



Ministry of Education
Science and Technology Administration



ICBP, The “Mother” Organization of



FLYWAYS - SATELLITE TRACKING OSPREY MIGRATION AS A GLOBAL EDUCATION AND CONSERVATION TOOL

A brainstorming seminar, February 3th - 6th, 2013
Kfar Blum, Pastoral Hotel, Hula Valley, Israel



Photo: Yossi Eshbol, Nadav Cassuto



The Hoopoe Foundation



Society for the
Protection of Nature in Israel
1330 01237 01300



The International Center for the
Study of Bird Migration, Lufthansa



TEL AVIV UNIVERSITY
DEPARTMENT OF ZOOLOGY



Leicestershire
& Rutland
Wildlife Trust



The Ministry
of Foreign Affairs



Lufthansa



Photo: Nadav Cassuto

Background



Ospreys are one of the most charismatic and widely-distributed of all bird species. The species' global distribution and migratory habits provide an opportunity to engage and link communities across the world and to provide new and exciting educational opportunities.

Recent advances in satellite-tracking technology have greatly enhanced our knowledge of bird migration and demonstrated a clear need for conservation along migratory flyways.

Ospreys have been the subject of numerous tracking studies and, as a result, their migratory habits are now well-understood.

Tracking data is readily available online, and provides a unique 'live' educational opportunity. This has the potential to enable students across the world to engage with bird migration in a new and exciting way.

The migratory journeys, usually involving flights of several thousand miles also have the potential to link students in different parts of the flyways. The aim of this seminar is to bring together leading experts on bird - and specifically Osprey - migration and environmental educators in order to develop a coordinated approach to link satellite tracking with environmental education, and, specifically, to develop a concept initiated in 2011 by the Osprey Migration Foundation (see attached document) to connect students in different parts of the flyways through joint studies on Osprey migration. This, we hope, will help the students to learn about bird migration, understand the need to protect them (and associated habitats) across the migratory range, and to build relationships with students from other cultures and backgrounds.



Tiran Island, southern Sinai, 46 pairs of Ospreys nest on the ground (no trees). (Photo: Yossi Eshbol)

Aims of the seminar

To develop a co-ordinated international approach to integrate satellite tracking studies with education along Osprey migration flyways by:

- Initiating links between researchers using GPS satellite transmitters on Ospreys
- Identifying key education aims and objectives, relating specifically to bird/Osprey migration
- Using new digital technology (websites/Google Earth/Skype/social media/webcams etc.) to link schools and other education establishments along Osprey migration flyways in a new and exciting way
- Discuss how the work can be extended to other species of birds, mammals and reptile

Satellite tracking studies have provided new information on Osprey migration in Europe and North America



Finland



Rutland water, UK

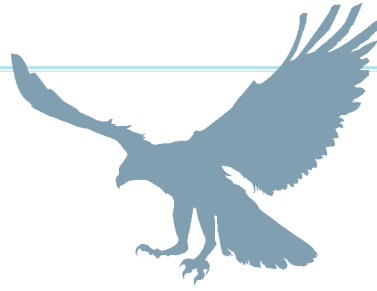


North America



Estonia

Seminar Itinerary



Saturday, 2nd February 2013

Afternoon-evening arriving to Kfar Blum Hotel - <http://www.kfarblum-hotel.co.il/?Lang=eng>

Sunday, 3rd February 2013

Full day tour of the Hula Valley including the 30,000 cranes and ringing station

07:30-08:15 Breakfast

08:15-09:30 Hula Valley ringing station

09:30-10:30 Agmon Birding tour

11:30-12:30 Boating with thousands of Gulls on the Sea of Galilee

13:00-14:30 Gamla Nature Reserve, Griffon Vultures colony (lunch boxes)

16:00-17:15 Moving hide between 30,000 Cranes in the Agmon, enjoying them flying to night roost

19:30 - Dinner

20:30 - Get together, opening remarks

Monday, 4th February 2013

9:30 - Introduction and aims of the seminar

by **Prof. Yossi Leshem** and **Tim Mackrill**

Introductory lectures

Ongoing Osprey satellite-tracking and breeding studies

9:40 - **Roy Dennis**, United Kingdom,

Satellite Tracking Ospreys from UK and The Interface with Global Education, Information and Enjoyment.



