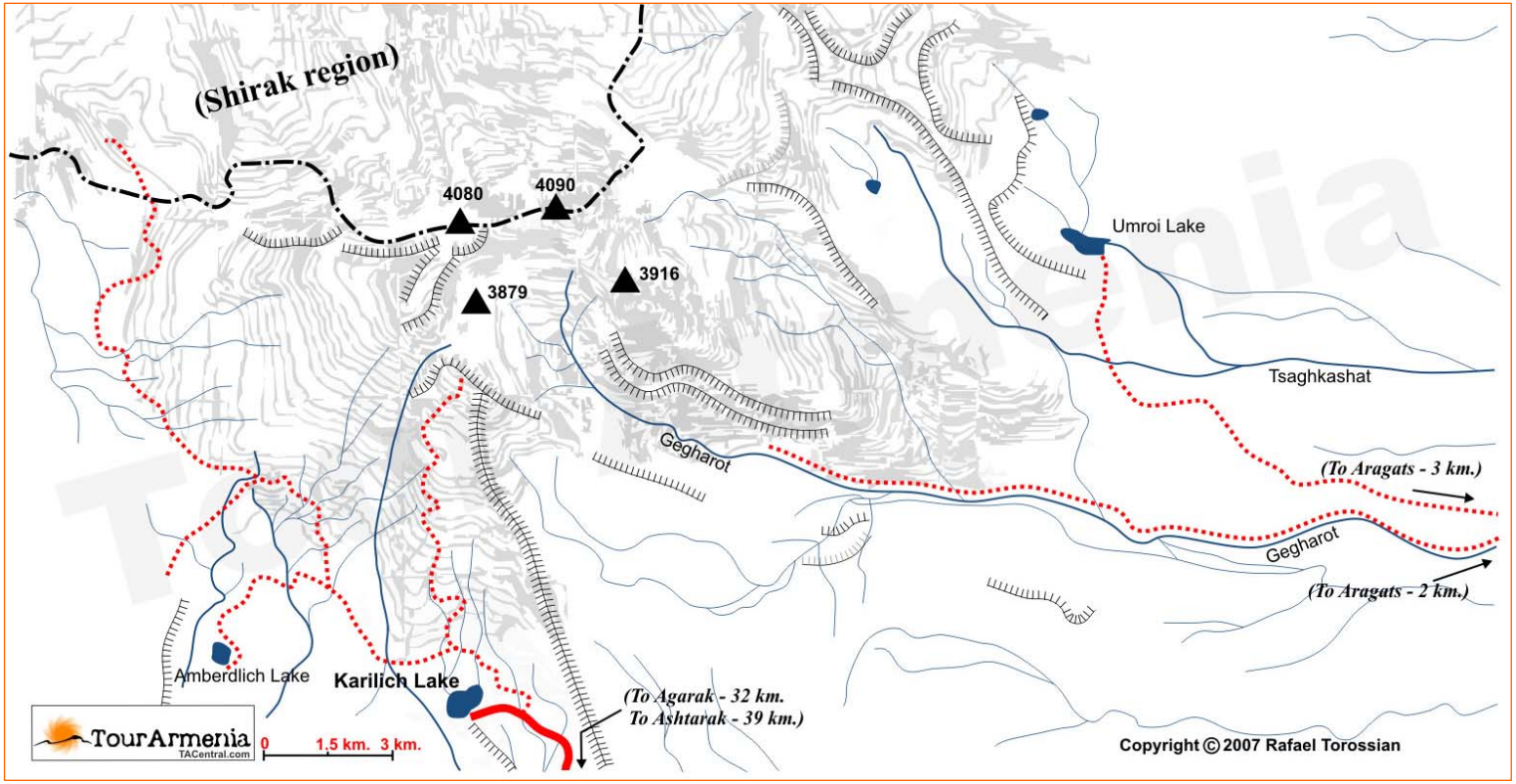
➲ (*Experienced Guide*) From crater cross to the east of the crater, over glacial snowcaps to the Gegharot delta and up the E edge of the peak. There is a path that climbs up the ridge to the summit, and continues westward to the North peak.

