

# **Report on New Circumstances Related to the Environmental and Social Impact Assessment (ESIA) of the Amulsar Gold Project in Armenia**

**Andrey Kovatchev** (kovatchev6@gmail.com), **Elena Tsingarska-Sedefcheva**  
(elena@balkani.org), **Andrey Ralev** (alibotush@gmail.com)

**Balkani Wildlife Society, Bulgaria**

[www.balkani.org](http://www.balkani.org)

**November 2018**



Amulsar gold project, 3.10.2018

**Table of contents:**

page 3 - Introduction

page 3 - Methodology

page 4 - FINDING 1: Missing assessment of the impacts of the Amulsar gold project according to the Bern Convention

page 10 - FINDING 2: ESIA report applies methodologies not reflecting the Bern Convention and incompatible with the Emerald Network

page 12 - FINDING 3: Possible impacts on species and habitats included in Standard Data Form of “Djermuk Area” AM0000009 ASCI

page 20 - FINDING 4: Possible impacts on other protected species and habitats

page 28 - FINDING 5: Pollution of Arpa river and possible threats to water ecosystems

## Introduction:

This document is a critical analysis, with regard to the impacts on biodiversity, of the Environmental and Social Impact Assessment (ESIA) of the Amulsar Gold Project. It adds new circumstances that require resumption of the ESIA procedure. The analysis was prepared by experts of Balkani Wildlife Society (Bulgaria) as requested by and with the support of CEE Bankwatch Network and EcoLur Informational NGO in support of the implementation of Chapter 3 (Environment) of the Comprehensive and Enhanced Partnership Agreement between the European Union and the Republic of Armenia (CEPA)<sup>1</sup>. According to Article 45 of CEPA:

*"The Parties shall develop and strengthen their cooperation on environmental issues, thereby contributing to the long-term objective of sustainable development and greening the economy. It is expected that enhanced environmental protection will bring benefits to citizens and businesses in the European Union and in the Republic of Armenia, including through improved public health, preserved natural resources, and increased economic and environmental efficiency, as well as through the use of modern, cleaner technologies contributing to more sustainable production patterns."*

## Methodology:

This document was prepared in three phases:

**Phase 1.** Study of the biodiversity chapters of the Amulsar Gold Project ESIA and the project context. Special attention was paid to baseline studies, biodiversity impact assessment and the proposed measures according to the mitigation hierarchy (avoid, mitigate, offset). The methodologies used, the gaps and inconsistencies in the data were evaluated. Preliminary visits to the Vayots Dzor and Syunik provinces were carried on.

Timeframe: 15th of July - 30th of September 2018

**Phase 2.** Field research at Amulsar Mountain, proposed Jermuk National Park and Emerald sites in Vayots Dzor and Syunik provinces in Armenia. The experts were divided into three teams and used different research methods depending on the landscape: transects on foot, transects by all-terrain vehicle, stationary observation points. All observed species from Resolution 6 and all habitats from Resolution 4 of the Bern Convention were described with GPS points and photos. All observed and potential impacts from Amulsar Gold Project were also described. Field research was complemented with meetings with Armenian NGOs, biodiversity experts, relevant authorities and local people. Questionnaires about presence of large mammal and bird species were made with local people.

Timeframe: 1st - 6th of October 2018

**Phase 3.** Preparation of a report on new circumstances related to the Environmental and Social Impact Assessment (ESIA) of the Amulsar Gold Project. The report was prepared by analyzing the gathered information, filling information gaps and contacting stakeholders.

Timeframe: 7th of October - 7th of November 2018

---

<sup>1</sup> <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=JOIN:2017:0036:FIN>

## **FINDING 1: Missing assessment of the impacts of the Amulsar Gold Project according to the Bern Convention**

The “Convention on the Conservation of European Wildlife and Natural Habitats” - Treaty No.104 of the Council of Europe (hereafter referred as Bern Convention) is ratified by Armenia on 14 April 2008 and entered into force on 1 August 2008<sup>2</sup>. The Convention is a binding international legal instrument in the field of nature conservation. With Recommendation No. 16 (1989) and Resolution No. 3 (1996) of the Standing Committee of the Bern Convention<sup>3</sup> the development of the EMERALD network began. It is a network of Areas of Special Conservation Interest (ASCIs) designed to conserve endangered natural habitats (listed in Resolution No. 4 (1996) of the Standing Committee of the Convention) and species (listed in Resolution No. 6 (1998) of the Standing Committee of the Convention).

In October 2015 Armenia proposed “Djermuk Area” AM0000009 ASCI site covering 35 015 hectares<sup>4</sup>. The following year, in December 2016, Armenia proposed another ASCI site - “Gorhajok Area” AM0000013 ASCI covering 4 056.7 ha<sup>5</sup>. Both sites have been proposed after conclusions of Biogeographical seminar for Armenia, Azerbaijan and Georgia held by the Bern Convention in Tbilisi on 27-29 May 2015<sup>6</sup>. After the second Biogeographical seminar held in Tbilisi on 8-9 November 2017<sup>7</sup> both sites have received a statute of candidate ASCIs.

After comparing borders of ASCIs and the planned Amulsar Gold Project as proposed in the Environmental and Social Impact Assessment (ESIA) report from May 17, 2016<sup>8</sup> (see schematic map below) we established that:

- **Significant part of the planned Amulsar Gold Project is inside the territory of the “Djermuk Area” AM0000009 ASCI.** More particularly inside this territory are the following parts of the gold mine project: barren rock storage facility, Erato open pit mine, transportation line/facility. The heap leach facility (HLF) is situated in the immediate vicinity of the “Djermuk Area” AM0000009 ASCI at 50-650 m from the Amulsar section of the site and at 250-550 m from the Arpa Gorge section of the site;
- The open pit, storage, transportation and processing facilities of Amulsar project and the “Gorhajok Area” AM0000013 ASCI are not overlapping, but the distance between them is 1550 – 2000 m and negative impacts should not be excluded. Southern part of Amulsar Gold Project (set-aside area) is

---

<sup>2</sup> [https://www.coe.int/en/web/conventions/full-list/-/conventions/treaty/104/signatures?p\\_auth=864D7ApJ](https://www.coe.int/en/web/conventions/full-list/-/conventions/treaty/104/signatures?p_auth=864D7ApJ)

<sup>3</sup> <https://www.coe.int/en/web/bern-convention/documents1>

<sup>4</sup> <http://natura2000.eea.europa.eu/Emerald/SDF.aspx?site=AM0000009&release=2>

<sup>5</sup> <http://natura2000.eea.europa.eu/Emerald/SDF.aspx?site=AM0000013&release=2>

<sup>6</sup> <https://www.coe.int/en/web/bern-convention/-/emerald-biogeographical-evaluation-seminar-for-armenia-azerbaijan-and-georgia>

<sup>7</sup> <https://www.coe.int/en/web/bern-convention/-/emerald-network-evaluation-semin-1>

<sup>8</sup> The ESIA report:

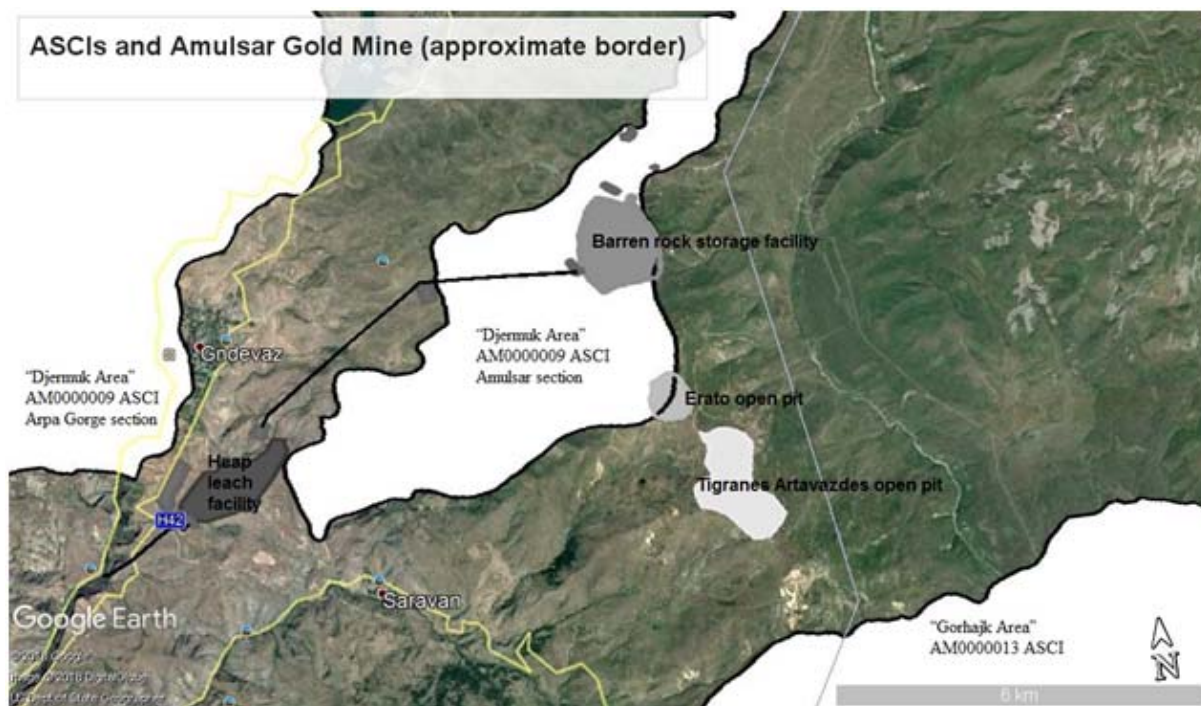
<https://www.lydianinternational.co.uk/projects/amulsar/environmental-and-social-impact-assessment-esia>

<https://www.lydianarmenia.am/index.php?m=publications&lang=eng&p=9>

partially within “Gorhajn Area”.

- Additionally in case of pollution, decrease of water quality or change of hydrological regime of water bodies the Amulsar gold mine could have impact on three more ASCIs: "Gnishik Protected Landscape" AM0000012 (downstream the Arpa river), "Tatev Area" AM0000016 (downstream the Vorotan river) and "Sevan National Park" AM0000002 (from the Kechut reservoir water is diverted into the Sevan Lake)<sup>9</sup>.

“Djermuk Area” AM0000009 was officially proposed as ASCI more than six months before completion of the ESIA report of the Amulsar Gold Project in May 2016 and the adoption of revised EIA permit in April 2016<sup>10</sup>. “Tatev Area” AM0000016 - eight months before, "Gnishik Protected Landscape" AM0000012 – two and a half years before, "Sevan National Park" AM0000002 - eight years before. The Gorhajn Area” AM0000013 was proposed six months after the completion of the ESIA report and revised EIA permit.



The location of the area of Amulsar Gold Project within ASCI and possible impacts on other ASCIs brings important legal consequences as of April 2016, when the revised EIA permit was approved (see reference note 9). According to the Articles 1, 2, 3, 4, 6.b and 9 of the Convention, Paragraphs 1-3 of the Resolution No. 1 (1989), Recommendation No. 14 (1989), Recommendation No. 16 (1989), Resolution No. 3 (1996), Resolution No. 4 (1996), Article 2 and 4 of the Resolution No. 5 (1998), Resolution No. 6 (1998), Paragraph 1 of the Recommendation No. 157 (2011) and Paragraphs 1-2 of the Resolution No. 8 (2012) and the

<sup>9</sup> <http://emerald.eea.europa.eu/>

<sup>10</sup> Page 1.12, chapter “1.4.1 Armenian EIA” of the ESIA report



Calendar for the Implementation of the Emerald Network 2011-2020 (2015)<sup>11</sup>, all of them adopted by the Standing Committee on the ground of article 14, the Republic of Armenia is responsible for the following:

1. Designation of a network of Areas of Special Conservation Interest (ASCIs) called “Emerald Network” according to objective criteria set-up by the Recommendation No. 16 (1989);
2. The candidate ASCIs shall be also designated by the governments according to national legislation or otherwise. For Armenia the completion of all the assessment and designation procedures should have been finalized by 2014;
3. Ensuring that all appropriate and necessary administrative measures are undertaken to ensure the conservation of the habitats of the wild flora and fauna species and endangered natural habitats under protection in the ASCIs (these are all species and natural habitats listed in Resolutions 4 and 6 which are found in the particular ASCI). Armenia in its planning and development policies shall avoid or minimise as far as possible any deterioration of ASCIs. To achieve conservation means the maintenance and the restoration or improvement of the abiotic and biotic features of habitats and where appropriate the control of activities which may indirectly result in their deterioration;
4. In light of above obligations Armenia shall take the necessary protection and conservation measures in order to maintain the ecological characteristics of the candidate Emerald sites (ASCIs);
5. Exceptions to take appropriate and necessary measures to protect the ASCI (Article 9 of the Convention) may be made and justified only in condition that there is no other satisfactory solution, that the exception will not be detrimental to the survival of the population concerned and that there is one of the following circumstances with respect to the decision: it is in the interests of public health and safety, air safety or other overriding public interests; it is aiming to prevent serious damage to crops, livestock, forests, fisheries, water and other forms of property; it is taken for the protection of flora and fauna or for research and education, of repopulation, of reintroduction of species;
6. Armenia also shall identify endangered species on its territory requiring recovery plans and develop and implement such plans;
7. Armenia shall undertake surveillance of the conservation status of species and natural habitats in designated ASCIs and shall inform the Convention Secretariat of any important changes likely to affect negatively in a substantial way the ecological character of the designated ASCIs or the conditions having justified their designation.

Considering all of the above-mentioned provisions and circumstances, we made a critical

---

<sup>11</sup> <https://www.coe.int/en/web/bern-convention/documents1>

<https://pjp->

[eu.coe.int/documents/1461016/4159207/pa02e\\_2014\\_Explanatory\\_document\\_relevanttexts\\_+Emerald.pdf/56a73276-1988-4676-8f44-4e97dd433d85](https://pjp-eu.coe.int/documents/1461016/4159207/pa02e_2014_Explanatory_document_relevanttexts_+Emerald.pdf/56a73276-1988-4676-8f44-4e97dd433d85)

review of the implementation of the Bern Convention and the Emerald Network concerning the ESIA report on the Amulsar Gold Project (Lydian International, from May 2016, and related to finalizing the EIA procedure according to the Armenian Law. The 2016 ESIA report reflects both: the EIA procedure carried out according to national standards and international standards. The EIA procedure was finalized in April 2016 with the revised EIA permit approving the revised EIA report on 28 April 2016 by the Ministry of Nature Protection (MNP). The approval of the EIA was originally granted by the MNP on the 17th of October, 2014, but afterwards the project was amended in 2015 resulted in the publication, in November 2015, of a new Feasibility Study for the Project<sup>12</sup>. . The following circumstances were established after the review:

- The Emerald Network, the candidate Emerald sites (ASCIs) affected by the Amulsar Gold Project and the legal basis of the Bern Convention related to the Emerald Network were not mentioned, referred or analyzed in any part of the ESIA report;
- Bern Convention is mentioned particularly as legal act only in one Chapter of the ESIA report –page 2.73, Chapter 2 “Legal Framework” (June 2016, Version 10), sub-chapters 2.2 “International Standards and Guidelines” and 2.2.7 “Voluntary codes and international environmental conventions”. The exact text related to Bern Convention in this chapter is part of “Table 2.8: Participation of the Republic of Armenia in International Conventions to Protect the Environment” and includes the following:

	<b>Name, Place and Date</b>	<b>Convention entered into the force</b>	<b>Signed by RA</b>	<b>Ratified by NA RA</b>	<b>In force for RA</b>	<b>Project Requirements</b>	
15.	Convention on the Conservation of European Wildlife and Natural Habitats (Bern, 19.09.1979)	01.01.1982	2006	26.02.2008	01.08.2008	Taken into consideration in sections on biodiversity (Chapters 4.10 and 6.11)	

However, after checking the referred chapters of ESIA report in table 2.8 (chapters 4.10 and 6.11) it is found that this statement of table 2.8 does not reflect the real