Estonia project-Osprey with PTT (Photo: Urmas Sellis)

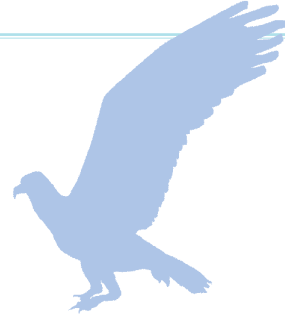
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- 10:00 - **Pertti Saurola**, Finland
Finnish Project Pandion: From Population Monitoring And Conservation To Satellite Tracking And Education
- 10:20 - **Dr. Rob Bierregaard**, USA
Status of Osprey telemetry tracking and educational outreach in North America.
- 10:40 - **Urmas Sellis**, Estonia
Ospreys in Estonia, the Tracking and Use of Web Cameras
- 11:00 - **Coffee break**

Linking migration studies and education

- 11:20 - **Eva Casado**, Spain
Linking Migration Studies and Education. The Work of the Migres Foundation in Spain.
- 11:40 - **Iain MacLeod**, USA
Using Osprey satellite-tracking in School Program, New Hampshire, USA.
- 12:00 - **Ainara Azkona and Dr. Aitor Galarza**, Spain
Urdabai Education Centre
- 12:20 - **Prof. Yossi Leshem**, Israel, **Imad Atrash**, Palestine and **Mansour Abu-Rashid**, Jordan,
Migrating Birds Know No Boundaries — Birds as peace makers in the Middle East
- 12:40 - Lunch



Ospreys mating on nest. Second female is waiting... polyandry. Nabeq, Southern Sinai Coast (Photo: Yossi Eshbol)



Thinking global

Chair: **Prof. Yoram Yom Tov**

- 13:40 - **Prof. Amnon Ginati**, Holland,
Space for Daily Life & Space is the Limit
- 14:00 - **John Cornell**, UK
Safeguarding Migratory Soaring Birds along the Rift Valley / Red Sea Flyway
- 14:20 - **Tim Mackrill**, UK
Linking People for conservation and education: The Osprey Migration Foundation — the story so far.
- 14:40 - **Andrea Sforzi**, Italy
Beyond the main osprey flyways: What happens in the central Mediterranean basin?
- 15:05 - **Coffe break**

Roundtable discussion

- 15:15 - **On-going and future Osprey satellite tracking studies - key aims/objectives**
Lecture and chair: **Roy Dennis**
- 17:00 - **Linking schools/educational establishments along Osprey migration flyways - widentifying key educational aims**
Chair: **Prof. Yoram Yom Tov**
Lecture: **Morven Snodgrass**, scotland
Ospreys Global Education Study
- 19:00 - Dinner
- 20:15 - continuation of discussions, **(RTD)**



Arab and Jewish students enjoy watching together Cranes at the Agmon (Photo: Efi Sharir)

Tuesday 5th February 2013

Roundtable discussion

- 9:00 - **Embracing new technology** - the practicalities of establishing links between schools on the migration flyways (including development of stand-alone website incorporating Google Earth, Skype and social media)
Introduction and chair: **Tim Mackrill**
- 10:30 - Coffee break
- 11:00 - **Education on the ground** - developing wildlife education programs in key wintering sites
Introduction and chair: **Tim Mackrill**
- 12:30 - Lunch
- 13:30 - **The future** - increasing the number of other species tracked by satellite telemetry - identifying key species/objectives
Introduction and chair: **Dan Alon**, Director, IOC
- 15:00 - Coffee break