➲ (*Experienced Guide*) Aparan / Gegharot River. This trek is longer (1-2 days) and is a great beginning or ending point to climbing multiple peaks, spending the night in the crater or at J'rvesh Falls on the Gegharot River. The trek starts on the Aparan plateau, east of Aragats village. The village is about 14 km from the crater, following the Gegharot River, but a mountain track follows the river to the base of the J'rvesh Falls, which are about 4 km from the headwaters of the River inside the crater.

The ascent passes through alpine fields and flocks of sheep and cattle shepherded by Yezdi Villagers who spend their summers in the upper elevations, and wild stands of grass, flowers and scrub. It also passes, about 500m past a fork in the Gegharot River the highest altitude waterfall on Aragats (J'rvesh). At 2500m, it is a good acclimation stop, and lies in a different vegetation zone from the others. Nearby is an old **S. Grigor Lusavorich cave-shrine**, converted from an older pagan site. From here, the ascent to the crater and the East Peak is half a day, returning to the falls, or camping in the crater for more climbs in the next day.

Going the other way, it is a half-day descent from the East Peak/crater to J'rvesh, stopping to rest and enjoy the falls and set up camp. It is another half-day descent from J'rvesh to a pickup spot west of Aragats Village.

Camping *at Kari Lich and volcanic crater (bring warm tent and sleeping bag;* ***Overnight*** *at Physics Institute ($10/15, $20/30 with food);* ***Springs*** *around Kari Lich and in crater.*



ARAI LEHR: SEMIRAMIS RISING

(DD 40.412842544007816 x 44.456520080566406) For Satellite image of Arai Lehr, go to www.maps.google.com and enter 40.412842544007816, 44.456520080566406 in the search box. Great image.

Photograph courtesy Tigran Nazaryan©

The volcanic cone **Mt. Arai Lehr** (pronounced "ar-EYE lehr" elev. 2575.9 m) looms over the countryside, in clear view of Mt. Aragats and the Geghama Lehr. The mountain, named for the mythical Armenian hero Ara Geghetsik (Ara the Beautiful or Handsome) slain by the Queen Semiramis (Shamiram in Armenian) is so named because of the shape of its crest from the west; the mountain ridge resembles the prone face of a man, some saying it is the body of Ara, banished to the mountain by the dark arts of the Babylonian queen. The mountain had a less exotic connotation with its Turkish name, Garniyarigh ("Wounded Stomach").

The view from the top of Arai Lehr is incredible with the Geghama Lehr and the Kotaik plateau to the east, the Tsaghkuniats range and Aparan Jrambar to the north, an uninterrupted view of Mts. Ararat & Aragats, Ashtarak and the Kasakh River gorge to the west, and the Ararat Valley and Yerevan to the south.

The mountain is a unique combination of geological strata, with andesite-basalt rock formations on its Eastern slope and fields of "stone hail," rounded volcanic stones formed sprays of lava that hardened while falling to the ground or formed while rolling down the hardened slopes. Other slopes (south, east) have tall rock monoliths with natural caves and rich, fertile volcanic loam that nurtures an incredible variety of flora, a number of species of which are unique to Arai Lehr. The northern slopes are forested; thought illegal logging is slowly stripping the mountain of this vital resource that prevents land erosion and desertification. The forests consist of hardwood species (oak, maple) with birch and seven species of ash along with others. In addition the forests have a number of wild fruit trees and berries. About 50 species of shrubbery grow on the slopes. Western slopes show the effects of clear-cut logging; emerald green during a few weeks of spring, the slopes quickly dry in May, turning a harsh shade of brown for most of the year.

