



The region of the Piedra Berroqueña: A potencial Global Heritage Stone Province.

David Martin Freire-Lista (1,2) and Rafael Fort (1,2)

(1) Instituto de Geociencias IGEO (CSIC, UCM) Spanish Research Council CSIC – Complutense University of Madrid UCM. Madrid, Spain (d.freire@igeo.ucm-csic.es, rafael.fort@csic.es), (2) CEI Campus Moncloa, UCM-UPM and CSIC, Madrid, Spain.

The Piedra Berroqueña region occupies an area of approximately 4000 km² in the Sierra de Guadarrama, Spanish Central System, the centre of the Iberian Peninsula. This region has provided most of the building granites used in Madrid and surrounding provinces. Traditional methods of cutting and carving stone have been preserved and it is easy to locate historic quarries in its landscape in addition to mechanized quarries with large reserves of this dimension stone that is exported worldwide in the form of blocks or slabs with different finishes.

The Piedra Berroqueña has been used as a building stone since before the Romans. Petrophysical and durability characteristics have allowed to endure monuments as representative as The Royal Monastery of San Lorenzo del Escorial (1563-1584), del Sol Gate (1857-1862), Royal Palace (1738-1764), Alcalá Gate (1770-1778) or Prado Museum (1785-1808) in Madrid, Spain. Also the Piedra Berroqueña is part of most residential buildings and streets of this city, as well as modern buildings around the world, such as airport terminals in Athens, Cork, the British consulate in Hong Kong and headquarters of banks in Jakarta, among others.

Piedra Berroqueña province is presented in this abstract, which has many granite quarries with common characteristics such as their grey tones and the presence of darker enclaves "Gabarros or negrones".

In the Piedra Berroqueña province four main types of granite can be distinguish:

Peraluminous granites; with biotite and occasional cordierite, whose most representative historic quarries are in Alpedrete, Colmenar Viejo, El Boalo, El Berrocal and Collado Mediano.

Biotite granites with occasional amphibole are present in historic quarries in El Berrueco, Lozoyuela-Navas-Sieteiglesias and Pelayo de la Presa, among others. Currently exploited in Valdemanco and La Cabrera and marketed under the commercial names of Aurora Blanco, Blanco Berrocal, Crema Champagne, Blanco Castilla, Crema Cabrera, Blanco Perla, Crema Valdemanco. In Cadalso de los Vidrios it is marketed under the commercial name of Gris Cadalso and Rosa Cadalso.

Biotite granites without cordierite or amphibole and the most representative historic quarries are in San Lorenzo del Escorial, Valdemorillo, Robledo de Chavela, Colmenar de Arroyo, Chapinería and Navas del Rey. In Zarzalejo is marketed under the commercial name of Gris Escorial.

Leucogranites in Manzanares el Real, San Martín de Valdeiglesias or La Cabrera there are historical quarries. In the Cadalso de los Vidrios is exported under the commercial name Blanco Ártico, Blanco Cristal and Oro Cristal.

The Piedra Berroqueña province meets the requirements proposed to be nominated for GHSP. This nomination will contribute to better understanding and dissemination of an area with attractive economic aspects that focuses on the use of its resources. Thus, the Piedra Berroqueña remains part of the heritage of the province, whether used as a replacement stone for restoration of heritage buildings or when used for new buildings.

Acknowledgements

This study was funded by the Community of Madrid under the GEOMATERIALS 2 project (S2013/MIT-2914). The authors are members of the Complutense University of Madrid's Research Group: "Alteración y Conservación de los Materiales Pétreos del Patrimonio" (ref. 921349).

