ProGEO NEWS

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The Polje of Cerknica. Photo: Rajko Pavlovec

The Cerknica Field

The Cerknica field (Cerkniško polje) is the largest karst polje in Slovenia. It includes the periodic Cerknica lake that belongs to one of the most exceptional natural curiosities. At high rainfall it covers 26 square kilometers and it is the largest lake in Slovenia. During floods the water level rises for almost six meters. The bottom and the surroundings of the lake consists of Upper Triassic dolomites, and Jurassic and Cretaceous limestones and dolomites. The polje is crossed by several tectonic lines, among which is the Idrija fault that is one of the more important fault zones in Slovenia. At this fault zone a devastating earthquake happened in 1511. It caused heavy damages. A part of the Idrija mercury deposits was also shifted along this fault line.

The Cerknica lake displays all characteristics of a karst polje: karst springs, estavellas, swallow holes, and a very complicated underground hydrological system. Waters that disappear underground in various swallow holes reappear in various, at times very distant springs. In the surroundings are many karst caves. One of them is the Križ cave (Križna jama), one of the most beautiful and longest karst systems

in Slovenia. It is famous by numerous small underground lakes and pretty ornamental dripstones.

The Cerknica lake has also a considerable historical significance. It was described by Janez Vajkard Valvasor in his famous book on Carniola “Die Ehre des Herzogthums Crain” (1689). In it he attempted to explain the functioning of the periodic lake. He submitted the description to the London Royal Society (1687), which accepted him into its membership. In 1747 the Cerknica lake was described in more detail by Franc Anton Steinberg (“Gründliche Nachricht von dem in dem Inner-Crain gelegenen Czirknitzer See“). These works made Cerknica lake well known beyond the boundaries of Slovenia.

In addition to geologic and speleologic aspects, the Cerknica lake is interesting also from the botanical and especially the ornithological view. Particularly during bird migration numerous birds associated with water stop here. As an important region in this respect the lake is inscribed in the list of International Council for Bird Protection.

During repeated visits of the Cerknica lake its appearance is always different. At one time it is full of water, and at another time the peasants mow there grass. In the remains of flowing off waters numerous fishes get caught and are then collected by the natives. Several years ago the swallow holes that drain water underground were closed with the aim of promoting tourism. The goal was to extend the time of high waters, and to construct hotels and other touristic objects. The plan failed, since water always found new ways to escape underground. Most probably the extended high water period would also result into increased growth of water plants which would make the lake unattractive for tourism.

Rajko Pavlovec

ProGEO News

Discussions about means to vitalise our newsletter are popping up from time to time. Lately, suggestions about joining forces with other similar publications have been proposed.

I would like to add another theme to the former, introducing thematic issued once or twice a year.

As a support to the editor, two or three members form an editorial board that could function maybe two half days for each issue. The board could select and propose a theme, say six months in advance in order to give people time enough to compile the material. For instance, five to ten nations present a national park with special geological features within their realm, for another issue some nations review a vulnerable landscape in their country. Variation of themes is almost endless.

I hope this approach can be scrutinised and discussed amongst ProGEO members, and comments are most welcome in this forum.

Gunnel Ransed

The Polje of Cerknica in Slovenia
Photo: Rajko Pavlovec

Giving England's Geology a Face Lift

Face Lift is English Nature's geological site enhancement programme. Face Lift is part of English Nature's drive to bring Sites of Special Scientific Interest (SSSIs) into favourable condition, to fulfil the British Government's Public Service Agreement target of having 95% of SSSIs in England in favourable condition by 2010. Initiated in April 1999, the Face Lift programme is now in its fourth year. English Nature spent over £230,000 on the programme in the first three years in enhancing more than 130 geological SSSIs. The target for 2002-2003 is to enhance a minimum of 40 sites with a total budget of £100,000.

Geological SSSIs are considered favourable when the important geological features are 'practically usable' for scientific purposes. A site is considered to be 'practically usable' if the important geological features are exposed or can be exposed by using hand-tools, taking a small research group less than about a day. If longer times or heavy machinery are required to re-create exposure, the site is generally considered to be unfavourable and is an appropriate candidate for Face Lift.

