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34	HUNGARY*	Baranya County Museum Authority, Pécs
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LITHUANIAN HERITAGE FROM THE AIR

Through recording and collection to education

Dr Romas Jarockis, for the Department of Lithuanian Heritage Protection

Background and objectives

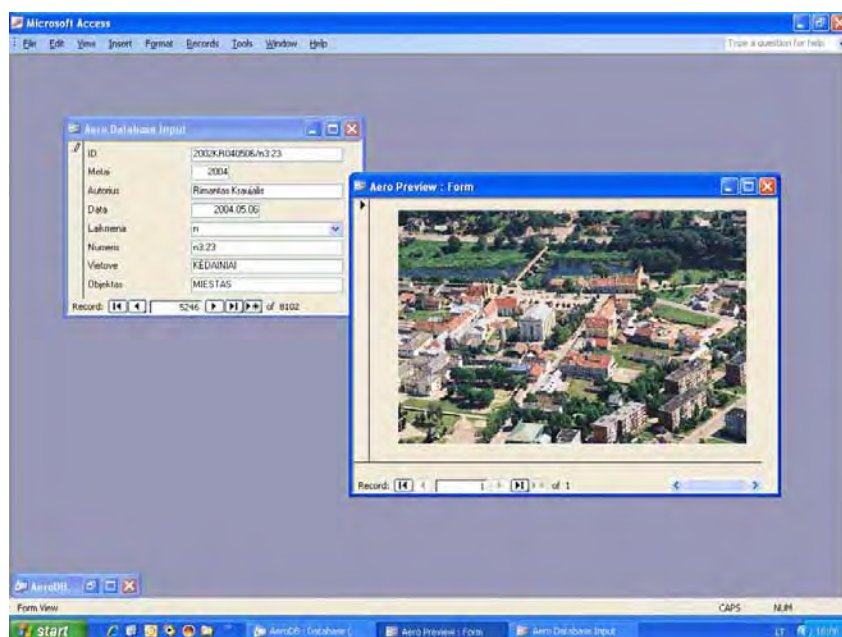
Over the past 50 years the territory of Lithuania has been photographed from the air five times. The resulting vertical photographs and digital ortho-photos, cared for in the archives of the Aero-geodesy Institute in Kaunas and the GIS centre in Vilnius, are open to the public and copies of the photographs can be acquired at reasonable prices. In 1996 the Department of Lithuanian Heritage Protection began a limited programme of aerial photography for purposes of heritage protection. At the beginning of the project the Department's air photo archive contained rather more than 2000 oblique air-photo images, representing more than 300 sites and structures of the Lithuanian cultural heritage.

The Culture 2000 project has enabled the Department to enhance its work in four main ways:

- By developing a digital database of air photographs of the Lithuanian heritage.
- By supplementing the small but valuable programme of regular aerial photography undertaken by the Department in recent years.
- By exploiting new and existing air photographs as a tool in teaching local history.
- By organising an International Workshop in Lithuania and by joining the Europe-wide network of contacts in aerial archaeology, remote sensing and landscape studies.

Digital database of air photographs and related data

The basic model for the digital database has been created. Vertical photographs covering 150 sites were selected from the historical archives and were digitised. The digital database is structured on the basis of data packages, ie: collections of aerial photographs, often taken in several different years, with attached texts containing information on individual heritage sites (a castle, a town, a hillfort, a prehistoric enclosure etc). The packages contain black-and-white vertical photographs, ortho-photos and oblique colour views taken over a period of years. They will be constantly added to as new photographs are acquired. In implementing the project, interpretation and scientific investigation were (and will continue to be) undertaken for sites and monuments detected in both the recent and the archival air photographs.



One of the computer screens from the newly-implemented database system for the Department's air photo archive, here showing an 'oblique' townscape view from a recent flight. The archive also contains a range of earlier black-and-white 'vertical' photographs.



Above: An Iron Age fort at Šaukštelis in its landscape context. Newly-taken images of this kind are enormously effective in showing the character and state of preservation of nationally-protected monuments, not least in communication with school-children and the general public.



Left: An archival black-and-white vertical photograph from 1957, showing a complex of Iron Age to Medieval hillforts and a Dominican monastery of the early 18th century at Liškiava, Varėna district. Images of this kind are invaluable in showing the landscape as it was half a century ago.

Aerial photography

On completion of the Culture 2000 project the Department's digital archive now contains some 5000 colour images. Within the three-year period of the project 45 hours of aerial survey were undertaken, producing about 2500 images of approximately 400 cultural heritage sites, of which some fifteen (mostly Stone Age and Iron Age settlements or hillfort complexes of Iron Age to Early Medieval date) were new to the record. Five days of field survey were organised to examine the previously unrecorded sites and to compile information for the national archive.