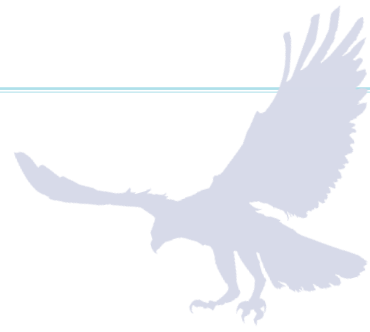
Developing an action plan

- 15:30 - Roundtable discussion in order to develop agreed action points
Chair: **Prof. Yossi Leshem** and **Tim Mackrill**

Evening - Social with music and summary of seminar



*Student in South Africa can use ESA IAP Space for Education programme platform, for bird migration study
(Photo: Amnon Ginati)*



Wednesday 6th February 2013

05:45 - Early birding in the Hula Valley: Enjoying the 30,000 cranes taking off the Agmon Lake

07:45 - Breakfast

Lecture Day - **Osprey Cooperative education through the internet** - Lectures at Pastoral Hotel, Kfar Blum with 160 invited educators, school principals, scientists and birds conservationists (lecturers by the seminar participants and local science educators).

08:30-09:30 - Introduction to bird ringing - The ringing will take place at Kfar Blum, we leave the Pastoral Hotel parking area exactly at 8:30.

09:30-10:00 - Assembly and light refreshments.

10:00-10:20 - **GREETINGS**

Dr. Orna Simchon - Head of Northern Israel Region, Ministry of Education

Compere: **Prof. Yossi Leshem**

Mrs. Shoshi Cohen - Head of Science and Technology - Administration, Ministry of Education, Educational activities and computation, teleprocessing, Ministry of Education.

Prof. Pertti Saurola - Finland, Finnish Ringing Centre, Finnish Museum of Natural History - The Seminar vision

10:20-10:40 - **Roy Dennis**, Scotland, The educational and scientific project with Ospreys in Scotland.

10:40-11:00 - **Tim Mackrill**, England, The educational project with Ospreys in England and the global concept.

11:00-11:20 - **Dr. Rob Bierregaard**, USA, Educational activities with schools, the emphasis on Ospreys.



(Photo: Nadav Cassuto)



(Photo: Nadav Cassuto)



British Students Learn About the Migrating Ospreys (Photo: Tim Mackrill)

- 11:20-11:40 - **Prof. Amnon Ginati**, The European Space Agency, Holland, The European Space Agency educational projects and the connection with the project.
- 11:40-12:00 - **Mrs. Shoshi Cohen**, Israel, Science and Technology - The policy of the Ministry of Education towards scientific and technological research.
- 12:00-12:20 - **Dr. Miri Dressler**, Israel, Director of the National Center for Teachers of Science and Technology for Primary Schools, the Centre for Science and Technology Education, Tel Aviv University - The combination of skills during research.
- 12:20-13:00 - **Panel of lecturers and seminar participants** - They will answer questions from the audience on the subject of the vision of cooperative education emphasizing migration, Ospreys, satellite transmitters and intercontinental connection.
- 13:00-13:30 - **Sandwiches and refreshments.**
- 13:30-13:45 - Guests from Israel will drive to the Agmon Hahula. The guests from abroad will **head to Tel-Aviv.**
- 14:00-15:00 - **Tour on the mobile hide** to see the feeding of 30,000 Cranes.
- 15:15 - **Dispersal**

Afternoon

Drive to Tel Aviv through Ma'agan Michael, check in Dan Panorama Hotel, Tel Aviv

<http://www.danhotels.com/TelAvivHotels/DanPanoramaTelAvivHotel>

Evening

19:30 - **Festive Dinner hosted by Dan Hotel** in Tel Aviv with respected guests at **TAMAR HALL, Dan Panorama Hotel**. Final remarks and greetings

Thursday 7th February 2013

Departure



A highly inaccessible nest of Ospreys (Photo: Urmas Sellis)



Sometimes the Osprey nests are over 30m high, not easy to get there, but the view... and no mosquitoes at all up there. The climber Joosep Tuvi, Osprey coordinator in Eagle Club Estonia. (Photo: Riho Mannik)



