



Biodiversity Management Plan at Zlatna Panega Quarry, Titan Cement Bulgaria

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Background

- **TITAN Group** is an independent, vertically integrated cement and building materials producer with over 110 years of industry experience.
- **Rehabilitation and biodiversity management** at quarry sites are important components of TITAN's environmental policy for sustainable development.
- **More than 40 years experience in quarries rehabilitation** have proved successful for the mitigation of adverse impacts from extractive activities.
- Target is set to **develop and implement Biodiversity Management Plans (BMPs) for all sites recognized as areas of high biodiversity value.**

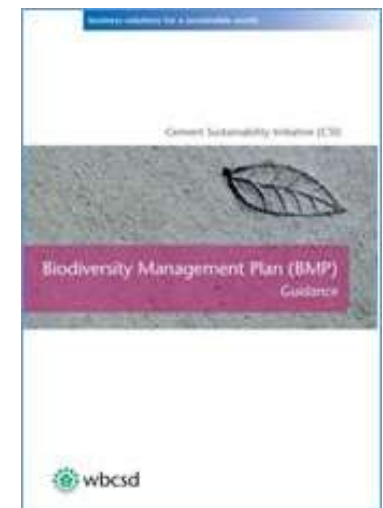


Background

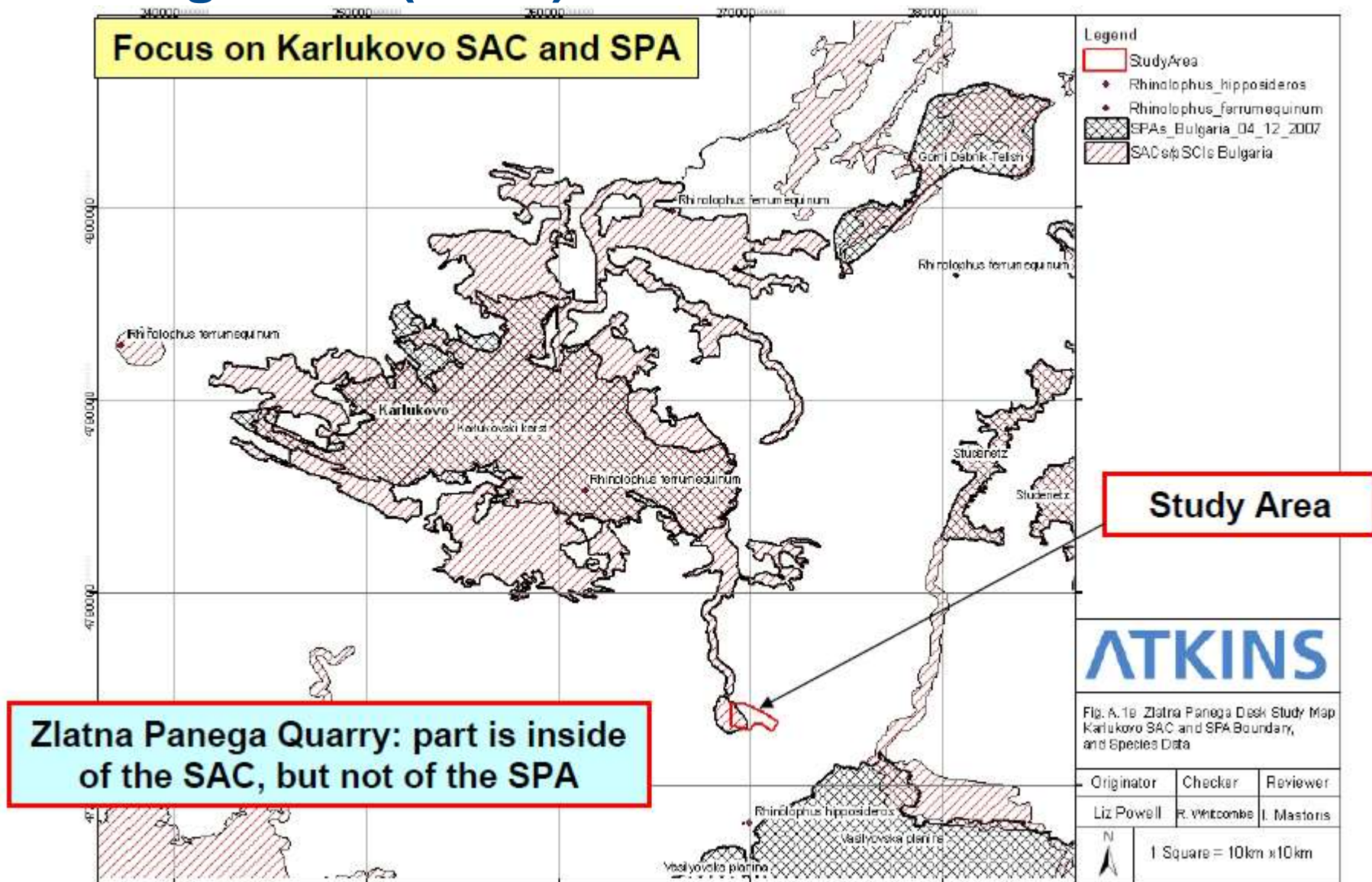
- The Zlatna Panega Cement Plant and nearby quarry for the supply of main raw materials (limestone, marl) are located in Lovech region in Bulgaria.
- **Part of the Zlatna Panega Quarry** has been included in the country's **Natura 2000 network** (*Karlukovo SAC/SPA*).