<sup>12</sup> see the preface of the “The Amulsar Gold Project. Environmental & Social Impact Assessment. Non-Technical Summary May 2016 (NTS)”, pages 3-4 of the NTS's chapter “1. Introduction, 1.2 The ESIA” and the Page 1.12 of the ESIA report's chapter “1. Introduction, 1.4 The ESIA and the Armenian Environmental Impact Assessment”

situation:

- In Chapter 6 “Potential Impacts and Mitigation Measures” (June 2016, Version 10), sub-chapter 6.11 “Biodiversity and ecosystems” there is no reference and mention of the Bern Convention. The same was found for all other ESIA parts analyzing biodiversity issues and sub-chapters included in chapter 6: “6.22 Impact Assessment Summary”.
- In Chapter 4 “Baseline surveys”, sub-chapter 4.10 “Biodiversity” (June 2016, Version 10) there is only one very short reference to the Bern Convention on Page 4.10.74, sub-chapter “4.10.10 Fish Survey and Results” and it states: *“None of the species observed during surveys are listed within the Armenian Red Book or the IUCN Red List. Nase Chondrostoma nasus is listed under the Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention) Annex III – ‘species that are in need of protection but may be hunted or otherwise exploited in exceptional instances’. This species is listed as of ‘least concern’ on the IUCN list.”*
- The third and last very short reference to the Bern Convention in the ESIA report was found in document attached to Chapter 4 called “Amulsar ecology chiroptera (bat) survey” (August 2014, Lydian Int Ltd) on page 3/4 of Appendix B “Legislation and policy”, point 1.3.1 “EU Habitats Directive”. This reference only shortly mentioned the general statement that the Directive 92/43 is adopted as tool for implementation of the Bern Convention in the EU.
- There are no other references to the Bern Convention in the whole ESIA report including all chapters and documents discussing biodiversity issues.

The main conclusions after the review of the ESIA report are:

- The Emerald network and Bern Convention are not given due consideration in the ESIA report and the ESIA report did not provide the responsible authorities in Armenia (Environmental Impact Analysis Center and Ministry of Nature Protection) with information that the project affects directly Emerald Network and adverse impacts could be expected;
- In the ESIA report there is no assessment on the impacts of Amulsar Gold Project on the ecological characteristics of the “Djermuk Area” AM0000009 ASCI and potentially on the “Gorhajk Area” AM0000013, “Gnishik Protected Landscape” AM0000012, “Tatev Area” AM0000016 and “Sevan National Park” AM0000002 ASCIs. Thus achieving the aims and provisions of the Bern Convention and ensuring the conservation of the habitats of the wild flora and fauna species and endangered natural habitats under protection in the ASCIs by taking appropriate and necessary administrative measures was jeopardized;
- Particularly such an assessment is missing for the following habitats and species included in the accepted Standard Data Form of the “Djermuk Area” AM0000009 ASCI and which could be possibly negatively affected from Amulsar Gold Project:
  - Habitats from Resolution No. 4 (1996) - E1.11 Euro-Siberian rock



debris swards; E2.3 Mountain hay meadows; E3.3 Sub-mediterranean humid meadows; E3.4 Moist or wet eutropic and mesotrophic grassland; E4.3 Acid alpine and subalpine grassland; E5.4 Moist or wet tall-herb and fern fringes and meadows; F9.1 Riverine scrub; G1.11 Riverine *Salix* woodland; H1 Terrestrial underground caves, cave systems, passages and waterbodies; H2.3 Temperate-montane acid siliceous screes; H3.1 Acid siliceous inland cliffs.

○ Species from Resolution No. 6 (1998):

- Plant species: 4067 *Echium russicum*.
- Invertebrate species: 6199 *Euplagia quadripunctaria*.
- Fish species: 1130 *Aspius aspius*; 6168 *Luciobarbus comizo*; 1146 *Sabanejewia aurata*.
- Bird species: A229 *Alcedo atthis*; A255 *Anthus campestris*; A224 *Caprimulgus europaeus*; A122 *Crex crex*; A429 *Dendrocopos syriacus*; A379 *Emberiza hortulana*; A338 *Lanius collurio*; A339 *Lanius minor*; A246 *Lullula arborea*; A272 *Luscinia svecica*; A346 *Pyrrhocorax pyrrhocorax*; A307 *Sylvia nisoria*; A397 *Tadorna ferruginea*;
- Mammal species: 1355 *Lutra lutra*; 1361 *Lynx lynx*; 1354 *Ursus arctos*; 1352 *Canis lupus*; 2635 *Vormela peregusna*; 1372 *Capra aegagrus*; 1307 *Myotis blythii*; 1321 *Myotis emarginatus*; 1305 *Rhinolophus euryale*; 1304 *Rhinolophus ferrumequinum*; 1303 *Rhinolophus hipposideros*; 1302 *Rhinolophus mehelyi*.

## **FINDING 2: ESIA report applies methodologies not reflecting the Bern Convention and incompatible with the Emerald Network**

ESIA report applies methodologies not reflecting the provisions of the Bern Convention and incompatible with the Emerald Network of ASCIs. Therefore the aims of designation of the “Djermuk Area” AM0000009 ASCI could be jeopardized after the implementation of Amulsar Gold Project. Such problematic methodologies are:

1. **The methodology for defining so called “critical habitat”<sup>13</sup>.** According to this methodology, existence of Emerald ASCI defined according to Recommendation No. 16 (1989) of the Standing Committee was not related to define an area as “critical habitat”. However according to the Bern Convention, ASCIs are areas that contain an important and/or representative sample of endangered habitat types that and/or contribute substantially to the survival of threatened species or any species listed in Appendices of the Convention. As result all habitats and species listed in the Standard Data Form of “Djermuk Area” AM0000009, with the exception of 1354 *Ursus arctos*, were assessed in the ESIA as not having “critical habitat” in the area of Amulsar Gold Project. This conclusion directly contradicts Bern Convention provisions.
2. **The methodology for assessing the mitigation measures and residual impacts in the ESIA<sup>14</sup>** contradicts the Bern Convention provisions for the protection of ASCIs. Mitigation measure should aim minimization of residual impacts. But ESIA provides as main mitigation measures the relocation of species (for mitigation impacts on plant species, snake and lizard species) and setting up a set-aside area (for mitigation impacts on grassland habitats, plant species, bird species and *Ursus arctos*). For species under protection of ASCIs those measures are not mitigation, but in fact compensation measures, because they do not achieve the aim to protect natural habitats and habitats of species *in-situ* (in the ASCIs and in the areas affected by the project). The same conclusion should be made as well for the mitigation measure “restoration of habitats” by planting local species of trees. This measure again does not intend minimizing the impacts on the ASCI’s habitats affected by the project, but intend “restoration” elsewhere and thus do not comply with Bern Convention provisions. Moreover restoration or improvement of the abiotic and biotic features of habitats is an obligation of the competent authorities arising from the provisions of the Bern Convention. As such it could not be accepted even as compensation/offsetting measure by Lydian Armenia.
3. **Establishing a new national park (Jermuk National Park) as compensation or offsetting measure also contradicts the Bern Convention.** According to the

---

<sup>13</sup> described in Chapter 3 “Critical Habitat” of the document “Natural and Critical Habitat Assessment for Amulsar, Armenia” part of Chapter 4 “Environmental and Social Impact Assessment”

<sup>14</sup> for description of mitigation and compensation/offsetting measures see “Natural and Critical Habitat Assessment for Amulsar, Armenia” and chapter “6.11 Biodiversity and Ecosystems” and Biodiversity Action and Management Plans

Convention it is the obligation of the government to ensure protection of the whole territory of the “Djermuk Area” AM0000009 ASCI. This could be achieved by declaring a new national park or other type of protection of the same area under Armenian law. As such declaring a new national park also cannot be accepted as compensation or offsetting measure to the impacts of projects located in or having impacts on ASCIs. Moreover the borders of the proposed national park as shown in the ESIA do not cover the whole area of the “Djermuk Area” AM0000009 ASCI and particularly the areas of Amulsar Gold Project are excluded from the proposal which is a violation of the obligations of Republic of Armenia to protect legally all ASCIs. In December 2017 the borders for the new national park were submitted to the Agency of Bioresources of RA (part of the Ministry of Nature Protection). Since then the process for declaring the national park has stopped and even public discussions with communities over the borders have not been carried on. In the near future it is not expected that Jermuk NP would be declared. Having in mind that construction of Amulsar Gold Project has already started and that any compensation/offsetting measures should be carried on before actual impacts on habitats and species, this is a serious violation of the international commitments of RA.

