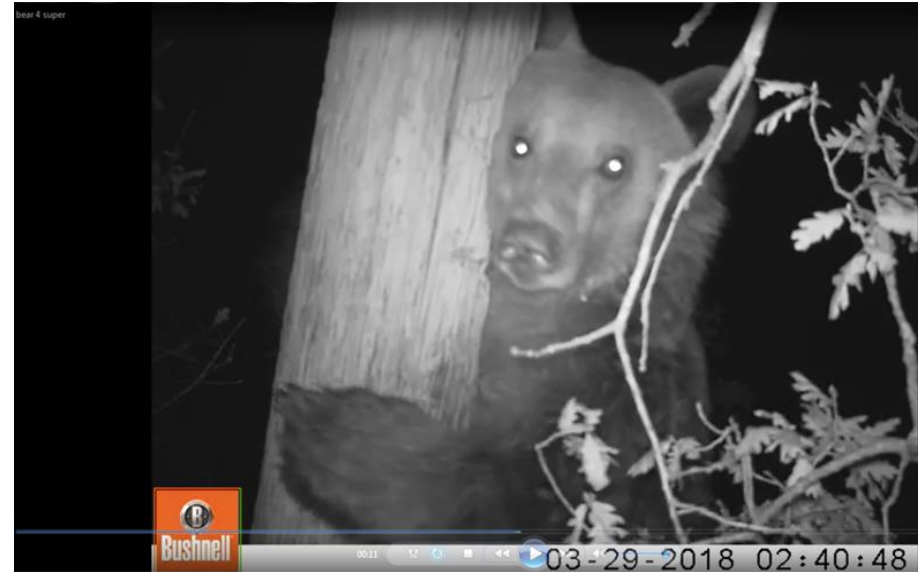


Construction and Protection of species with high conservation value.

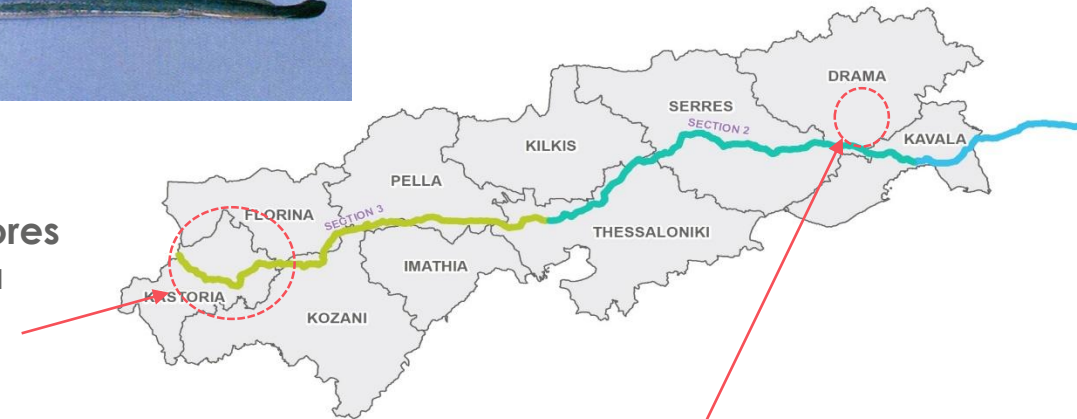
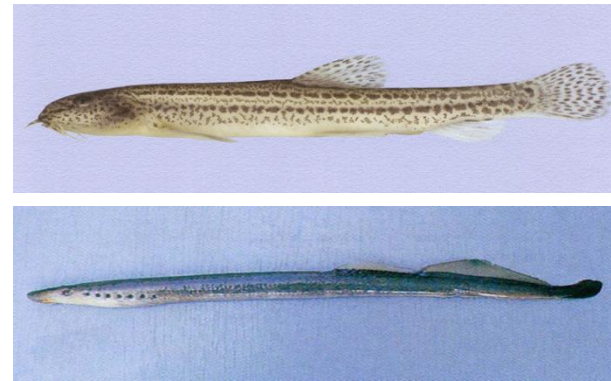


- ✓ Bonatti-JP Avax s.r.l, assigns great importance to manage all aspects related to **Environment, Communities & Cultural Heritage**
- ✓ *'Our ambition is to avoid negative impacts, enhance positive effects and contribute to sustainable development'*

HSE Policy of Bonatti - JP AVAX

- ✓ During **ESIA** Study from 2016 and after **Pre Construction surveys** specific areas were recognized for their biodiversity value.