Photograph courtesy Tigran Nazaryan©

Ecology. For such a small territory Arai Lehr contains a surprising complexity of topography, taking in almost all of Armenia's total: semi desert, mountain steppe, hardwood forests and meadows with small sections of tall herbaceous, rocky and mountain scrub.

Arai Lehr officially has 650 species of vascular plants, an amazing concentration of twenty percent of Armenia's total. Twenty species on the mountain are endemic to the Armenian Plateau, nine of which are exclusive to the republic. Of the total over thirty are considered rare and threatened, fifteen of which are listed in the Red Book of Endangered Species in Armenia. Many species are incredibly beautiful, including mountain Crocus, Iris and Oriental Poppies, and are at their most abundant in the early-mid spring (mid April-May). Others found on the slopes include Pushkinia scilloides, Merendera trigyna and Scilla armena, Fritillaria caucasica, snowflower (Merendera trigyna) and the rare Aquilegia olympica. Most of the rare and endangered species can be propagated, though an experienced guide is absolutely necessary to determine which can be naturalized and which must be left alone.

The Legend of Ara and Shamiram and the creation of Arai Lehr

At this time there lived Semiramis (Shamiram in Armenian), the queen of Nineveh and a sorceress of the dark arts. Her husband was Ninus, who came to loathe her for her infidelity, and left his country. Semiramis, who had heard about the fame of the handsome Armenian king Ara ("Ara Geghetsik"), lusted after his image and asked him to come to Nineveh and marry her. Ara refused, so she marched her armies towards Armenia.

The battle began when Semiramis arrived in the region called Ararat, at the foot of the mountain that bears Ara's name. She wanted him caught alive, but he was vanquished, his body found on the battlefield among other slain soldiers. In order to calm the Armenians, who wanted to avenge his death, Semiramis said, "I have prayed to the gods to lick his wounds and heal him. Ara will revive."

Semiramis believed she could revive him. But when his corpse decayed she became crazed and had her servants bury it in a deep grave. Dressing one of her men as the fallen king, she came before the Armenians and said it was him. She had a statue erected in his name and gave sacrifices to the gods for saving his life. The Armenians believed her and spared her death at their hands. Semiramis then left Armenia for Van and Nineveh.

Another version of the story explains the creation of the mountain that bears Ara's name (Arai Lehr, literally "Ara's mountain"). This version has Ara being cast upon the mountain by Shamiram after he spurns her advances. Shamiram, skilled in black magic, conjured the forces of the night to throw him into the void, and when he landed, his body sank onto the top of the mount, giving it its present contour. Yet another tale says that when Ara died, and Semiramis had him buried at the foot of the mountain, his spirit rose, forming the top of the mountain into his sleeping likeness. The top of the mountain does resemble the contour of a man's face.

Additional information on Arai Lehr's eco-system is in the Mt. Arai Lehr section of the Aragatsotn chapter. See adventure tour operators for expert flora guides.

Photograph courtesy Tigran Nazaryan©

The volcanic cone that blew itself off sometime in the Paleolithic Era, cooling to its present shape by the Early Bronze Age, around the same time as Aragats and other volcanoes in the country. The sunken cone is open on several sides, allowing melted snows to form the mountain streams that feed the Kasakh and Hrazdan Rivers.

On its northern side the mountain has traces of the native forests that once covered its slopes, the northern shadows protecting the trees from the hot southern sun, which is brutal in the summer (bring your sun screen, hat and water).