**4. Compensation or offsetting measures contradict Article 9 of the Bern**

**Convention.** Article 9 describes the only possible exceptions to the protection of species and habitats in-situ: *"Each Contracting Party may make exceptions from the provisions of Articles 4, 5, 6, 7 and from the prohibition of the use of the means mentioned in Article 8 provided that there is no other satisfactory solution and that the exception will not be detrimental to the survival of the population concerned: – for the protection of flora and fauna; – to prevent serious damage to crops, livestock, forests, fisheries, water and other forms of property; – in the interests of public health and safety, air safety or other overriding public interests; – for the purposes of research and education, of repopulation, of reintroduction and for the necessary breeding; – to permit, under strictly supervised conditions, on a selective basis and to a limited extent, the taking, keeping or other judicious exploitation of certain wild animals and plants in small numbers."* Existence of residual impacts means that the aims of the Bern Convention are not achieved. Ensuring conservation of the habitats of the wild flora and fauna species and endangered natural habitats under protection in the ASCIs and maintaining the ecological characteristics important for them could be jeopardized after project implementation. Application of compensation or offsetting measures do not avoid these consequences as there are no legal grounds for making exceptions from those provisions. ESIA report does not discuss that issue in any part of its content.

### **FINDING 3: Possible impacts on species and habitats included in Standard Data Form of “Djermuk Area” AM0000009 ASCI<sup>15</sup>**

Details about species and natural habitats included in Standard Data Form of “Djermuk Area” AM0000009 ASCI:

- Habitats from Resolution No. 4 (1996) - all habitats below are listed in the Standard Data Form of “Djermuk Area” AM0000009 ASCI as present in the area. The ESIA report has discussed the natural habitats present in the area of Amulsar Gold Project in several chapters – Chapter 4 “Baseline studies”, sub-chapter 4.10 “Biodiversity”, 4.10.3 “Vegetation Surveys and Results” and Appendix 4.10.3 “Natural and Critical Habitat Assessment”. The ESIA report studied and described the vegetation types according to the Armenian habitat classification. These results do not correspond to the Emerald classification of habitats in Resolution No. 4 (1996) using EUNIS classification and both are not comparable. Therefore ESIA could not be used as reference for presence or absence of the protected under Bern Convention natural habitats on the territory of Amulsar Gold Project. To describe habitats possibly located in and affected by the Amulsar Gold Project we used 2 reference sources:.” Habitats of Armenia” from 2016<sup>16</sup> (hereafter referred as HabArm) and “Interpretation manual of the habitats listed in Resolution No. 4 (1996) listing endangered natural habitats requiring specific conservation measures.”<sup>17</sup> (hereafter referred as HabBern)
  - E1.11 Euro-Siberian rock debris swards - According HabBern this habitat is wide spread through Europe and Black Sea regions in different climates. According HabArm this habitat is common in Armenia in all altitudinal belts on sandy or stony areas with vegetation consisting mainly annuals, succulents and semi- succulents;
  - E2.3 Mountain hay meadows – According to HabBern these are rich mesotrophic to eutrophic grasslands of the montane and subalpine levels of higher mountains. According HabArm the habitat is common in Armenia and spread in upper (high) mountain and sub-alpine level between 1900 and 2800 masl.;
  - E3.3 Sub-mediterranean humid meadows – According HabBern these are humid meadows rich in clover (*Trifolium* spp.) spread in continental parts and developed above the lowlands but below the montane level. According HabArm it is common in Armenia, but in contrast to Europe where the habitat is mostly spread in lowlands in Armenia the habitat is found from middle mountain to sub-alpine belts;
  - E3.4 Moist or wet eutropic and mesotrophic grassland – According HabBern

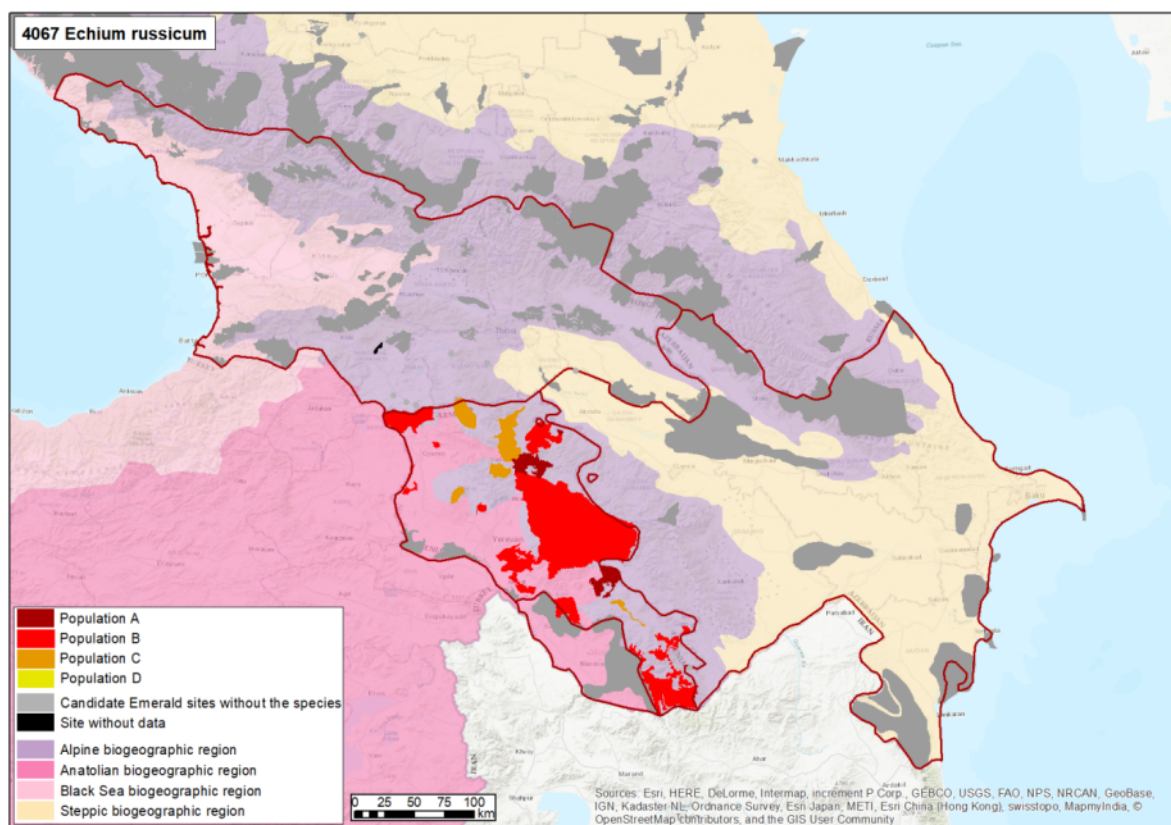
<sup>15</sup> <http://natura2000.eea.europa.eu/Emerald/SDF.aspx?site=AM0000009&release=2>

<sup>16</sup> G. M. Fayvush, A. S. Aleksanyan, 2016. Habitats of Armenia. National Academy of Sciences of the Republic of Armenia, Institute of Botany. 360 Pp.