(Photo: Nadav Cassuto)

Abstracts

Satellite Tracking Ospreys From Uk And The Interface With Global Education, Information And Enjoyment

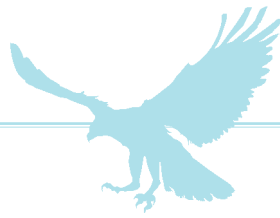
Roy Dennis

Ospreys (*Pandion haliaetus*) in the UK were first studied using satellite transmitters in 1999 during the translocation project to Rutland Water, England. The young ospreys were translocated from Scotland and released at Rutland Water nature reserve by a partnership of the Rutland Water Nature Reserve, Anglian Water plc (owners of the reservoir) and Highland Foundation for Wildlife. The rationale for the study was to test if the translocated young ospreys carried out similar migrations to their siblings and parents tagged in Scotland, and to understand their stopover behaviour, mortality and other factors. In 2007, Highland Foundation for Wildlife started a new project on satellite tracking ospreys using the newly-available Microwave Telemetry Solar GPS transmitters, which were funded by Talisman Energy UK. The first bird tagged was the female at a nest in Moray (first occupied by ospreys in 1966), followed by her two young. The female was named Logie, after the nearby Logie Primary School near Forres in Moray. The school pupils adopted the bird and avidly followed her migration to Africa via the website. In an innovative manner, we decided to make the tracking data immediately available on our website www.roydennis.org. At that time, most satellite tracking research was carried out by ornithologists who wished to publish their results in scientific papers and thus released only simple details of new research as it happened. At about the same time, in 2007, GoogleEarth mapping was becoming available and the mapping of satellite tracking data in a very visual manner and immediate (within hours) publishing on the web was a truly unique concept. Within days, very large numbers of people started to log in and follow Logie, and this take-up was greatly increased through 2008 when she became the 'star' of the weekly BBC radio programme "World on the Move", which followed her migration north from Guinea Bissau. This exposure on the web resulted in tens of thousands of hits per month from people all over the world. The children at Logie Primary School learnt much about ospreys and global education guided by their head teacher Morven Snodgrass. Since then the Foundation has tagged and presented web data on 21 ospreys and five other NGOs have purchased transmitters and asked us to attach them to young ospreys. This has led to a massive interest in ospreys, drawing in many who were not previously involved in nature conservation. It has also led to a greater understanding of the ospreys in West Africa, where Rutland Water has initiated contacts with schools in Gambia. The scientific aims remain principally centred on understanding the migrations and wintering ecology, the importance of stopovers and wintering sites and the hazards posed by migration and, for juvenile ospreys, the competition with adults. The Osprey has proved to be an ideal species for raising awareness of the need for global nature conservation and for fostering interest and enjoyment in nature from primary school to old age.

Finnish Project Pandion: From Population Monitoring And Conservation To Satellite Tracking And Education

Pertti Saurola

The Osprey *Pandion haliaetus* breeds all over Finland: from the southern archipelago (60°N) to the northernmost Lapland (70°N). The Finnish Osprey population decreased in the beginning of the 20th century due to the heavy persecution, recovered slowly during the World War II, but decreased again from the 1950s to early 1970s, this time because of both heavy persecution during migration and wintering, and the impact of contaminants, particularly of the DDT.



