
IUGS Subcommittee on Heritage Stones

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Part 1

Scope and Objectives

Presentation

The Heritage Stones Subcommittee (HSS) forms part of the International Commission on Geoheritage (ICG), together with the Subcommissions on Geoheritage Sites and Heritage GeoCollections. The ICG is, in turn, a scientific Commission established by the International Union of Geological Sciences (IUGS).

The ICG and its Subcommissions aim to actively collaborate and seek partnerships with other IUGS subcommissions, commissions, organisations and networks at all scales, from local to global, which are active within the field of Geoheritage and related disciplines.

Scope and Objectives

Historical use of natural stone can be a major contributor to understand past civilizations and how different civilizations evolved over the millennia, from antiquity to the present. The geological attributes of the stones, which have survived for millennia enrich our cultural heritage, should be documented and studied for the present and future generations. The identification of stone-built monuments and historical quarries of important stones are one of the mandates of this subcommission. This will lead to awareness and dissemination of information on stones (ex-situ Geomaterials) thus promoting education and research in this and related fields.

This initiative of IUGS-ICG-HSS can also motivate and encourage nations to protect monuments and quarries, and promote Geotourism. When a Heritage Stone is designated as such by the IUGS, this can contribute immensely for the present and future generations to understand the long and close relationship between natural stones and stone monuments.

The main objectives of IUGS-HSS are to identify, propose and coordinate designation of 'IUGS-Heritage stones' and develop an inventory of globally significant Heritage Stones (HS), using standardised criteria. In this context, the idea of designation and the work of the subcommission will be actively disseminated to all countries of the world to encourage natural stone activists to publicize natural stone from their countries in this way.

The IUGS-designation of Heritage stones will further encourage: or we can reframe it as the outcome of designation will promote

- a. Raising the profile of many natural stone materials to greater prominence through further research and publications. Professional recognition for, and understanding of, natural stones in the areas of geology, archaeology, engineering, architecture and stone/building conservation and restoration.
- b. Increased community, national, regional and international awareness of natural stones and their widespread utilisation within human history and culture. International co-operation in the research, including the dissemination of information on the utilisation of natural stone resources as building and ornamental stones.
- c. documentation of significant positive attributes of natural stone in terms of sustainability, well-being, conservation/restoration and regional economic development. Developing and maintaining a platform to define and formalise selected characteristics of natural stone material, for professional purposes and otherwise, in an internationally accepted context.
- d. Safeguarding and protecting heritage stone resources (historical quarries) from subsequent annihilation by alternative human endeavour or natural causes, and hence also providing a resource to conservation/restoration professionals who seek out same or similar stones for building/building element restoration purposes. Proper management of well-known existing natural stone extraction operations in order to ensure future availability and utilisation, and to avoid as much as possible exhausting the particular resource.
- e. Fostering Industry –academia partnerships in geotagging important ancient quarries and encouraging conservation and protection of these sites
- f. Raising and enhancing awareness among young students in particular, and public in general, on Heritage Stones. Heritage stones used in Heritage buildings and monuments act as educational resource for geologists, students, and the public in general, since they illustrate local and regional geology, small-scale petrographic characteristics and, consequently, the diversity of rock types that can be found in the surrounding countryside. Also, imported stones act as start point to promote discussions about their origin and reasons to be part of these buildings and monuments.

Definitions

○ Natural stone refers to stone (= rock), obtained from nature. After processing, these stones can be used as in blocks, slabs, tiles, ashlar, fragments or any other format suitable for construction, decorative elements and statuary.

○ An IUGS Heritage Stone (HS) is an IUGS designated natural stone that has been used in significant architecture and monuments, recognized as integral aspects of human culture.

Proposal: A description of the proposed HS must contain location (geo-coordinates), geological setting, petrographic name (Rock names and other geological nomenclature will follow the pertinent IUGS Classifications), stratigraphic name (if different from traditional name), typical colour/natural variability, other important natural and technical characteristics, trade names, details on the historical and functional quarries of the stone proposed. An assessment of historical use and other pertinent general utilisation of the stone under consideration. Description of monuments and buildings (preferably with cultural links and UNESCO designated cultural sites) erected with the stone. Availability of the stone for restoration of monuments.

○ Review Draft is a document prepared by a board member (Chair/SG) on the basis of the evaluation template provided to the voting members and supporting documents provided for considering the candidature of HS, strictly following the HS designation criteria and procedure.

○ Report is the final document submitted to the IUGS Executive Committee by the IUGS-ICG board for the approval or rejection of the proposed HS candidate. If approved, the report is uploaded to the HSS website.

To consider a stone as a potential HS candidate, an application must be prepared or accompanied by an expert voting member/members or in coordination with HSS correspondents. The application must be submitted to the HSS board, containing relevant information on stone. For designation purposes, a stone proposal will have to undergo a rigorous review by expert evaluators (voting members), ICG governing body and last stage review by the IUGS-EC. A list with the voting members (current expert reviewers) will be available on the HSS web page.