<sup>17</sup> D. Evans (ETC/BD), M. Roekaerts, 31st August 2015. Interpretation manual of the habitats listed in Resolution No. 4 (1996) listing endangered natural habitats requiring specific conservation measures. Third draft version 2015. Strasbourg T-PVS/PA (2015) 9 [pa09e\_2015.doc]. 110 Pp.

these are wet eutrophic and mesotrophic grasslands and flood meadows of the boreal and nemoral zones. According HabArm the habitat is common in Armenia and can be found up to upper (high) mountain belt;

- E4.3 Acid alpine and subalpine grassland – According HabBern this grasslands are spread in alpine and subalpine level and are developed over crystalline rocks and other lime-deficient substrates or on decalcified soils of mountains. According HabArm the habitat is common in Armenia and most grasslands in high mountains in their alpine and sub-alpine level and particularly those of volcanic origin are of this type of vegetation;
- E5.4 Moist or wet tall-herb and fern fringes and meadows – According HabBern these are tall-herb and fern vegetation, often dominant along watercourses, in wet meadows and in shade at the edge of woodlands below the montane belt. According HabArm the habitat is common in Armenia up to low mountain level;
- F9.1 Riverine scrub – According HabBern this is a crub of broad-leaved willows or other riparian shrubs habitats beside rivers not taller than 5 m. According HabArm the habitat is found in Armenia in all altitudinal belts on the banks of rivers and standing water bodies;
- G1.11 Riverine *Salix* woodland – According HabBern these are bush or arborescent formations, lining flowing water and submitted to periodic flooding, developed on recently deposited alluvion. According HabArm the habitat is common in Armenia in up to middle mountain belt;
- H1 Terrestrial underground caves, cave systems, passages and waterbodies – According HabArm the habitat is common in Armenia and in volcanic mountains they are mostly short and not deep;
- H2.3 Temperate-montane acid siliceous screes – According HabBern these are siliceous screes of high altitudes and cool sites in mountain ranges of the nemoral zone. According HabArm the habitat is common in Armenia and spread from middle mountain to alpine belts;
- H3.1 Acid siliceous inland cliffs – According HabArm it is common in Armenia in all altitudinal belts in volcanic mountains.
- Species from Resolution No. 6 (1998):
  - Plant species: 4067 *Echium russicum* - Species has a wide range in Armenia and is designated for protection in almost all ASCIs in the country as shown on map of designated ASCIs for its protection on the page of Biogeographical Seminar from 2017 and conclusions of the seminar. “Djermuk Area” AM0000009 ASCI is one of the 2 most important sites in Armenia for its protection (Population A). Species is not referred or mentioned in the ESIA report and is not included in Red Data Book of Armenia. However suitable habitats (grasslands) are situated everywhere in project area and species should be assessed in ESIA report according to the provisions of the Bern Convention.



○ Invertebrate species: 6199 *Euplagia quadripunctaria*.

○ Fish species:

■ 1130 *Aspius aspius*

Found in Arpa river according to report "Support to SHPP-relating Reforms through the Dialogue of Public and RA Nature Protection Ministry for Sustainable Use of River Ecosystems"<sup>18</sup>.

■ 6168 *Luciobarbus comizo*

Probably technical mistake. Should refer to *Luciobarbus capito*, found in Arpa river according to report "Support to SHPP-relating Reforms through the Dialogue of Public and RA Nature Protection Ministry for Sustainable Use of River Ecosystems".;

■ 1146 *Sabanejewia aurata*

○ Bird species:

■ Common kingfisher (A229 *Alcedo atthis*)

Suitable habitat available along the Arpa river. The river was not assessed during ESIA baseline surveys.

■ Tawny pipit (A255 *Anthus campestris*)

Probable breeder according to baseline surveys.

■ European nightjar (A224 *Caprimulgus europaeus*)

<sup>18</sup> <https://www.ecolur.org/files/uploads/pdf/dzernarkangleren.pdf>



Probable breeder according to baseline surveys.

- Corncrake (A122 *Crex crex*);

Possible breeder according to baseline surveys.

- Syrian woodpecker (A429 *Dendrocopos syriacus*);

Possible breeder according to baseline surveys.

- Ortolian bunting (A379 *Emberiza hortulana*);

Definite breeder according to baseline surveys.

- Red-backed shrike (A338 *Lanius collurio*);

Definite breeder according to baseline surveys.

- Lesser grey shrike (A339 *Lanius minor*);

Possible breeder according to baseline surveys.

- Woodlark (A246 *Lullula arborea*);

Definite breeder according to baseline surveys.

- Bluethroat (A272 *Luscinia svecica*);

Breeding according to baseline surveys.

- Red-billed chough (A346 *Pyrrhocorax pyrrhocorax*);

Definite breeder according to baseline surveys.

- Barred warbler (A307 *Sylvia nisoria*);

Definite breeder according to baseline surveys.

- Ruddy shelduck (A397 *Tadorna ferruginea*);

Definite breeder according to baseline surveys.

### ○ **Mammal species:**

All the species listed below are included in the accepted Standard Data Form of the “Djermuk Area” AM0000009 ASCI, all of them are included in Annex II (animal and plant species of community interest whose conservation requires the designation of special areas of conservation) and in Annex IV (animal and plant species of community interest in need of strict protection) of the Habitats Directive. Some of them are also included in the RA Red Book.

The question arises as to why for species that have the same status under international law as the brown bear (for which survey was undertaken), the investor did not undertake any activities to investigate the impacts over them and the need for certain habitat conditions?

- Grey wolf 1352 *Canis lupus* - included in the accepted Standard Data Form of the “Djermuk” area AM0000009 ASCI; included in Annex II and IV of the Habitat Directive. The species has been recorded during the Baseline Biodiversity Surveys 2008 to 2015 within the ESIA, however no further surveys on it were undertaken, using up-to-date, robust methods. Most of the habitats at the site “Djermuk Area” AM0000009 ASCI, in the Amulsar Gold Project are suitable for its inhabitation.

- Bezoar goat 1372 *Capra aegagrus* - included in the accepted Standard Data Form of the “Djermuk” area AM0000009 ASCI, in Annex II and IV of the Habitat Directive, in the RA Red Book. The species has been recorded during the Baseline Biodiversity Surveys 2008 to 2015 within the ESIA, however no further surveys on it were undertaken, using up-to-date, robust methods. There are habitats at the site “Djermuk Area” AM0000009 ASCI, in the area of Amulsar Gold Project, that are suitable for its inhabitation. During its field surveys, in early October, 2018, our team recorded presence of Bezoar goats on two different locations, within the borders of the “Djermuk” area AM0000009 ASCI. Adequate surveys and conservation activities of the species are crucial also, because it is main prey base for the critically endangered leopard *Panthera pardus saxicolor*.
  
- Eurasian otter 1355 *Lutra lutra* - included in the accepted Standard Data Form of the “Djermuk” area AM0000009 ASCI ; included in Annex II and IV of the Habitat Directive, in RA Red Book. The species has been recorded during the Baseline Biodiversity Surveys 2008 to 2015 within the ESIA, however no further surveys on it were undertaken, using up-to-date, robust methods.
  
- Eurasian lynx 1361 *Lynx lynx* - included in the accepted Standard Data Form of the “Djermuk” area AM0000009 ASCI, in Annex II and IV of the Habitat Directive. The species has been recorded during the Baseline Biodiversity Surveys 2008 to 2015 within the ESIA, however no further surveys on it were undertaken, using up-to-date, robust methods. Most of the habitats at the site “Djermuk Area” AM0000009 ASCI, in the Amulsar Gold Project are suitable for its inhabitation. Further surveys of the species are needed, using up-to-date, robust methods. It is extremely important to evaluate the places used as corridors, to be stored as such in order to ensure connectivity of species habitats.
  
- Brown bear 1354 *Ursus arctos*, included in the accepted Standard Data Form of the “Djermuk area” AM0000009 ASCI, in Annex II and IV of the Habitat Directive, in the RA Red Book. The species has been recorded during the Baseline Biodiversity Surveys 2008 to 2015 within the ESIA and particular survey on it has been undertaken. As a result of that survey very high density of the species has been recorded in the study area, which includes the Amulsar Gold Project. The recorded

high density (59,4/1000 km<sup>2</sup>) (Burton et al., 2018<sup>19</sup>) is an indication that the area is key to the species and it is necessary to take strict measures to conserve its habitats and to ensure its tranquility in the area affected by the Project. The recorded high density is also a precondition for increased movement of individuals between adjacent habitats with optimal conditions. It is extremely important to evaluate the places used as corridors, to be protected as such in order to ensure connectivity of species habitats. No assessment regarding the Emerald sites in Armenia was undertaken. Moreover, the authors of the surveys on brown bear confirm the risks of mining for the population:

*“Continued persistence of this flagship species may be threatened by mining, poaching, and other anthropogenic pressures in the region, underscoring the urgent need for strategic conservation planning, impact mitigation, and expanded ecological monitoring within this biodiversity hotspot.”* (Burton et al., 2018)