Face Lift forms part of a broader system of site conservation, involving site monitoring, conservation objective setting and the establishment of short-term and long-term management works required to create or maintain favourable condition. The conservation objectives essentially define the minimum condition a site should be in to be considered favourable. In practical terms, this often means maintaining a specified length of section clear of vegetation and rock debris.

Typical Face Lift work includes vegetation management, clearance of scree, scaling and re-profiling of faces, rubbish removal and improvement of access. Much of this work is focused on disused quarries, pits and railway cuttings in inland locations, as these sites are the most prone to becoming overgrown by thick vegetation and concealed by scree. Such sites form a large and vital part of the overall geological SSSI coverage in England, as they frequently represent the only rock outcrops in many inland areas. Other types of site which have benefited from enhancements under Face Lift include active road cuttings, mine dumps and caves. In addition, sign boards have been produced for a number of sites, as a means of communicating the importance of geological conservation to the general public.

Ancient lava flow-front breccia exposed by vegetation clearance at Litton Mill (Photo Mick Murphy)

Columnar jointed clay-rich bed exposed by trenching at Tideswell Dale (Photo Mick Murphy)

For further information about Face Lift, please contact Mick Murphy at English Nature, Northminster House, Northminster, Peterborough PE1 1UA, UK, telephone 44 (0)1733 455216, email: michael.murphy@english-nature.org.uk.

Face Lift Examples

Carboniferous volcanic sites, Derbyshire

Basaltic volcanism is a notable feature of the geological history of Derbyshire during the early Carboniferous and several sites are notified as SSSIs. Enhancement works have been performed on three sites, two of which have been undertaken in partnership with the Peak District National Park Authority.

Wheal Alfred mine dump, Cornwall, before Face Lift works in March 2002 (Photo Mick Murphy)

Litton Mill Railway Cutting exposes a lava flow-front breccia, a rare feature in the geological record (**Photo**). The exposure had been covered in thick vegetation for many decades until it was cleared in 2001. The site is on a popular public footpath and a management board is being produced to highlight the importance of the geology and explain the need for vegetation management to expose the rare geological feature.

Tideswell Dale, a disused quarry, exposes a dolerite sill which was intruded into a basalt-limestone sequence. Vegetation clearance was performed to provide better exposure in the face and trenching was undertaken to locate the base of the sill and the underlying rocks. The trenching re-exposed a very unusual clay-rich horizon, exhibiting small-scale but perfectly formed columnar jointing (**Photo**). The origin of this feature is unresolved and further research is warranted here.

Calton Hill is unique in England in that the basalts exposed there contain mantle xenoliths, carried up by rapidly ascending magma from depths of about 30 km or more. The site is of major importance as the only place where the upper mantle beneath England can be directly sampled. The site is a disused quarry, now an active landfill site, with a conservation section retained outside of the landfill area. The conservation faces had become very overgrown, until clearance was undertaken in 2001, funded by Face Lift.

Mine Dumps in Cornwall

Many dumps from disused mines in old English mining areas are notified as SSSIs, as the mine spoil often represents the only accessible remnant of a formerly rich mineralogical resource. Mine dumps present particular management problems in terms of understanding the quality and distribution of the mineral resource, essential for making condition assessments and defining conservation objectives. Typically, large sections of spoil consist of barren wallrock, with the minerals of interest concentrated in small parts of the dumps. Because many dumps have been subject to intense sample collecting and, in some cases, large-scale removal of material over the years, current knowledge of the resource can be inadequate for good conservation management.

Richmond Farm Pit after face clearance works (Photo Mick Murphy)