- Initiatives and actions taken from Zlatna Panega Cement Plant for the **biodiversity baseline assessment** and the development of an **Integrated Biodiversity Management Plan**, in line with the *Biodiversity Management Plan (BMP) Guidance* of the WBCSD/CSI. <http://wbcscement.org/index.php/key-issues/biodiversity/biodiversity-management>



Background (cont.)



Initial Ecological Scoping Study

Targets of the Study:

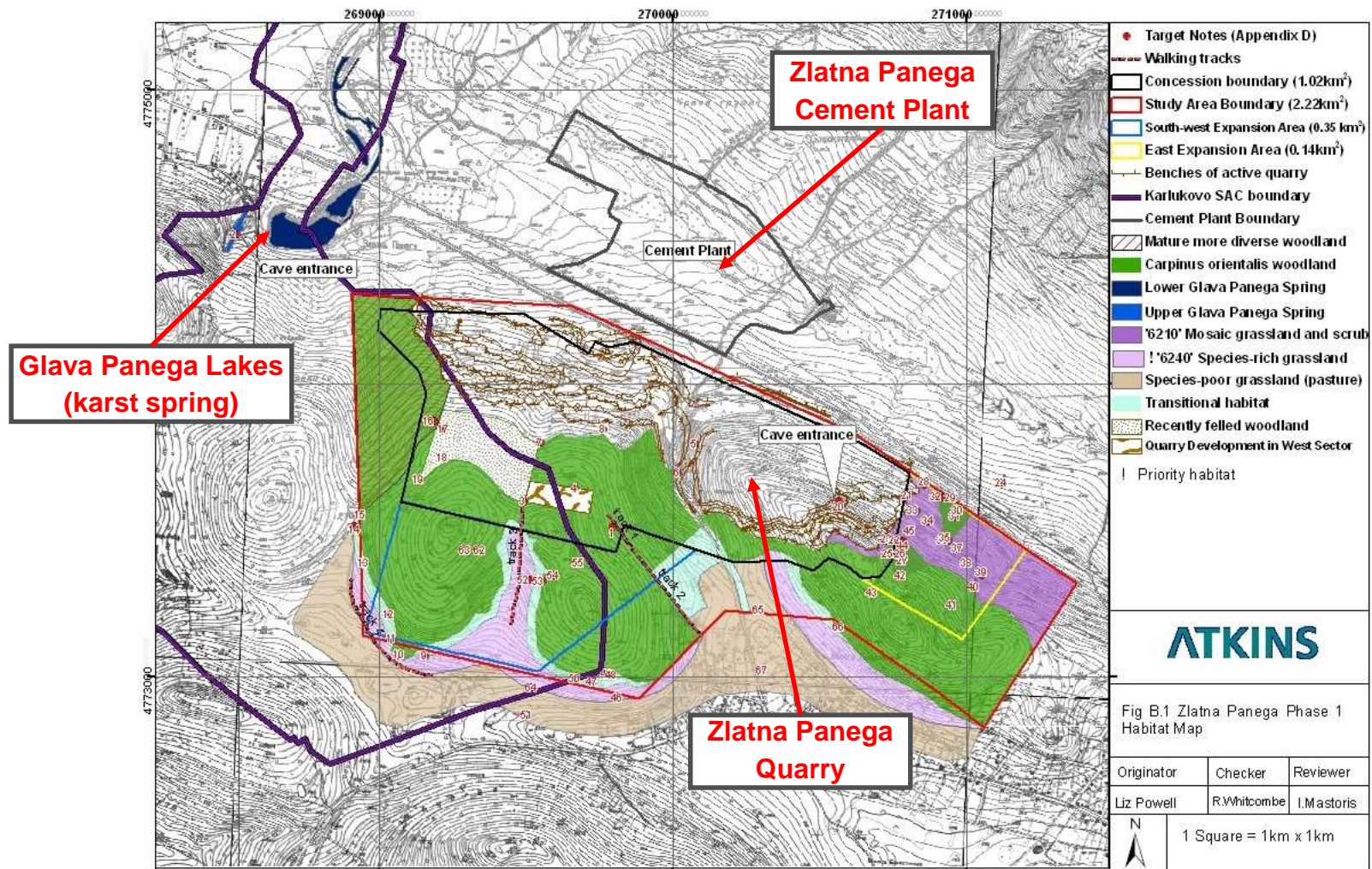
- ❑ **Biodiversity Inventory – Baseline Assessment** at Zlatna Panega quarry and surrounding areas (200Ha study area).
- ❑ **Evaluation of potential ecological impacts** of, and constraints to, quarry development.
- ❑ **Guidance on the requirement for further protected species surveys.**

Methodology:

- ❑ **Desk study** with the review of past EIA, documents relating to Karlukovo Natura 2000 designation, relevant legislation and also meetings with governmental authorities and NGOs.
- ❑ **Field survey** for habitats mapping and flora and fauna species recording.
- ❑ **Habitat classification** according to Annex 1 of the Habitats Directive.
- ❑ **Nature Conservation Evaluation** according to guidelines and methods applied in the UK and adopted to the Bulgarian conditions.