- Marbled polecat 2635 *Vormela peregusna* - included in the accepted Standard Data Form of the “Djermuk area” AM0000009 ASCI, included in Annex II and IV of the Habitat Directive, in the RA Red Book. The species hasn’t been recorded during the Baseline Biodiversity Surveys 2008 to 2015 within the ESIA, however most of the habitats at the site “Djermuk Area” AM0000009 ASCI, in the area of Amulsar Gold Project are suitable for its inhabitation, i.e. mountain meadows, alpine and subalpine grassland, etc. This is confirmed by the RA Red Book: *“Vormela peregusna VU A2c B1b (iii) - occurs in almost all regions of Armenia at 1000-2000 m. The range structure and ecology of the species are absolutely unexplored. Habitats: semi-deserts, arid mountain grasslands, mountain and subalpine meadows. Threats: habitat destruction, cultivation, overgrazing, pesticides and other chemicals.”* Further surveys of the species are needed, using up-to-date, robust methods.
- Common bent-wing bat 1310 *Miniopterus schreibersii* - included in the accepted Standard Data Form of the “Djermuk area” AM0000009 ASCI, included in Annex II and IV of the Habitat Directive, in the RA Red Book. The species hasn’t been recorded during the Baseline Biodiversity Surveys 2008 to 2015 within the ESIA. It is typically found up to 1400 m asl. However, it is known to commute up to 2,600 m asl (IUCN Red List). Further surveys on the species are needed.

---

19

[https://www.researchgate.net/publication/326357180\\_Density\\_and\\_distribution\\_of\\_a\\_brown\\_bear\\_Ursus\\_arctos\\_population\\_within\\_the\\_Caucasus\\_biodiversity\\_hotspot](https://www.researchgate.net/publication/326357180_Density_and_distribution_of_a_brown_bear_Ursus_arctos_population_within_the_Caucasus_biodiversity_hotspot)

- Lesser mouse-eared bat 1307 *Myotis blythii* - included in the accepted Standard Data Form of the “Djermuk area” AM0000009 ASCI, in Annex II and IV of the Habitat Directive. The species has been recorded during the Baseline Biodiversity Surveys 2008 to 2015 within the ESIA, in the so called Regional Study Area (RSA) (Amulsar Ecology Chiroptera Survey, Appendix 4.10.4). However, in that survey, the boundaries of the two study areas LSA and RSA, are not specified with a map. Further surveys of the species are needed.
- Geoffroy's bat 1321 *Myotis emarginatus* - included in the accepted Standard Data Form of the “Djermuk area” AM0000009 ASCI, in Annex II and IV of the Habitat Directive. The species has been recorded during the Baseline Biodiversity Surveys 2008 to 2015 within the ESIA, in the so called Regional Study Area (RSA).
- Mediterranean horseshoe bat 1305 *Rhinolophus euryale* - included in the accepted Standard Data Form of the “Djermuk area” AM0000009 ASCI, in Annex II and IV of the Habitat Directive, in the RA Red Book. The species hasn't been recorded during the Baseline Biodiversity Surveys 2008 to 2015 within the ESIA. In the standard data form of the site, the species is described as Rare, so further surveys are needed for its detection and assessing of potential impacts by the Amulsar Gold Project.
- Greater horseshoe bat 1304 *Rhinolophus ferrumequinum* - included in the accepted Standard Data Form of the “Djermuk area” AM0000009 ASCI, in Annex II and IV of the Habitat Directive. The species hasn't been recorded during the Baseline Biodiversity Surveys 2008 to 2015 within the ESIA. In the standard data form of the site, the species is described as Rare, so further surveys are needed for its detection and assessing of potential impacts by the Amulsar Gold Project.
- Lesser horseshoe bat 1303 *Rhinolophus hipposideros* - included in the accepted Standard Data Form of the “Djermuk area” AM0000009 ASCI, in Annex II and IV of the Habitat Directive. The species hasn't been recorded during the Baseline Biodiversity Surveys 2008 to 2015 within the ESIA. In the standard data forms of the two site, the species is described as Common, so further surveys are needed for its detection and assessing of potential impacts by the Amulsar Gold Project.
- Mehely's horseshoe bat 1302 *Rhinolophus mehelyi* - included in the accepted Standard Data Form of the “Djermuk area” AM0000009

ASCI, in Annex II and IV of the Habitat Directive, in the RA Red Book. In the standard data form of the site, the species is described as Common, so further surveys are needed for its detection and assessing of potential impacts by the Amulsar Gold Project.

## **FINDING 4: Possible impacts on other protected species**

This chapter includes information about species not included in “Djermuk area” AM0000009 ASCI Standard Data Form, but that could have impact from Amulsar Gold Project and requiring protection for one or more of the following reasons:

- Species from Resolution 6 of the Bern Convention that according to scientific data are found in the “Djermuk area” AM0000009 ASCI.
- Species from Resolution 6 of the Bern Convention whose habitats should be protected according to requirements for restoration of their conservation status.
- Species included in Standard Data Forms of other ASCIs
- Species with Vulnerable, Endangered or Critically Endangered status according to IUCN Red Data List or Republic of Armenia Red Book (RA Red Book).

### **1. Persian leopard (*Panthera pardus saxicolor*)**

The Persian leopard *Panthera pardus saxicolor* is also not included the Standard Data Form of the “Djermuk Area” AM0000009 ASCI. The ESIA report does not find critical habitat in the area of Amulsar Gold Project for the species. However the species is recognized in the RA Red Book as Critically Endangered. According to master thesis of Lilit Simonyan: Study of the Diversity of Large Mammals in Jermuk and Surrounding Areas, Yerevan State University, Faculty of Biology, Department of Zoology, Yerevan, 2016: "*Panthera pardus* (Linnaeus, 1758) has been registered as one individual on the top of the mountain in 2014 in autumn" (page 30).

It is unknown if there is an actual population in the area of “Djermuk Area” AM0000009 ASCI, but it is part of the former range of the leopard and the area is a potential high quality habitat for it (Gavashelishvili & Lukarevskiy, 2008<sup>20</sup>). In the RA Red Book it is written: “presence of hardly accessible rocky massifs is also a vital requirement, since they allow to hunt on the staple prey, bezoar goats, from ambush and contain numerous shelters.”. The Heap Leach Facility of Amulsar Gold Project is located 250 meters from the Arpa Gorge with hardly accessible rock massifs and important population of bezoar goats. On the 6th of October 2018 we spotted two groups of bezoar goats, with respectively 12 and 8 individuals. The Republic of Armenia has obligation to develop and implement recovery plans for the leopard. The recovery should be based on the protected under ASCIs potential habitats of the species, part of the former natural range. Moreover, “Strategy for the Conservation of the Leopard in the Caucasus Ecoregion” was adopted by representatives of IUCN Cat Specialist Group and WWF, on a workshop in Tbilisi 30 May - 01 June, 2007<sup>21</sup>. According to this strategy, the long-term vision for the conservation of the leopard in the Caucasus ecoregion is: “Leopards and all wildlife prosper in natural habitats across the Caucasus ecoregion in harmony with people”. To achieve the vision, the mid-term goal has been defined as: “Ensure

---

<sup>20</sup>[https://www.researchgate.net/publication/228040273\\_Modeling\\_the\\_habitat\\_requirements\\_of\\_leopard\\_Panthera\\_pardus\\_in\\_west\\_and\\_Central\\_Asia](https://www.researchgate.net/publication/228040273_Modeling_the_habitat_requirements_of_leopard_Panthera_pardus_in_west_and_Central_Asia)

<sup>21</sup> <https://portals.iucn.org/library/sites/library/files/documents/2007-068.pdf>



*the conservation and sustainable management of viable meta-populations of leopard and wild prey and their habitats and build sustainable coexistence mechanisms with local communities across the Caucasus ecoregion”*. In the ESIA there isn't any discussion on that and there isn't any assessment of possible impact of the project on the potential habitats of the leopard and on the possibilities for future restoration of the leopard in the area.