In 1971, a nationwide program, the Project Pandion was started by the Finnish Ringing Centre to monitor the annual changes and long-term trends in population size and productivity. Since 1972, authorized voluntary ringers have inspected annually almost all occupied Osprey territories known by the Project Pandion. In 2011, 2,041 historical nest sites were checked by 117 ringers; 1,148 occupied territories were verified, 923 of them were active (= eggs were laid) and 845 successful (= large young were produced). The present population estimate is 1,300 breeding pairs. A detailed analysis revealed that the population remained on the same level through the 1970s, increased from 1982 to 1994 by 3.1% per year and, since, has remained again “stable”. The positive trend of the population can be attributed (1) to decreased persecution during migration and wintering, (2) to decreased impact of environmental toxicants, (3) to construction of artificial nests to compensate the losses caused by modern forestry and (4) to education. At present, 45–50% of the Finnish Ospreys breed in artificial nests constructed by voluntary ringers. In 1990, a non-governmental organisation The Finnish Osprey Foundation was founded to promote the conservation of the Osprey. The foundation has constructed the Pohtiolampi Osprey Centre, where ordinary people can get information on the Osprey and, as well, observe and photograph fishing Ospreys from a public tower freely open to everybody. The Osprey Centre offers also special hides, which are located only 5–10 metres from the fishing Ospreys and which can be hired by professional photographers. All money collected goes directly to Osprey conservation. See: <http://saaksisaatio.fi/en/ospreycenter/default.htm>.

During 1913–2011, 47,374 Ospreys were ringed in Finland and, of them, 3,275 “interesting” encounters were reported. In addition, 15 Ospreys were fitted with satellite transmitters in 2001–2012. Results from both ringing and satellite tracking demonstrate clearly how the Ospreys breeding in Finland link together people from all parts of Europe from Britain to Russia, from West Africa to Arabian Peninsula and from the Mediterranean area to the southernmost tip of Africa. The welfare of Finnish Ospreys is highly dependent, in addition to the environmental circumstances, also on the differences in human culture in a vast area outside the breeding grounds in the north. Thus, the Osprey is an excellent flagship for global education and conservation!

Detailed information about satellite tracking of Finnish Ospreys is available both in Finnish and English on the WorldWide Web: www.luomus.fi/english/zoology/satelliteospreys/.

Status of Osprey telemetry tracking and educational outreach in North America

Rob Bierregaard

Since the late 1990s, slightly more than 200 Ospreys have been satellite tagged in 11 research projects carried out in North America. 70% of the birds tracked were tagged in two studies (Martell in the late 1990s and Bierregaard from 2000 to 2012). Only very modest educational outreach efforts have been made to date for two principal reasons. First, the primary motivation of the tagging efforts was research-educational outreach was a subsidiary goal of the tagging programs--and secondly, the curricula in most public school systems are so tightly focused on getting students to pass federal and state-mandated achievement tests that teachers rarely have the flexibility to take advantage of the educational opportunities that might be provided by having students follow satellite tagged Ospreys. While we have had some success with small school systems, most projects that have made an effort at environmental education have been through map-based websites. Recently, because of our internet presence, we are getting involved with local environmental education groups who are funding transmitters with the primary goal of education. In fact, given the rather thorough understanding of North American Osprey migration we have obtained over the past 15 years, there is little justification for tagging more



Ospreys simply to collect migration data. We argue that, at least in North America, educational outreach really must be the principal motivation for future tagging efforts.

Osprey In Estonia, The Tracking And Use Of Web Cameras

Urmas Sellis

Osprey (*Pandion haliaetus*) has listed in Estonia linguistically among the eagles, kalakotkas = Fish Eagle, if to translate directly. That means natural reverence and respect against the eagles among native people belongs also to Osprey. That started disappear during imported „hawk war“, but nowadays has been recovered slowly with help of special, but discrete training during some last decades among public audience. Since 1989 the NGO Eagle Club officially has worked for to change public attitude to eagles and nature in general. So probably in Estonia we have quite good nature conservation legislation to protect our eagles species' during the breeding and quite well attitude in general to feel eagles safe during their stay in country. Despite this, rarely spiteful cases appear.

Osprey population in Estonia is about 60 pairs and these are locally breeding in eastern part of the country. In 1985 there were only 5-10 pairs breeding, but after using of artificial platforms (built similar to natural ones) and effect of banning of several contaminants the increase occur. During last decade increase has been slow or even stopped, also productivity of population goes down. Difficult to say the reason, but several expectations we have - shortage of suitable breeding trees, threats at migration, threats in wintering grounds, incl. contamination again with DDT or something else...