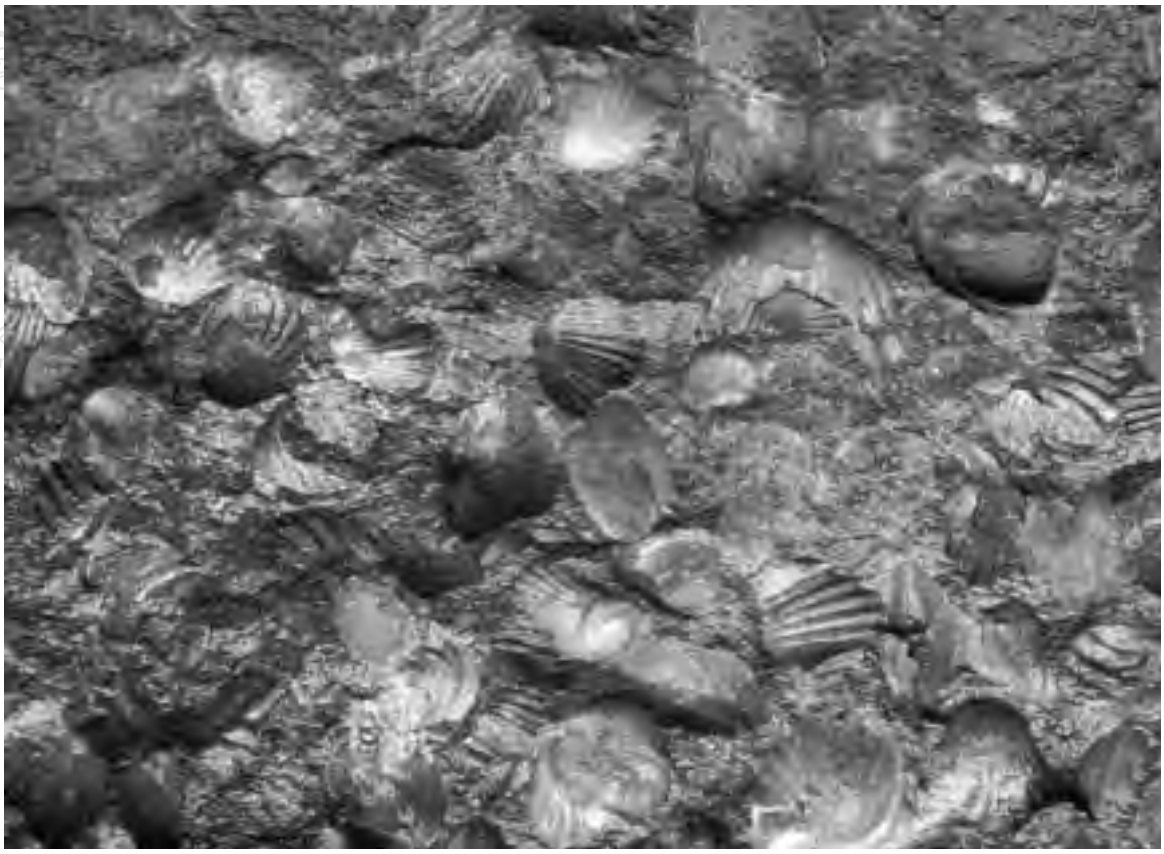
Face Lift has funded exploratory digs on three mine dumps in Cornwall: Wheal Alfred (**Photo**), Wheal Penrose and Penberthy Croft. Some vegetation clearance has also been undertaken at the same time. In all cases, the extent of the remaining resource was in doubt, primarily because of sample collecting over many years. The works have confirmed the location and presence of the minerals of interest on all three sites, albeit in less abundance and of poorer specimen quality than in the past. The information gained allows English Nature to make condition assessments and to define objectives and management strategies for the sites.

Coralline and Red Crag sites, Suffolk

The Crag deposits of Suffolk and Norfolk are unique in Britain in providing a detailed record of Pliocene to early Quaternary shallow marine sedimentation. The deposits consist of a range of variable shelly sands, some of which display spectacular sedimentary structures. The deposits are of particular importance for biostratigraphic correlation with similar deposits in mainland Europe and have been the subject of ongoing study since the 19th century.

Because the Crag deposits are typically laterally variable on a local scale, more than twenty sites are notified as SSSIs to provide a representative record of this important geological sequence. Most of the sites are small pits on agricultural land, now often very overgrown. English Nature has a programme of enhancement of Crag sites, with vegetation clearances to date on four sites: Richmond Farm Pit **(Photo)**, Rockall Wood Pit **(Photo)**, Neutral Farm Pit and Round Hill Pit. Another four sites are scheduled for clearance works this year. The works are also providing an opportunity for renewed research as fresh material is uncovered.