Arpa Gorge 250 meters from the Heap Leach Facility, 5.10.2018



Bezoar goats in Arpa Gorge, 6.10.2018

## 2. Armenian mouflon (*Ovis orientalis gmelinii*)

Armenian mouflon *Ovis orientalis gmelinii* is not included in the Standard Data Form of the “Djermuk Area” AM0000009 ASCI. The ESIA report does not find any critical habitat for the species in the area of Amulsar Gold Project. However, the Armenian mouflon is recognized in the RA Red Book of Armenia as Endangered. According to master thesis of Lilit Simonyan: Study of the Diversity of Large Mammals in Jermuk and Surrounding Areas, Yerevan State University, Faculty of Biology, Department of Zoology, Yerevan, 2016: "*Ovis orientalis* (Gmelin, 1774), once registered on the territory of Sartsali mountain, found rarely in the Mayrats Gorge" (page 26). According to Khorozyan et al. (2009) the species status in the area is uncertain. According to the RA Red Book, besides other areas in the country, its distribution includes also Vayots Dzor Ridge with closest area of distribution 15-25 km away from Amulsar Gold Project infrastructure. According to habitat suitability model developed by WWF experts, there are habitats with high suitability in “Djermuk Area” ASCI and particularly in the area of Amulsar Gold Project. In the “Conservation Strategy for Armenian Mouflon (*Ovis [orientalis] gmelini* Blyth and Bezoar Goat (*Capra aegagrus* Erxleben) in Armenia” supported by World Wide Fund for Nature (WWF) and Critical Ecosystem Partnership Fund (CEPF), it is stressed that the principal conservation actions on these species should include preservation and restoration of suitable habitats, as well as enforcement of legislative and preventive measures to control mining and infrastructure

development. Additionally, the mouflon is a prey species for the critically endangered leopard (Sharbafi et al., 2016<sup>22</sup>) and as such more in depth research, monitoring and conservation activities for the species are needed.

### **3. Birds protected in Bern Convention breeding in the Amulsar Gold Project area.**

According to baseline surveys of ESIA not less than 13 species of birds from Resolution 6 of the Bern Convention were registered as breeding. As such they should be included in the Standard Data Form of “Djermuk Area” AM0000009 ASCI and impacts from the project assessed. Their habitats should be treated as critical habitat, but it has been done only for the lesser kestrel (*Falco naumanni*). For the other 12 species no mitigation, compensation or offsetting measures were proposed:

1. Lammergeier/Bearded vulture (*Gypaetus barbatus*): definite breeding proved in Arpa gorge and use of project area during breeding season
2. Egyptian vulture (*Neophron percnopterus*): definite breeding in Arpa gorge and use of project area during breeding season
3. Golden eagle (*Aquila chrysaetos*): probable breeding of several pairs
4. Lesser spotted eagle (*Aquila pomarina*): probable breeding
5. Booted eagle (*Hieraaetus pennatus*): definite breeding
6. Short-toed eagle (*Circus gallicus*): probable breeding
7. European honey buzzard (*Pernis apivorus*): possible breeding in adjacent areas and using of project area during breeding season
8. Long-legged buzzard (*Buteo rufinus*): definite breeding
9. Montagu’s harrier (*Circus pygargus*): definite breeding
10. Peregrine falcon (*Falco peregrinus*): probable breeding
11. Lesser kestrel (*Falco naumanni*): definite breeding in south Amulsar mountain and using of project area for feeding
12. Eagle owl (*Bubo bubo*): possible breeding
13. Greater short-toed lark (*Calandrella brachydactyla*): probable breeding

### **4. Armenian steppe viper and blotched snake**

The reptile species Armenian steppe viper *Vipera eriwanensis* (synonym *Vipera ursinii eriwanensis*, *Vipera ursinii*) and blotched snake/Eastern four-lined rat snake *Elaphe sauromates* (synonym *Elaphe quatorlineata sauromates*, *Elaphe quatorlineata*) are not included in the Standard Data Form of the “Djermuk Area” AM0000009 ASCI. The ESIA does not find critical habitat for these species in the area of Amulsar Gold Project. However the

---

<sup>22</sup>[https://www.researchgate.net/publication/294882409\\_Prey\\_of\\_the\\_Persian\\_leopard\\_Panthera\\_pardus\\_saxicolor\\_in\\_a\\_mixed\\_forest\\_steppe\\_landscape\\_in\\_north\\_eastern\\_Iran\\_Mammalia\\_Felidae](https://www.researchgate.net/publication/294882409_Prey_of_the_Persian_leopard_Panthera_pardus_saxicolor_in_a_mixed_forest_steppe_landscape_in_north_eastern_Iran_Mammalia_Felidae)



final conclusion of the Bern Convention Biogeographical seminar (Tbilisi, November 2017)<sup>23</sup> is that both species should be included in the list of ASCIs in Armenia because they were excluded for taxonomical reasons (*Vipera ursinii* and *Elaphe quatuorlineata* were split into several species). In the ESIA (Chapter 4) there are clear evidences that the area of Amulsar Gold Project and the “Djermuk Area” AM0000009 ASCI are habitat of these species. During our field trip we found Armenian steppe viper both in “Djermuk Area” and “Gorhajk Area”



Armenian steppe viper killed on road, 3.10.2018, Amulsar mountain

In such circumstances all provisions of the Bern Convention for protecting the habitats of *Vipera eriwanensis* and *Elaphe quatuorlineata* in the ASCI “Djermuk Area” AM0000009 are in force.

1298 *Vipera eriwanensis* (synonym *Vipera ursinii eriwanensis*) – Species is common in the whole area of Amulsar Gold Mine and was found from 1600 to 2600 masl. (from Heap Leach Facility to the top of the ridge)<sup>24</sup>. The species is listed in Resolution No. 6 (1998) with scientific name *Vipera ursinii* and therefore ASCIs should be designated for its protection. The conclusions of the Bern Convention Biogeographical seminar held on 8-9 November 2017 is “Insufficiency Minor/Correction of Data - to put species back in database”<sup>25</sup>. Consequently species should be included in the Standard Data Base of “Djermuk Area”

<sup>23</sup> <https://rm.coe.int/detailed-final-conclusions-on-the-representation-of-animal-species-fro/1680779ed7>

<sup>24</sup> see pages 13-14 of the appendix to ESIA report Chapter 4 named “Survey of reptiles and amphibians at Amulsar (Armenia). Final Report. November 2015

<sup>25</sup> <https://rm.coe.int/detailed-final-conclusions-on-the-representation-of-animal-species-fro/1680779ed7>

AM0000009 ASCI and assessed in ESIA report according to the provisions of the Bern Convention;

1279 *Elaphe quatuorlineata* (synonym *Elaphe quatorlineata sauromates*, *Elaphe sauromates*) - Species is found east of the town Gndevaz<sup>26</sup>. On pages 8-9 of the appendix to ESIA Chapter 4<sup>27</sup> the following is pointed out about the species: “A few additional species were found during this survey or in surveys of the proposed Jermuk National Park ... but away from areas directly affected by mining. None of these species are locally or globally threatened and they are not discussed further”. The first argument to exclude species from ESIA assessment –location is outside the areas directly affected is not justified. The same suitable habitats (pastures, the same altitude) are found in the project area and the locality is in close vicinity. The second argument for lack of conservation status is also no correct. The species is listed in Resolution No. 6 (1998) with scientific name *Elaphe quatorlineata* and therefore ASCIs should be designated for its protection. The conclusions of the Bern Convention Biogeographical seminar held on 8-9 November 2017 is “Insufficiency Minor/Correction of Data - to put species back in database”. Consequently species should be included in the Standard Data Base of “Djermuk Area” AM0000009 ASCI and assessed in ESIA report according to the provisions of the Bern Convention.

