

Principles of a national geoheritage program



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summary

- what is geoheritage?
- why national programs for geoheritage?
- main aims?
- how to implement?
- who should be involved?
- the European experience



Thingvellir, Iceland

what is geoheritage?

what is geoheritage?

particular occurrences of
minerals, rocks, fossils,
soils, landforms and
geological active
processes with
exceptional value



Araripe Geopark, Ceará, Brazil

what is geoheritage?

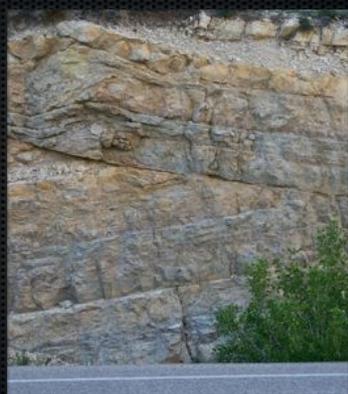
in situ
geosites - natural outcrops



Litoral Alentejano e Costa Vicentina Natural Park, Portugal

what is geoheritage?

in situ
geosites - man-made
outcrops



Alto Tago Natural Park, Spain

what is geoheritage?

ex situ
geological collections



Adelaide, Australia

what is geoheritage?

geoconservation: an
emergent geoscience



Aparados da Serra National Park, SC/RS, Brazil



Uluru, Northern Territory, Australia

why national programs for geoheritage?

why national programs for geoheritage?

- ▶ natural resource



Barca, Romania

why national programs for geoheritage?

- ▶ natural resource
- ▶ non-renewable



Dinopolis, Spain

why national programs for geoheritage?

- ▶ natural resource
- ▶ non-renewable
- ▶ with different values



Cape Montezemo GSSP, Portugal

why national programs for geoheritage?

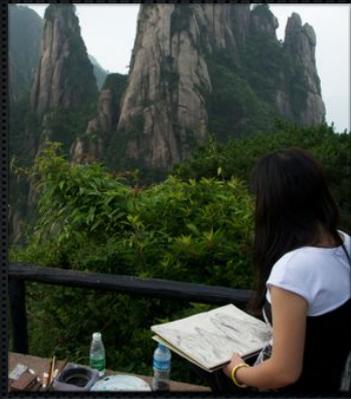
- ▶ natural resource
- ▶ non-renewable
- ▶ with different values
- ▶ affected by threats



Morocco

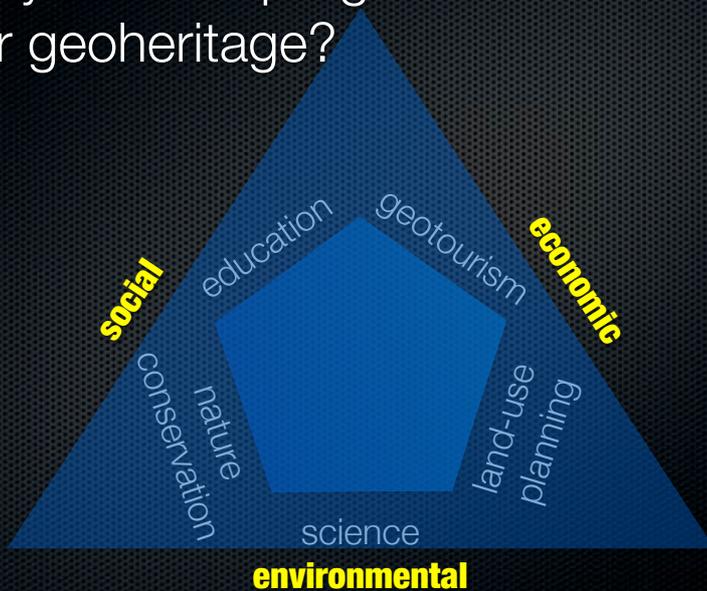
why national programs for geoheritage?

- ▶ natural resource
- ▶ non-renewable
- ▶ with different values
- ▶ affected by threats
- ▶ with several types of uses



Sancqingshan Geopark, Jiangxi, China

why national programs for geoheritage?





Aurlandsvangen, Norway

main aims of a
national program?

main aims?

▶ science

to protect the best possible geosites to allow present and future study and research of Earth's history



Vila Velha, Paraná, Brazil

main aims?

▶ science

to protect the best possible geosites to allow present and future study and research of Earth's history

▶ education

to promote formal and informal education of geosciences to raise society awareness of geodiversity



Naturalja Geopark, Portugal

main aims?

▶ science

to protect the best possible geosites to allow present and future study and research of Earth's history

▶ education

to promote formal and informal education of geosciences to raise society awareness of geodiversity

▶ planning

to give managers and administrators information and tools to include in nature conservation strategies and land-use planning



Madeira island, Portugal

main aims?