Cleared face at Rockhall Wood (Photo Mick Murphy)



Brachiopod nest from Tilton Railway Cutting (Photo Peter Wakely, English Nature)

Tilton Railway Cutting showing terracing of outcrop created during vegetation clearance (Photo Mick Murphy)

Tilton Railway Cutting SSSI, Leicestershire

Tilton Railway Cutting provides exposures of the Jurassic Middle Lias Marlstone Rock, as well as the base of the Upper Lias. The Marlstone Rock is important both for its sedimentary structures and for the spectacular brachiopod nests **(Photo)** that occur at certain levels in the sequence. The top of the Marlstone Rock and the Upper Lias sediments are important for their ammonite faunas.

The site had become very overgrown in recent years. In February 2002, English Nature undertook face clearance and re-profiling of a number of sections on the site, in partnership with the site owners, Leicestershire and Rutland Wildlife Trust. Several vertical sections have now been terraced to provide access to higher parts of the section **(Photo)**.

Because the site forms a public right of way and is a popular walking route for local people, English Nature is producing a site management board to explain the need for management and to raise the profile of geological conservation on a local level.

Welton-le-Wold SSSI, Lincolnshire

Welton-le-Wold SSSI is a disused gravel quarry, notified for a series of Quaternary till, gravel and sand deposits, which provide important insights into the glacial history of Lincolnshire and adjacent areas.

The sands and gravels have yielded various mammal remains, including elephant teeth and tusks. Flint tools have also been found in the same deposits, providing evidence of the presence of humans in the area at that time. Overlying the sands and gravels are two till deposits which are distinguished by the types of pebbles and boulders they contain. The lower till contains locally derived chalk and flint pebbles, whereas the upper till contains material derived from Yorkshire and Scotland. There has been considerable debate over the years as to the significance of the two till deposits and whether they represent one or two distinct periods of glaciation.

When extraction ceased in the 1970s, the lower parts of the sequence and the boundary between the two tills were concealed by backfill. English Nature funded a major clearance works in 2001 (**Photo**) to re-expose concealed parts of the sequence and allow access by researchers to undertake new studies. This has rekindled healthy scientific debate about the age and significance of the till deposits, leading to the initiation of new research on the site.

Mick Murphy

Clearance works underway at Welton-le-Wold (Photo John Arum)

Polish Pro-GEO activities

REPORT OF THE POLISH ProGEO COMMITTEE ACTIVITIES

Geoconservation in Poland is getting more and more popular. The results of scientific studies are currently introduced in application works dealing with projects aiming at protection of nature reserves, national and landscape parks as well as in integration with works in nature conservation laws implementations. Members of the ProGEO Polish Group represent mainly the Institute Nature Conservation of the Polish Academy of Sciences in Cracow, namely its Department of Geodiversity Conservation. They closely co-operate with various scientific centres in the whole country.

The Commission of Landscape, Inanimate Nature and Soil Protection has been established also in the State Council for the Conservation of Nature. Members of the Polish ProGEO Group participate in the above mentioned Commission. This institution is the advisory board of the Minister of Environment.

Table 1. Record of Polish geosite database *(prepared by K. Mi kiewicz, in relation to the inventory format after Johanssen et al., 1998 – ProGEO'97 Proceedings, Geol. Survey of Estonia: 22-28;*

Primary (identifying) data

Geosite accession number	National site accession number
Geosite name	State, country, parish/town
Geographical coordinate	Character of site

Primary geological data

Type of site	Primary geo(morpho)logical interest
Framework element or context represented	Chronostratigraphy
Description of primary interest	
Comparative assessment/justification	
Qualities in relation to other site	

Secondary (supporting) data

Map sheet	Elevation	Geosite area
Protection status, accessibility		
Other values		
Literature		
Source of data, collections		
Illustrations		
Proposer(s)		

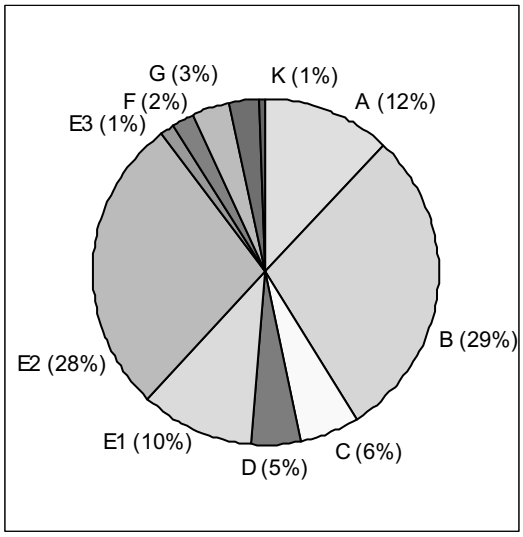


Fig. 1. Main types of 145 Polish geosites proposed on the European framework. Symbols as in Tab. 1.