Part 2

Criteria and Procedure for designation of IUGS-Heritage Stone Designation

Important natural stones will be identified and proposals shall be prepared and coordinated by voting members and HSS correspondents (who are experts in field of natural stones) for IUGS HS. The proposals will be sent to the HSS Secretary. Proposals should use the HSS form, available at the web site. The proposals must contain the information detailed in Part 2 of this document, “Criteria and Procedure for designation of HS”.

Twice a year, the Secretary will make a list of the submitted proposals and send them to the voting members (experts) for evaluation, discussion and voting. There is no limitation regarding the number of proposals each person can send in. The Secretary will verify that the provided documentation contains the required material. If it is necessary to provide more documentation or information, the Secretary will notify the proposer/s, who will be asked to provide the required documentation within fifteen days.

The documents with initial checks by the Secretary will be forwarded to at least 3-5 experts for evaluation. The detailed evaluation report received from the experts will be sent to the Secretary for onward transmission to all the voting members/experts for a final scrutiny, and a vote. Once the proposal receives 60 percent of the votes, the report of the same will be prepared by the Secretary General in consultation with the HSS-Chair and Vice-Chair. This procedure will be supervised by the Chair and Vice-Chair of the subcommittee. The HSS board will then make a recommendation on each proposal, and send it to the ICG board for final discussion, and if pertinent, for final ratification of IUGS-HS designation by IUGS. The rejected proposals will be sent back to the proposers with feedback and suggestions of further improvement, if any. Rejected proposals must wait one year before resubmission.

Once the proposals are ratified by the IUGS Executive Commission, they will become an IUGS standard, and published in the IUGS journal, Episodes. Designation of a HS shall compliment and reinforce any other international standards and references.

Designation of a HS shall where possible, encourage and compliment the establishment of additional national, regional and local recognition of natural stones.

Finally, the IUGS ratified HS stones will be posted on the ICG website.

Application content

- A description of the stone/stones location (geo-coordinates), geological map, geological setting together with geological age, petrographic name and stratigraphic name, using the IUGS terminology.
 - Full petrographic and geochemical description of the stone, together with the Technical/Physico-Mechanical properties (mention of analytical methods, with

full references if the stones have not formed part of the proposer’s own research).

- Different varieties of the stone are to be described.
- A traditional name, widely used, under which the stone is commonly known. Example could be “Larvikite”, or a name already approved via stratigraphic nomenclature. This traditional name will be complemented with the scientific name according to IUGS recommendations.
- Trade names, even those with restricted use. These should be avoided for use as the principal name but need to be referenced in a comprehensive assessment.
- Account of all known functional and historical quarries of the stone with geological map.
 - Description of the quarrying activity, past and present.
- An assessment of historical and archaeological use, geographic application and other pertinent general information about the stone.
- Names and details of specific monuments of repute, such as UNESCO designated cultural sites, buildings of iconic or heritage nature where the proposed IUGS HS has been utilised.
- Traditional and indigenous beliefs and cultural practices related to the stone
- justification for the historical and archaeological use to be considered globally significant

Criteria

A stone should fulfil one or more of the following criteria to be considered as IUGS-HS:

Table. List of criteria to be designated as a IUGS Heritage Stone

S. No	Criteria	Description
1	Significant Cultural relevance	<i>An assessment of historical and archaeological use, reflecting relevance in cultural evolution. Wide-ranging application, or extensive use during a historic period (Baroque, Renaissance, Gothic, Persian-Islamic, UNESCO designated cultural sites etc...).</i> <i>Traditional and indigenous beliefs and cultural practices related to the stone should be taken into account.</i>
2	Stone Built Heritage sites	<i>Iconic monuments synonymous with the cultural identity of a particular time period.</i>

3	Architectural value	<i>Common recognition as a cultural icon, potentially including association with national identity or a significant individual contribution to architecture.</i>
4	Geological setting	<i>A description of the stone/stones location (geo-coordinates), geological map, geological setting together with geological age, petrographic name, stratigraphic name.</i>
5	Petrographic and technical description	<i>Full petrographic description of the stone/ Technical/Physico-Mechanical properties (description of analytical methods, with full references if the stones have not formed part of the proposer's own research). Mineralogical and Geochemical characterization. Mineralogical variations when different varieties of the stone.</i>
6	Quarries	<i>Account of all known functional and historical quarries of the stone with geological map. Ongoing availability of material for quarrying, including the historical quarries that are not active and have been preserved.</i>
7	Societal relevance	<i>Potential benefits to society, such as development of touristic infrastructure, preservation of local traditions, enhancing the cultural and social heritage of the area.</i>
8	Scientific relevance	<i>Benefits coming from research and scientific knowledge, which can be used for restorers and architects to restore buildings where the same Heritage Stone is suffering from weathering and destruction.</i>
9	Present use	<i>List of functional/present day uses of the stone (if any).</i>