The Peaks

There are 6 peaks around the sunken cone of the dormant volcano, with its own views and challenges to reach from the central crater (none are very hard if you are physically fit):

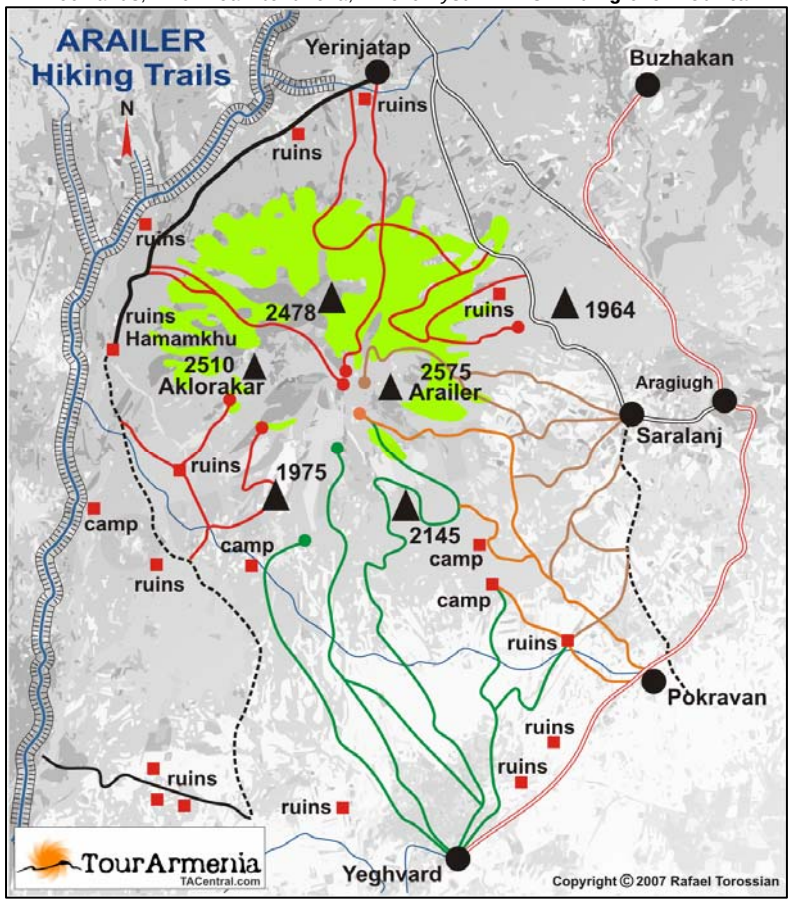
Central 2605m
East 2577m
South-east 2572m
Ktuts (west) 2511m
North-west 2481m
North-east 2478 m

Flowers on Arai Lehr include (in season) *Merendera trigyna, M. raddeana, colchiam*

bifolium, Purdminia scilloides, Scilla armenia, S. siberica, Tulipa julia, Iris caucasia, Muscari caucasicum, Bellevalia pycnantha, Ornithogalum schelkovnikovii, O. brachystachys, O. hyastanum, Fritillaria caucasia, Nectarosordum tripedale, Osp of gagea, Myosotis alpestre, Amenone caucasia, Orchis coriophora, Gladiolus tenuis.

Mountain Steppe flora include *Gladiolus atroviolaceus, Nigella oxypetala, Actynolema macrolema, Gundelia tournefort, Verbascum saccatum, Lallemanita iberica, Roemeria retracta, Scabiosa argentea, Scorronera paposa, Muscari beglecta, Stchys inflata, Astragalus distyophysus, A. kochianus, Achillea tenuifolia, Helichrysum rubicundum, Silena spergulifolia.*

Birding on Arai Lehr is better in migration periods, but there are some species you can see year round, including *Red-footed Falcon, Merlin, Eurasian Hobby, Rufous-tailed Rock-Thrush, Blue Rock-Thrush, Sombre Tit, Rock Bunting, Grey-necked Bunting, Crimson-winged Finch, Red-fronted Serin, Trumpeter Finch, Mongolian Finch, Eurasian Linnet, White-Winged Snowfinch, Eurasian Tree Sparrow, Spanish Sparrow, Pale Rock-Finch, Rock Sparrow, White-winged Snowfinch, Rose-coloured Starling*



Climbing the mountain

There are several trails up Mt. Arai Lehr from all sides. Some of the most popular begin in Kotaik, from the south and east. The trails are not difficult for the basically fit person, though persons not used to hiking should prepare ahead for potentially tiring walks. Good sturdy hiking shoes, a hat, sun screen and wind breaker are *de rigueur* on even summer days, as well as plenty of water.