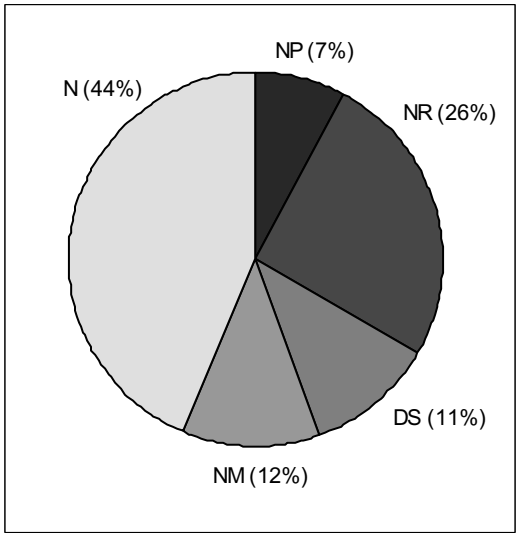


Fig. 2. State of protection of 145 Polish geosites proposed on the European framework: NP – national parks, NR – nature reserves, DS – documentary sites, NM – nature monuments, N – outside protection.

In the period after the symposium in Prague (June 2000) the Polish Group has had the following scientific and practical achievements.

1. Realisation of GLOBAL GEOSITES programme (Institute of Nature Conservation):

Sm	Branch	Explanation of geosite type
A	Palaeobiology	Fossil fauna and flora, ichnofauna, evolution of live
B	Geomorphology	Landformes, morpho-processes, landscape
C	Palaeoenvironment	Deposites, indicators of palaeoclimate and sedimentary environment
D	Petrography	Igneous rocks and its body-forms, metamorphic rocks, sedimentary rocks, textures, structures, genesis
E1	Quaternary stratigraphy	Sequences and age of sediments, biostratigraphy, geochronology, climatostratigraphy
E2	Stratigraphy of Phanerozoic	Stratotypes, lithostratigraphic sequences, facial differentiation, index fossils
E3	Stratigraphy of Proterozoic	Differentiation of rocks, radiochronology, early traces of live
F	Mineralogy	Minerals and its associations, genesis, forms of occurrence
G	Tectonics	Folds, faults, overthrusts, tectogenesis, evidence of neotectonic, glacitectonic deformations
H	Geology of mineral deposits	Forms occurrence, genesis, mining monuments
I	History of geology	Sites and monuments important for Earth sciences development
L	Geotectonic	Rocks and structures documenting plate tectonics
K	Cosmogeology	Meteorites, chondrites, meteor craters
M	Marine geology	Recent marine sediments,submarine processes, phenomena and forms

Table 2. Types of geosites in Polish database *(supplamented by Z. Alexandrowicz in relation to the proposition after Wimbledon et al. 1999 – Mem Descr. Carta Geol. d'Italia 54: 45-60; app. 2.*

- elaboration of computer system of GEOSITES database proposed for European network (Tab. 1)
- verification of draft candidate list of geosites (Geologica Balcanica 28, 3-4, 1998; Polish
- Geological Institute Special Papers 2, 1999)
- presentation of new candidates list of 145 geosites completed for all regions of Poland with regard to types and state of their protection ((Tab. 2, Figs. 1, 2)
- elaboration of database of the Silesia-Cracow Upland geosites, one region in the Southern Poland; CD ROM delivered to members of ProGEO during the Dublin Conference.

2. Data base GEOCONSERVATION (Institute of Nature Conservation):

- continuation of information gaining for database purposes concerning all categories of abiotic nature conservation in Poland (nature reserves, inanimate nature monuments and documentary sites); the database contents 1848 records referring to protected areas and objects.