Initial Ecological Scoping Study (cont.)

Habitat Map



Biodiversity Management Plan

Overview

- **5-year plan** to address the **key environmental activities applied in the quarry** (operating plus expansions) and integrate biodiversity into company corporate planning and Environmental Management System.
- **Biodiversity objectives and targets** to preserve and where possible increase the biodiversity value during and after the extraction activities.
- **Actions and responsibilities** to serve the objectives and targets.
- **Engagement of stakeholders** at all levels, including:
 - ❑ Governmental nature conservation authorities;
 - ❑ Local municipalities and other associations and organizations;
 - ❑ Bulgarian Academy of Sciences;
 - ❑ NGOs,
 - ❑ Schools;
 - ❑ Business organizations.
- **Monitoring plan** to review the implementation of the BMP and evaluate the results, so as to proceed with corrective actions if necessary.

Biodiversity Management Plan (cont.)

Objectives

- Biodiversity protection and enhancement through **relocation and replanting of protected flora species**, like the Orchid *Spiranthes Spiralis*, the endemic species *Chamaecytis kovachevii*, and the Bee Orchid *Ophrys cornuta*, to minimize/avoid habitat damage and fragmentation.
- **Quarry rehabilitation** during and after the completion of the extraction activities. This includes the seed collection of native species, the **creation of a nursery** to grow them and planting them in depleted quarry benches and other areas.
- Identification and categorization of all possible threats posed to biodiversity, direct and indirect. Responses include: **active control of invasive alien species; controlling potential inadvertent fire ignition; securing the area against unauthorized access.**
- **Development of partnerships and engagement of stakeholders** to ensure long-term sustainability of the BMP and post-closure land use.
- **Promotion of sustainable socio-economic activities**, educational activities, volunteer groups' involvement, research studies etc.

Biodiversity Management Plan (cont.)

Actions: Nursery for native plant species - Quarry Rehabilitation

- **Collection of local species seeds** (*Fraxinus excelsior*, *Quercus robur*, *Quercus cerris*) together with children from local schools.
- Planting of the collected seeds in the **nursery** created at the plant site.
- **Rehabilitation** of the depleted benches at Zlatna Panega Quarry with grown plants from the nursery.



Biodiversity Management Plan (cont.)

Actions: Relocation and re-plantation of *Spiranthes spiralis* orchid (Protected species, listed in Annex 3 of Bulgarian Biodiversity Act)

- Relocation of 120 pieces of orchids from a future operating area to a depleted part of the quarry.
- The plants were dug out with the soil around the roots, taking care not to harm the tuber-bulbs, and were re-planted in the new area.
- Action has proved successful, since monitoring of the plants showed that they can grow and blossom in their new habitat.



Biodiversity Management Plan (cont.)

Actions: Relocation and re-plantation of *Chamaecytisus kovacevii* (Endangered species, listed in Annex 3 of Bulgarian Biodiversity Act)

- **Relocation of the endemic bushes** from a future operating area to a depleted part of the quarry.
- Tufts of the bushes were dug out with their roots, transported carefully to the new site and **were placed/planted in a 120m² area** that had been properly prepared in advance.
- **Action has proved successful**, since monitoring of the plants showed that they can sustain in their new environment.



Biodiversity Management Plan (cont.)

Actions: “Adopt Zlatna Panega River” Project

- **Bio-monitoring and cleaning of Zlatna Panega River** with the involvement of children of local schools.
- **Three times per year** the children make tours along the river and apply a monitoring program consisting of:
 - ❑ Measurement of water properties (pH, oxygen, temperature and velocity).
 - ❑ Observation of the surrounding area (trees, bushes, flowers and sometimes animals, color and smell of the water, etc.).
- **Monitoring data is recorded in designated tables** for bio-monitoring located close to the river.



Lessons learned

- One of the most important steps towards the implementation of the Biodiversity Management Plan is **the understanding of the biodiversity features and determining the priority species and habitats.**
- Success lies in the **identification and engagement of the right stakeholders** that will have an added value for the project. The consultation and partnership with specialists from regional authorities, NGOs, other expert consultants, as well as local communities has been very important for setting the objectives and proper actions for biodiversity management.
- The initiatives taken under the Zlatna Panega BMP has received **high recognition from stakeholders**, especially the governmental authorities and biodiversity specialists.
- The BMP has become an integrated part of the EMS of Zlatna Panega Plant and serves as a **tool for the preservation and enhancement of biodiversity at local level, as well as for reaching the overall sustainability targets of the company.**

**Thank you
for your attention**