Workflow

1. Proposals can be submitted throughout the year. Twice a year (1st March and 1st September), the Secretary General will tabulate the proposals received so far for forward processing.
2. A proposal made by one or more persons with an interest in natural stones must include all the required information, including the relevance of the stone, as described in the HSS statutes.
3. All proposals will be sent to the HSS Secretary General. The SG will checklist the provided documentation, asking for further information from the proposer/s if required, and then prepare the list of proposals to the Chair and Vice-Chair.
4. The Chair and Vice-Chair will send the proposals to the voting members/reviewers of the HSS for evaluation.
5. Following detailed evaluation by the voting members/reviewers (3-5), the proposal will be sent to all the voting members for discussion, and a vote. The HSS Chair will have the casting vote, in favour or rejection, based on careful scrutiny of the proposal.
6. If the proposal receives more than 60% of positive votes, it will be forwarded to the ICG Board as a HS recommended inclusion on the IUGS-HSS list.
7. Once the HS proposal is approved by the ICG Board, it is forwarded to the IUGS-EC for final ratification.
8. The proposer/s will be invited to send a paper to Episodes; the new HS will be posted on the ICG website. The proposer/s may write a paper on the approved values of the HS according to the standard format of Episodes.
9. After the proposed stone is designated, HSS logo may then be used in connection with the designated stone in scientific publications, on public sites and places promoted by National tourism agencies and similar entities. However, the logo may not be used in connection with any commercial purposes.

Annex I

Review of draft citation for 'IUGS Heritage Stone' designation

Suggested formal name:

Primary literature supporting this draft citation

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QUESTIONS FOR REVIEWERS

1. Is the formal name of the proposed IUGS HS appropriate and acceptable?

YES/NO

Formal name should be easily and internationally recognizable. Example: *CARRARA MARBLE*

2. Is the information provided on other names / commercial designations acceptable and useful?

YES/NO

Other names or commercial designations should be clearly listed, explaining when possible if there is a reason for them. Example: *White Carrara Marble, Veined Marble, Bardiglio Marble...*for the aforementioned Carrara Marble

3. Has the area of natural occurrence been sufficiently explained?

YES/NO

Geological maps and stratigraphic sections must be provided, together with a geographical map showing the occurrence of the outcrops in the frame of the country, informing all readers the location.

4. Have the geological characteristics of the stone been adequately described, including aesthetics, variability and composition?

YES/NO

Macro and micro descriptions should be provided at this point. Macro description will describe the aspect, colour and hue, mineralogy and other important aspects of the stone, providing pictures of all the features described. Micro description will consist of a petrographical analysis, reporting mineralogy and texture, and providing microscope pictures with parallel and crossed analysers. Geochemical and mineralogical characterization are also required.

5. Are the technical properties of the stone tabulated?

YES/NO

Technical properties refer to the characteristics that make the stone suitable for a specific use in construction. In this section, values obtained through standardized tests should be provided (usually, companies quarrying the stone have these data). If no data from companies are available, the proposal should include own results from the pertinent tests.

6. Has historic/geographic use been described, coupled with the nature of utilisation and availability of stone supply?

YES/NO

A detailed history of the use of the proposed stone should be provided, explaining the links between social, economic and historical development within local communities.

Note: this should include native and Indigenous use of the stone where applicable.

7. Is the stone resource being currently quarried?

YES/NO

The potential availability of stone from ongoing quarrying, whilst not mandatory, is considered desirable. Ideally, a IUGS HS should be available through quarrying for future heritage restoration and the resource should be safeguarded, i.e., not exhausted.

8. Has an accessible list of significant buildings, monuments, sculptures, artefacts, and/or the like, utilising the stone been made?

YES/NO

This list can be presented as a table, detailing the place, year/age and architect (if available) of each building and/or monument.

9. Is there any additional technical/heritage information not in primary references that would enhance this nomination?

YES/NO (If YES, please indicate)

**10. From the data provided, does this draft HS citation fulfil most of the attributes?
YES/NO**

**11. Will recognition of this stone as a Heritage Stone potentially assist most of the
above listed activities?
YES/NO**

**12. As a consequence of assessing the primary literature and via the above
consideration, do you consider that this stone should be recognised as a 'Heritage
Stone'?
YES/NO**

**13. If "NO" to Question 12, explain where the draft citation is deficient, suggest
what additional data is required and/or highlight any pertinent issue.**

N/A = Not applicable

Comments:

PERSON PROVIDING THIS REVIEW

DATE OF THIS REVIEW