3. Publications:

- Z. Alexandrowicz and D. Poprawa - eds, 2000. Geodiversity conservation of the Polish Carpathians, pp. 142 with map 1: 400 000. Polish Geol. Inst., Warsaw.
- E. Gawlikowska, 2000.Geodiversity conservation of the Lower Silesia, pp. 72 with map
- 1: 300 000. Polish Geol. Inst., Warsaw.
- T. Wróblewski, 2000. Geodiversity conservation of the Góry wi tokrzyskie region, pp. 88 with map 1: 200 000. Polish Geol. Inst., Warsaw.
- Z. Alexandrowicz - ed., 2000. Crystal Caves in the Wieliczka Salt Mine, pp.205. Studia Naturae 46, Cracow.
- Numerous scientific papers and popular scientific issues.

4. Documentary and application works (Institute of Nature Conservation, University of Mining and Metallurgy):

- protection projects prepared for numerous important geosites
- expert appraisements referring to geosites threats prepared for local authorities

5. Education (Institute of Nature Conservation, Museum of the Earth, Jagiellonian University, University of Mining and Metallurgy and Regional Environmental Education Centre):

- lectures at the post-graduate studies about the geological heritage in the Polish system of nature conservation
- descriptions of representative geosites protected as nature reserves, inanimate nature monuments and documentary sites in Poland for multimedial educational dictionary: Polish Nature Conservation, 2002. CD ROM – ed. K. Romeyko-Hurko exhibitions of nature conservation and editing leaflets concerning them.

6. Popularization (University of Mining and Metallurgy, Polish Academy of Arts and Sciences, Museum of the Earth):

- cycle of 31 geological trips entitled "Geotourism for Everybody" organised for Cracow inhabitants; this excursions are quite popular with the city dwellers and in media
- cycle of 30 TV films entitled "Suggestions in sightseeing" including problems of nature conservation; the films have been presented many times in local and all-Polish TV programmes
- organization of nature conservation competitions.

Zofia Alexandrowics
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ProGEO WEB address

Remember the new ProGEO WEB adress:

www.progeo.org.se

Use the web site, there you find information about ProGEO, the regional groups, activities and an archive of previous ProGEO NEWS.

CONFERENCE

Mineral collecting and conservation – hammering out a future?

A ONE DAY CONFERENCE

Harold Riley Suite, University of Salford

Wednesday 16th April 2003, 10:00 to 16:30

Mineral collecting is scientifically and educationally important and a hobby enjoyed by many. However, many mineral sites are finite and the issue of sustainable collecting on mineral sites is becoming increasingly important. Collecting is fundamental to mineralogical research, and for educational, commercial and aesthetic purposes, but indiscriminate activity can deplete or destroy a mineralogical site. This conference aims to discuss the different aspects of mineral collecting and the best way of conserving the available mineral resource for future use by all interest groups.

This meeting aims to open a debate rather than attempt to reach solutions and provides an opportunity to share views and identify and discuss issues. Speakers have been chosen to reflect a full range of views on the issues surrounding mineral collecting and include; the statutory conservation bodies; professional, hobbyist and academic research collectors; museums; landowners; and industrial archaeologists. The conference will conclude with an open debate and it is hoped that stimulating discussion will follow.

The meeting will be co-convened by English Nature, the Geological Society's Geoconservation Commission and the Russell Society. The conference proceedings will be published by English Nature and will be available shortly after the conference. Delegates will also have a chance to express their own views on mineral collecting and conservation in the form of written statements, which will be included with the proceedings volume and collected on the day of the conference.

Registration is £25 and this fee includes car parking (the venue is also a short walk for Salford Crescent Station), tea/coffee, lunch, a conference pack and the conference proceedings.

Please register by 31st March 2003, numbers are limited and we cannot guarantee registration on the day of the conference.

University accommodation is available on request. Please contact the accommodation office at the University of Salford (Tel: 0161 7379364).

Dr Hannah Townley

Mineral collecting and conservation – hammering out a future?

If you wish to attend, please send this registration slip with payment (in the form of a cheque made payable to English Nature, delegates from overseas should make payments in pounds sterling with all charges to be borne by the payee) to Jennifer Yau, Environmental Impacts Team, English Nature, Northminster House, Peterborough, UK PE1 1UA (01733 455504).

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Vegetarian lunch....Yes/No....Special needs (specify).....

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Deadline for contributions to next issue of ProGEO NEWS: 01.03.2003

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ProGEO NEWS

A PRIORITAIRE PAR AVION

NINA•NIKU
STIFTELSEN FOR NATURFORSKNING
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