West / North Approach

➲ A SW mountain road runs parallel to the Kasakh River for about 4.6 km to where a path leads up the Western face of the mountain for about 4.2 km to the summit.

➲ Two dirt tracks exit the south edge of the village; one next to the SW mountain road ("Left"); the other just S of the village ruins ("Right"). Both intersect about 3 km from the crest of the mountain, the right track continuing forward to the top of the mountain and the left skirting the NE base of the mountain before turning sharply right (SW) and climbing the NE cleft of the mountain.

➲ Another mountain road intersects the Norashen road 1 km north of central Yer'njatap on the NE end of the village and a right turn (SE) takes you to a right fork (S) in about 700m onto a mountain track that passes the NE edge of the mountain and after about 4.4 km leads to a path that climbs the NE ridge of the mountain (on its S side) to the crater in about 3.5 km

➲ Two other mountain paths start from Saralandj in Kotaik marz, some 5 km distant and take an westerly route to the East peak, skirting around its base to join the NE crevice pathway.

➲ Southern routes begin from Yeghvard and Pokravan in Kotaik marz.

South & East Approach

Nor Yerznka Trail The trail begins just NWW of the village and across the Arzni-Shamiram canal, where a dirt path forks off to the R about 250 m from the canal. The path (navigable by off road vehicles most of the way up) crosses grassy meadows and farmlands for about 9 km before meeting up with the path from Yeghvard Village. From there it begins the climb in earnest (another 9 km), passing natural outcrops, mountain streams and ridges plus the Kuis Varvara (Sister Barbara) shrine, also known as Tsaghkevank ("Flower Monastery"), inside a cave with a spring. The water from the spring is reputed to have curative powers, especially relating to eyesight. There is a significant level of zinc in the water, known to assist in eye sight, along with joint and muscle cramps. Drink up!

The moss-covered shrine reputedly contains the tomb of the saint along with an altar and (in season) candle sellers, belying its original Pagan use, and probably hiding the resting place of pre-Christian bones to boot. The Spring once had a Vishap (phallus), sadly gone. Those with fading eye sight and arthritic joints will be pleased to know the water has therapeutic concentrations of zinc. Drink up!

Photograph courtesy Tigran Nazaryan©

Yeghvard Trail More popular as the Nor Yerznka trail, but shorter by a few km, the Yeghvard trail leaves the north end of the village and strikes across the northern fields to the mountain. It is joined with the Nor Yerznka trail in about 4.5 km from the village, and then climbs in a circular path over the mountain's ridges and natural monuments of rock towers, along with the Kuis Varvara (Tsaghkevank) shrine (another 9 km).

Saralandj Trails The eastern approach is one of the shorter paths, but also pastoral, passing through rising hills and forested slopes en route to the top. The trails are also among the shortest to the top. For the flat footed, there is a *mountain road* (Vilis/UAZ /jeep) that departs the village from its N/NW edge and skirts the mountain on its way to Yerinjatap and the Aparan reservoir, about 12 km distant. About 3.3 km from Saralandj there is a path on the left that climbs the eastern slopes, ending in 3.6 km at the crater. A *couple of hiking*

trails veer off from the cemetery at the western edge of the village and join together just below the main peak, skirting it to the N then west to end at the top, for a total of about 4.5 km if you take the N trail from the cemetery, 5 km if you take the southern route.