Findings



At the **West** side (Katoria Region) of the project presence of two **large carnivores**

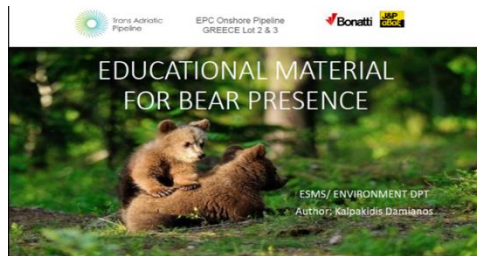
1. **Ursus arctos** (bear), classify as Least Concern (LC) according IUCN criteria
2. **Canis lupus** (wolf), classify as Least Concern (LC) according IUCN criteria

At the **East** part (Drama Region) of project, the pipeline crosses the known or likely range of the two endemic species

1. **Aggitis spined loach**, *Cobitis puctilineata*, classify as Vulnerable (VU) according IUCN criteria.
2. **Ammokotos** or Gavoello (*Eudontomyzon* (*Caspiomyzon*) *hellenicus*), classify as Critically Endangered (CE) according IUCN criteria

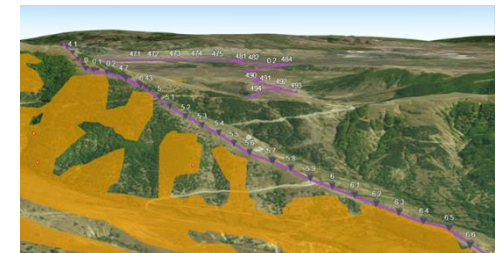
Solution

- The solution of planning and construction with implementation of **mitigation measures** selected.
- Collection of fish with a portable electric appliance (electrification method). With this method the fish are not killed, but they are simply transient, picked up and transferred to a small portable tank.
- Development and the implementation of specific bear and wolf mitigation plan. Mitigation measures in order to minimize the impact of construction on bears hibernation.



Implementation

- Adoption of seasonal restriction and time scheduling of future activities
- Monitoring of activities in sensitive areas has taken place every week. Installation of camera traps to capture bear and wolf movements within the construction zone.
- Ecological awareness training provided to all personnel.
- Portable noise barriers installed and moved along the construction activities, when there are noise emissions exceeding 60 dB approx.
- Specific measures for open trench with the conduction of wild life crossing (earth paths at least 3 m wide) over the trench at all important commuting corridors in order to create a "natural" corridor for bears
- Exit ramps (wooden boards or earth trench plugs) placed at least every 100m, as well as at the beginning and at the end of each open trench section, if left open overnight to allow animals to escape if they become trapped
- Fox lights system, in order to prevent bears from possible. LED's flash intermittently to deter predators and give the impression that the area is being patrolled.



Implementation

- In the framework of the project two samplings trips were conducted. A stopping net was placed upstream of the sand bag headwall, to avoid any fish to enter into the isolation area.
- 180 sq meters surface/sampling area
- 1 electrofishing devise (1,3kw, 300/500V)
- 5 scientists from Fisheries Research Institute and at least 4 members of ESMS ENV
- Collection of fish with a portable electric appliance. With this method the fish are not killed, but they are simply transient, picked up and transferred to a small portable tank
- Ecological monitoring from ecology experts
- Daily measurement of water quality



Achievement-Long term planning

- Protection of large carnivore and fauna salvage
- Local awareness and training to personnel
- Cooperation with local authorities and NGO
- Environmentally focused workshops (2 ESMS & CH Stand Down)
- Minor and temporary impact of habitat without delays on construction
- Contribution to scientific research and enrichment on Bear and wolf national protection plan
- Salvage and relocation of 389 fishes from 13 different species
- Prussian carp (*Cyprinus gibelio*) 40,62% and Eastern mosquito Fish (*G.holbrooki*) 22,62% of the total species salvaged & relocated downstream
- Aggitis spined loach (*Cobitis puctileneata*) was captured at 1,03% of total species salvaged & relocated downstream
- Further ecological monitoring for the recovery of fauna populations
- Implementation as successfully case study in future pipeline projects