## 5. Apollo butterfly (*Parnassius apollo*)

Included in RA Red Book and IUCN Red List as Vulnerable. The species was not registered in the project area during ESIA surveys but an adult individual was found in 2018 by WWF experts. Hereby we submit additional data to show that the Amulsar Gold Project is a habitat of the species and finding the species should be a new circumstance for the ESIA procedure:

- According to Resolution 1 (1989) of the standing committee on the provisions relating to the conservation of habitats (Adopted by the Standing Committee of the Bern Convention on 9 June 1989) Paragraph 1 (a).: “*habitat*” of a species (or population of a species) means the abiotic and biotic factors of the environment, whether natural or modified, which are essential to the life and reproduction of members of that species (or population of that species) and which occur within the natural geographical range of the species (or population of that species);
- According to Habitats Directive of the European Union<sup>28</sup>, Article 1(f): *habitat of a species means an environment defined by specific abiotic and biotic factors, in which the species lives at any stage of its biological cycle*;
- The area of Amulsar mountain is ideal habitat according to the AR Red Book and the site Butterfly Conservation Armenia<sup>29</sup>: “*In Armenia the species demonstrates patchy*

<sup>26</sup> see an appendix to ESIA report Chapter 4 “Baseline surveys” named “Species of Fauna Recorded in Baseline Biodiversity Surveys 2008 to 2015”

<sup>27</sup> named “Survey of reptiles and amphibians at Amulsar (Armenia). Final Report. November 2015”

<sup>28</sup> <https://eur-lex.europa.eu/legal-content/en/TXT/?uri=CELEX%3A31992L0043>

<sup>29</sup> <https://www.butterfly-conservation-armenia.org/parnassius-apollo.html>



*distribution mainly in Central and Southern Armenia, where it occupies mostly subalpine meadows and grassy slopes. At Tsaghkounyats Mountains (in Central Armenia) it inhabits also upper zone of deciduous forests. The elevation range occupied by the species is from 1800 to 2800 m a.s.l. Flight period begins in mid (sometimes early) July and lasts until end of August in single generation.”* Moreover the map of the species includes Amulsar mountain. One of the authors of the website also participated in ESIA studies.

- The host plants of the Apollo, *Sedum* and *Sempervivum* species, are widespread in the Amulsar mountain. According to Endemic Plants within the Project-affected area in baseline studies of ESIA (page 4.10.23): "*A number of species within affected vegetation types are regional endemics, either within the Trans-Caucasus (TC) or the Caucasus (C). In addition to Potentilla porphyrantha, endemic plant species recorded during surveys included the following 21 species: (...) Hylotelephium caucasicum (Grossh.) H. Ohba (= Sedum caucasicum (Grossh.) Bor.)(C), Sedum gracile C.A. Mey (C), Sempervivum transcaucasicum Muirhead (C) (...). These species are sparsely, but widely distributed throughout the landscape apart from Potentilla porphyrantha which has only three populations in Armenia (see next section).*
- We observed one adult individual of *Parnassius apollo* on the 22st of July 2018 in the mountain above Vardahovit village at 2595 meters above sea level. The location N39.92493, E45.44981 is just 30 km from Amulsar Gold Project and in a similar habitat - mountain meadows with rock outcrops.



Apollo butterfly, 22.07.2018, Vardenis Range, Vayots Dzor Province





Habitat of Apollo butterfly, 22.07.2018, above Vardenis Range, Vayots Dzor Province

## **FINDING 5: Pollution of Arpa river and possible threats to water ecosystems**

During construction work of the Heap Leach Facility (HLF) of Amulsar Gold Project in June 2018 Arpa river was polluted. This was reported on 02.10.2018 by the Compliance Advisory Ombudsman (CAO)<sup>30</sup>. CAO reviews complaints from communities affected by development projects undertaken by the two private sector arms of the World Bank Group, the International Finance Corporation (IFC) and the Multilateral Investment Guarantee Agency (MIGA). The pollution was first spotted in amateur video<sup>31</sup> and subsequently official institutions of RA were alerted by citizens. According to information from the Environmental Protection and Mining Inspection Body:

*"on the basis of the alarm signaling the leakage of surface water from the territory allocated to the mining company Lydian Armenia, the Vayots Dzor Territorial Department of the Environmental Protection and Mining Inspection Body conducted an investigation and turned to Lydian to find out which measures have been taken to develop mechanisms for managing water flows in relation to the subject of the investigation, to enable the company to manage these water flows generated in as a result of precipitation. According to Lydian's written explanations to the Inspection Body, 150 fish died from leaks in the Arevadzuk fishery."* (Letter 16.1/111/511-18 from 02 November 2018)

The written explanations of the company confirmed that the pollution of Arpa river was related to the construction of Amulsar Gold Project:

*"... As a result of abundant precipitation, in the surface waters formed in the mining area of Lydian Armenia, there was an increased content of suspended particles. This water stream mixed with the Arpa river and reached the territory of the Arevadzug fisheries. The company invited ichthyologists from the Institute of Hydrology and Ichthyology of the National Academy of Sciences of the Republic of Armenia to study the situation, as a result of which 150 fish died. A mechanism has already been developed for managing water flows from the company's territory, which will not allow further pollution. As a temporary solution, for diverting water flows to the Arevadzug fisheries, the pipeline is mobile and will be used only in case of heavy rainfall in order to comply to the requirements of changing the river bed."* (Letter H/A-2018/59 from 19.06.2018)

During our study visit we documented a pipe that was placed by Lydian Armenia to change the natural water flow of the left tributary of the Arpa river over which the HLF was constructed. The tributary has temporary flow but brings lot of water after heavy rains or snow melting. Possibilities to pollute Arpa river, measures to change water flow of tributary of Arpa river or other risks connected to change in water flow and quality are not discussed in the ESIA. Subsequently fish, birds, amphibians, reptiles, invertebrates nor Eurasian otter connected to Arpa and Vorotan rivers were not studied at all. Impacts of the project over the water-related species and habitats of Emerald sites “Djermuk Area” AM0000009, “Tatev Area” AM0000016, “Gnishik Protected Landscape” AM0000012, “Sevan National Park”,

<sup>30</sup> [http://www.cao-ombudsman.org/cases/document-links/documents/CAOCompliance\\_MonitoringReport\\_Lydian\\_Armenia-01and02\\_10022018.pdf](http://www.cao-ombudsman.org/cases/document-links/documents/CAOCompliance_MonitoringReport_Lydian_Armenia-01and02_10022018.pdf)

<sup>31</sup> <https://goo.gl/9ZSudQ>



Gorhajn Area” AM0000013 were not assessed at all before construction permit was granted.



Heap Leach Facility constructed over left tributary of Arpa river, October 2018



Upper part of pipe placed by Lydian Armenia





Bottom part of pipe placed by Lydian Armenia to divert water directly in Arpa river

This finding is one more new circumstance that requires resumption of the ESIA procedure as foreseen in the texts of the Bern Convention and European legislation - Habitats and EIA Directives (which should be harmonized with Armenian Law according to CEPA). The actual situation after the decision on approval of ESIA of Amulsar Gold Projecty has shown lack of assessed impacts and lack of measures to reduce them. The fact that Lydian Armenia has taken some measures afterwards does not change anything - there is the so-called principle of legal certainty (there are many judgments of a European Court based on that). The ESIA procedure is designed to ensure the prevention of pollution and if measures are not planed in the ESIA there is no legal certainty that it will be prevented. Moreover there is no legal certainty that the "measures" taken by Lydian are sufficient in that direction. As we can see from the photos the pipe doesn't seem to be able to prevent flowing of polluted water in Arpa river.

If during construction phase of Amulsar Gold Project already the Arpa river was polluted, what will happen when cyanide is used in the Heap Leach Facility located on a river tributary in a high earthquake risk area? Detailed assessment of risks related to transportation, usage and storage of cyanides was not done in the ESIA. The Baia Mare cyanide spill in year 2000 after collapse of a containment dam constructed by the gold mining company Aurul in Romania was called the worst environmental disaster in Europe since the Chernobyl disaster<sup>32</sup>. The cyanide spill in Kirghizstan after a Kumtor mine truck accident in 1998 was

---

<sup>32</sup> <http://news.bbc.co.uk/2/hi/europe/642880.stm>

one of the worst disasters in Central Asia<sup>33</sup>. On March 11, 2018, the Canadian mining company First Majestic Silver Corp spilled 200 litres of a cyanide solution from the San Dimas project into the Piaxtla River in Durango, Mexico. The spill of the solution - representing roughly 100 to 180 mg of cyanide - apparently occurred when a truck carrying the deadly chemical ran out of fuel on a hill.<sup>34</sup>

---

<sup>33</sup> <https://www.rferl.org/a/1088817.html>

<sup>34</sup> <http://www.lapoliticaeslapolitica.com/2018/04/after-cyanide-spill-can-first-majestic.html>