RESOURCES

READINGS

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"Unique Geological Monuments of Armenia: Guidebook for tourists, " Ashot Avanessian, Edward Malkhassian and Sergey Nazaretyan, (Armenian Foundation of Seismic Protection Yerevan, 2000)

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"Wetlands in Armenia – their values and threats and their contribution to sustainable development and poverty alleviation," PDF FILE

"First National Report to The Convention on Biological Diversity incorporating A Country Study on the Biodiversity of Armenia" PDF FILE

OTHER BOOKS

There are many books on insect and fauna, most scientific books from the Soviet period.

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Guide to Coccoidea (Homoptera) of Armenia Borchsenius, NS 1949. Erevan, 60x90 1/16, In Russian. Ppb, 271pp. Price USD 29.

The Holocene mammal fauna of Armenia Mejlumian, SK 1988. Yerevan, 200x145, b/w graphs, In Russian. Ppb, 184pp. Price USD 26.

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Vertebrates, Animal life of SSR Armenia, Vol. 1 Dal, SV 1954. Yerevan, 260x180, tables 59, b/w figs 46, indexes 2, In Russian. Hdb, 415pp. Price USD 44.

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Orthopteran insects: Acridoidea, Fauna of SSR Armenia Avakian, GD 1968. Erevan, 265x180, b/w figs 315, index, In Russian. Hdb, 260pp. Price USD 27.

Coleopterous insects: Ground-beetles (Carabidae), Part 1, Fauna of SSR Armenia Iablokoff-Khnzorian, SM 1976. Yerevan, 267x178, b/w figs 38, indexes 2, In Russian. Hdb, 297pp. Price USD 32.

Fauna of SSR Armenia: Dipteran insects, Black flies (Simuliidae) Terterian, AE 1968. Yerevan, 265x175, tables 16, b/w plates 86, index, In Russian. Hdb, 272pp. Price USD 39.

ONLINE

Ecology

Biodiversity of Armenia www.nature-ic.am/biodiv/index%20eng.html

Masis.am Mountains www.masis.am/mounts/?lang=eng

Masis.am Flora www.masis.am/

PGRCAC www.cac-biodiversity.org/arm/index.htm

Eco Agrotourism in South Caucaus (excellent maps) www.eatsc.com/

Ecotourism.com www.ecotourismarmenia.com/

EcoTeam Development users.freenet.am/%7Ecoteam/

Weather Forecasts www.tacentral.com/weather.asp

Climate Change Info Center-Armenia www.nature.am/Index.htm

ERMC www.grida.no/enrin/htmls/armenia/soe_armenia/english/ermcaua/ermc.htm

National Academy of Sciences of Armenia www.sci.am/

Protected Areas of Armenia www.grida.no/enrin/biodiv/biodiv/national/armenia/proarea/prot.htm

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Plant Genetic Resources in the Caucasus and Central Asia www.cac-biodiversity.org/arm/arm_biodiversity.htm

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Sevan National Park http://www.grida.no/enrin/biodiv/biodiv/national/armenia/proarea/snpv.htm

Map- State Reserves http://www.grida.no/enrin/biodiv/biodiv/national/armenia/maps/presmapv.htm

Map - State ReservationsClimate Change Info Center in Armenia- Ministry of Nature Protection http://www.nature.am/Index.htm

AUA Environmental Research and Management Center http://www.aua.am/aua/research/ermc/index.htm

ERMC Geographical Information Systems http://www.aua.am/aua/research/ermc/html/GIS.htm

Greenpeace http://www.greenpeace.org/

World Wildlife Fund http://www.wwf.org/

EnviroLink Network http://envirolink.netforchange.com/

European Environment Agency http://www.eea.eu.int/

Global Resource Information Database (GRID) http://www.grida.no/
UNEP funded Database of information. Site includes 2nd Regional South Caucusus Workshop http://www.grida.no/enrin/aarhus/yerevan/index.htm

Information, Guides

Maps of Armenia (to buy) www.mapsworldwide.com/sec.asp?secid=29

Maps of Armenia (to look) www.reliefweb.int/rw/rwb.nsf/doc404?OpenForm&cc=arm&rc=3