The title page from one of the education packs created as part of the Culture 2000 project. On the right are three of the images from later parts of the pack, which also includes further air photographs as well as documentary references, maps and descriptive texts

Education packs

Progress with educational information packs was less extensive than originally hoped. Initially it was planned to produce educational packs of some twenty towns and townships with origins going back to prehistoric times, but time-constraints and the need to build up experience meant that only seven were completed within the time-frame of the project. The packs contain historical and recent aerial photographs, supported by other archaeological data, historical information, cartographic material, ancient paintings and ground-based photographs. The information is specially adapted for schoolchildren so as to show features of the local cultural heritage and to emphasise their importance for society, both historically and in the present day. It was originally planned to produce the packs in hard-copy for distribution to local schools but it now seems more likely that this kind of material will find its way into the education system more effectively through the internet (as is possible with the packs completed within the project). As a result, part of the money intended for publication of the education packs was used to cover publication of the proceedings of the International Workshop described in the next paragraph.

International Workshop and Culture 2000 contacts

The planned international workshop on aerial archaeology and landscape studies took place at the University of Klaipėda, on the western coast of Lithuania, in November 2005. A total of 30 participants from Lithuania, Denmark, Finland, Latvia, Norway, Poland, Russia and the UK considered a range of topics of particular significance to the Baltic region. They also discussed the possibility of future cooperation in the promotion of aerial archaeology, culture and landscape studies around the Baltic Sea. The meeting attracted coverage on radio, television and in the local press. A publication of the proceedings, along with a number of additional papers, will appear shortly after completion of the Culture 2000 project in late autumn 2007.

Academic staff, professional archaeologists and students from Lithuania took part in a number of meetings organised or assisted by Culture 2000 funding, including those of the Aerial



Left: 14th-17th century town of Kaunas, in central Lithuania. Above: 16th-century church at Seredžius, Jurbarkas district. Below: Field visit during the international workshop at Klaipeda in November 2005.

Archaeology Research Group in Germany (2004), Belgium (2005) and the UK (2006). Valuable contacts were created at these meetings and at various Culture 2000 events, including the Helsinki symposium of October 2004, the aerial archaeology training schools at Barth (North Germany) in 2005 and 2007, and the geophysical prospection workshop at Grosseto (Italy) in July 2006. A report on the Lithuanian part of the project was presented at the final meeting of Culture 2000 co-partners at Prague in October 2007. Lithuanian material was also included in the exhibition opened at the Czech National Museum in October 2007.

Overall assessment of the project

In addition to the creation and maintenance of international contacts, two aspects of the project deserve particular mention. Firstly, the use of aerial photography and digital systems for heritage documentation and monitoring was further developed within the Department. Secondly, experience was gained in preparing educational material for use in local schools and in a first Lithuanian publication focused on aerial survey (following the Klaipeda Workshop of 2006).

'Spin-off' benefits in the field of research and university education include the planned inception (in 2008) of a course on aerial archaeology for students of archaeology and history at the new University of Klaipeda. Work on the education packs prompted the submission of a funding application to the Lithuanian Ministry of Education, entitled '*Use of aerial photographs for teaching history and geography at secondary school*'. The project has been positively evaluated and it is hoped that funding will be forthcoming in the years following the Culture 2000 project. Culture 2000 material is also being used in autumn 2007 in a series of lectures to school-teachers at 19 local education centres. All these developments will help to give the Culture 2000 project a long-lasting affect on archaeology, heritage protection and education in Lithuania.



HIGHLIGHTS 2004-2007

Belgium Air photographs uncover the battlefields of Ypres

Czech Republic Air survey, excavation and a grand exhibition

English Heritage Air photo training schools at home and abroad

Estonia Estonian archaeologists take to the air

Germany (Mecklenburg-Vorpommern) Seeing beneath the waves

Germany (Baden-Württemberg) Iron Age fortresses in their landscape setting

Germany (Freiburg) Airborne laser scanning to 'see through the trees'

Hungary Combining techniques to explore the Neolithic

Italy (Puglia) Uncovering and mapping the past through aerial survey

Italy (Salento) Modern techniques and a Roman harbour

Italy (Tuscany) Air survey, laser scanning and geophysics

Lithuania Raising awareness through aerial archaeology

Poland New discoveries and new systems for heritage conservation

Slovakia Stone Age monuments from the air and on the ground



A LOST TOWN RE-FOUND

Szamotuly, in Poland is a medieval town, its originally open market square now filled with later buildings (top). Until recently historians believed that the town always occupied its present site. This view changed dramatically in July 2006 when spectacular air photographs, taken as part of the Culture 2000 project, revealed its original location at Mutowo, 2.5km away, where it had stood before a disastrous fire in the 14th century. One of the photographs is shown here (centre), rectified to fit the present-day map. In the bottom image the town's large open square, outlined by the dark marks of cellars beneath its surrounding buildings, has been plotted on the rectified photograph, along with the presumed lines of the linking streets.