▶ science

to protect the best possible geosites to allow present and future study and research of Earth's history

▶ education

to promote formal and informal education of geosciences to raise society awareness of geodiversity

▶ planning

to give managers and administrators information and tools to include in nature conservation strategies and land-use planning

▶ sustainable tourism

to promote the development of tourism in less developed regions raising the income of local communities - geotourism



Volcano island, Italy



Fogo Island, Cape Verde

how to implement?

how to implement?

- ▶ inventorying



Peneda-Gerês National Park, Portugal

how to implement?

- ▶ inventorying
- ▶ characterization and assessment



Daroca, Spain

how to implement?

- ▶ inventorying
- ▶ characterization and assessment
- ▶ legal protection



Levkos Petrified Forest Geopark, Greece

how to implement?

- ▶ inventorying
- ▶ characterization and assessment
- ▶ legal protection
- ▶ conservation



Hallett Cove, Adelaide, Australia

how to implement?

- ▶ inventorying
- ▶ characterization and assessment
- ▶ legal protection
- ▶ conservation
- ▶ valuing and interpretation



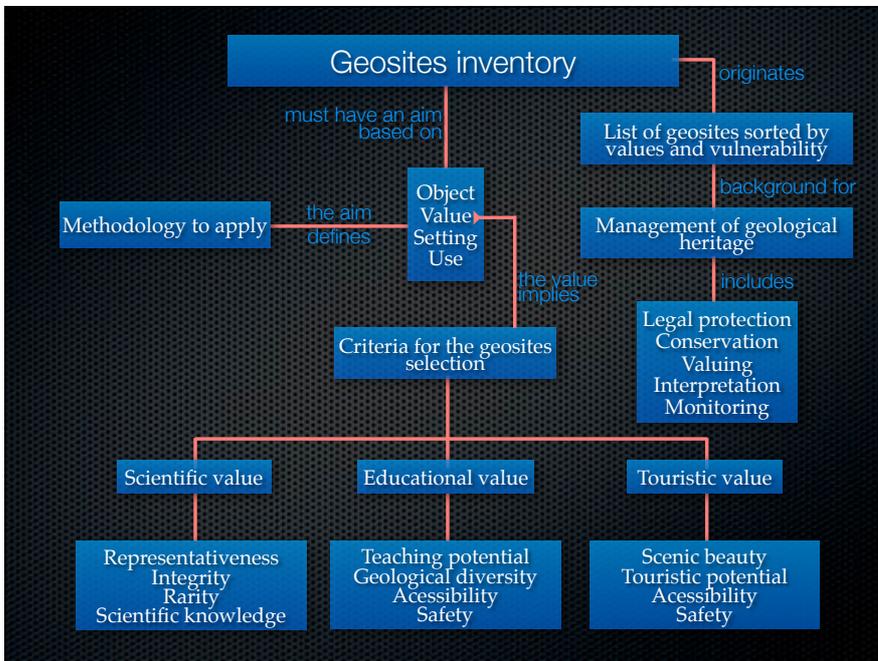
Vikazumli Geopark, Germany

how to implement?

- ▶ inventorying
- ▶ characterization and assessment
- ▶ legal protection
- ▶ conservation
- ▶ valuing and interpretation
- ▶ monitoring



Chapada Diamantina, Bahia, Brazil



Kula, Turkey

who should be involved?

who should be involved?

- ▶ scientific associations (all geosciences domains)
- ▶ universities
- ▶ national geological surveys
- ▶ national agencies related with nature conservation and land-use planning



Faial island, Azores, Portugal

▶ ...



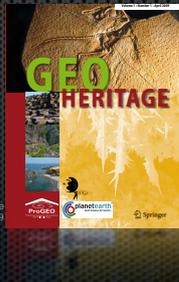
Lesvos Petrified Forest Geopark, Greece

the European experience

- ▶ since 1993
- ▶ 36 national groups
- ▶ national and regional geoheritage inventories
- ▶ European geological frameworks
- ▶ workshops & conferences
- ▶ publications



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3 European examples



3 European examples

► United Kingdom



3 European examples

- ▶ United Kingdom
- ▶ Spain



3 European examples

- ▶ United Kingdom
- ▶ Spain
- ▶ Portugal



Yosemite National Park, California, USA

final remarks

- ▶ **geoconservation** is an emergent geoscience getting an increasing attention of geoscientists, teachers and other professionals, institutions, and general public;
- ▶ many countries are implementing geoconservation strategies and national programs, namely **geoparks**;
- ▶ a national geoheritage program is a **multifaceted endeavor**, including legislation, science, education, outreach,...
- ▶ a national **geoheritage inventorying** is the first step to guarantee a successful conservation and management of the most relevant **American geosites**;
- ▶ the definition of **geological frameworks** can be a solution to overcome US particularities.