ArmeniaGuide.com

Visa Information, Foreign Ministry www.armeniaforeignministry.com/

E-Visa www.armeniaforeignministry.am/eVisa/

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www.armgate.org

News, Books

www.ArmeniaNow.com

www.abrilbooks.com

www.stvartanbookstore.com

www.littlearmenia.com

Armenian House Literature www.cac-biodiversity.org/arm/index.htm

ABOUT THE AUTHORS

Rick Ney *(author)* first came to Armenia in 1992 to work at the American University of Armenia. In 1993 he began his work in humanitarian aid and development for USAID-funded projects at the Armenian Assembly of America and Fund for Democracy and Development, the latter as Caucasus Region Director. This morphed into writing about Armenia for various publications, which became the first English language complete guide to Armenia in 1996 (online) and 1998 (CD-ROM). It has since become an online resource, visited by more than 24 million unique visitors (www.TACentral.com and www.TourArmenia.info). Rick is passionate about Armenia's deep history, amazing ecology, and making the country accessible for independent travelers, whom he believes will be the basis of Armenia's entry into the open world. In 2000 he began dividing his time between Armenia and caring for a parent in Texas, both of which he considers the richest experiences of his life.

Rafael Torossian *(research, maps, and graphics)* has been collaborating with Rick on TourArmenia since 1996, providing some much needed reality checks and commentary along the way. In his other life Rafael designs flash sequences, ads, graphics and web sites for TWRI, for a variety of sites and content management projects. In a previous life Rafi was a field and track athlete, setting the All Armenia record (still unbroken) for the 60 meter dash, then as Assistant to the Minister for Sports, serving (surviving) 6 ministers, before meeting Rick, when they worked together on several humanitarian aid projects managed by the Armenian Assembly of America and Fund for Democracy and Development. In a world where engineers are taxi drivers, Rafi became the finance manager for these projects, creating the first multi-denomination accounting system for USAID projects in the Caucasus, tracking currency that inflated at one time 150% per day. Rafi is an Honored Coach of the Republic of Armenia and lives in Yerevan, a proud Yerevantsi who did not leave during the dark years of 1991-1995.

Bella Karapetian *(Editing, Translations, Russian Edition)* first met Rick in 1993 when she came to the American University and worked in his office as Faculty services Manager and Special Events Coordinator. There she had the chance to use her remarkable patience and good humor with wide-eyed professors wanting to know where the nearest shopping mall was (God give us patience and a good dose of Pantalgin). She then worked at the World Food Program in Armenia as administrator and Program Officer. In her previous life Bella worked with International architects at ArmStateDesign Institute as an information program assistant and translator. She is currently Executive Director of the NGO Historic Armenian Houses. History and architecture are her true loves and she has traveled to China, Thailand, Malaysia, Italy, Germany, and Lebanon and throughout the former Soviet Union. Bella tops this off by maintaining her membership in the World Esperanto Association. *Saluton!*

Thanks to*: (Region): Ashot Levonian for his information on hiking and caving tours in Tavush, to Boris Gasparyan for detailed info and critique of the prehistoric material; (General): to Tigran Nazarian and Christine Karapetian for their insightful comments, advice, trips into the wilderness and challenging ideas; to Gagik Gurjian from the Ministry for Historical Preservation, who has been showing me the intricacies of Armenia's cultural monuments and their influences since 1992, leading me to some of the mot amazing places and events I have been, as well as to the large vat of killer Voskevaz wine in his garden; to Stepan Ter-Margaryan & the folks at the Institutes of History and Archeology branches of the National Academy for their help on pointing me to original sources and exhaustive original information on destinations; to Sam Stepanian for his eternal support; to Arminco, Grisha Saghian and Vahan Yerkanian for their support, the creation of the first edition on CD, link ups and links to culture and more. To ArmeniaNow.com for giving me the chance to share this material to their world. And to R and L. TMB.*

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