Tracking of Ospreys (GPS/Argos Solar and GPS/GSM Solar) we used since 2006. Four adults from Estonia (3 females and 1 male) have been tracked and also a pair from Latvia (within common project) so far. All tracking routes are visible for public through online migration map: <http://birdmap.5dvision.ee/en> prepared in four languages, including also other species, zoomable, based on Google Maps, with animation possibility to follow migration of one season for all involved birds simultaneously.

Web cameras on nests of rare bird species have been used in Estonia since 2007, but only 2012 the Osprey nesting was made available here (and in Latvia) within ESTLAT Eagles cross borders project. Seems it has been with great success, if to look at 3,5M visits of Estonian Osprey cam, forum maintained and with feedback posted on full 530 pages there:

<http://www.looduskalender.ee/forum/viewtopic.php?f=56&t=402>

Osprey is one of the best species for webcam, always on top, active, vocal, nest protecting, nice, easily getting familiar, etc. The high quality stream has been achieved with help of several active supporting top specialists of different fields of the system.

In the future the combination of tracking and webcams could play the role, as after leaving the nest there is long time to wait for next breeding season. That is good to fulfill with public tracking of the same birds, though we know about survival rate of juveniles and unexpected need to explain the reasons of perishment. That enables to create for public the connectivity of breeding and wintering grounds on different continents, also to feel the threats during all life cycle of Osprey.

Linking Migration Studies and Education. The Work of the Migres Foundation in Spain

Eva Casado

Migres Foundation is a private non-profit organization founded in 2003 to promote scientific research on bird migration and to boost sustainable development activities. Our final goal is biodiversity conservation.

The areas we address are 1) sustainable development, 2) conservation, 3) environmental education and training and 4) research.

Some notable projects by area out of numerous conducted by the Foundation are design of wind farm environmental measures, and research of the effect on biodiversity of copper mines and of mitigation measures (1); monitoring of the bird migration through Gibraltar strait, management of a captivity breeding centre for the Spanish imperial eagle, reintroduction of the Osprey in South Spain and monitoring of the colonizing species (e.g Northwest African long-legged buzzard) (2); educational program “learn to teach with birds” (3); organisation of international conferences on bird migration and climate change and on wind energy and wildlife conservation, studies about the effect of artificial night-lighting on migrating invertebrates, about impact mitigation of human structures (roads, wind mills, power lines) and set up of the Centre for Migration and Global Change (4).

We highlight our work monitoring the migration through Gibraltar strait, monitoring the Osprey breeding population recently established in Andalusia and “learn to teach with birds” since they are directly related to Flyways seminar, focused mainly on Osprey.

The monitoring of the migration through Gibraltar strait is named “Migres Program”. The Strait of Gibraltar constitutes one of the most important setting to study the migratory phenomenon at a worldwide level. The proximity between continents and the confluence of seas makes it an obligatory way for migratory birds, which every year go from western Europe to the heat of Africa. As well as being the only door available for maritime animals and birds between the Atlantic ocean and the Mediterranean sea. The objective is to obtain, in a permanent and continuous way, objective and comparable information about the colonies evolution of soaring, marine, and passerine birds on their way through the Strait of Gibraltar. The soaring bird fall monitoring is conducted since 1997, but follows the current methodology since 2001. It is based on systematic counts in which standardized protocol are used. The counts design’s aim is to obtain annual abundance indexes for each specie, so the results obtained are comparable year on year and make possible to obtain evolution indicators of the migratory populations through the Straits.

The Osprey reintroduction project started in 2003 and was over in 2012, when we consider we have got the establishment of a self-sustaining Osprey breeding population in South Spain. We got 7 breeding pairs in 2012, which raised 10 fledglings.

Finally, “learn to teach with birds” is an educational program launched by the Andalusian Ministries of Education and Environment. The program is aimed at teachers. It tries to show them the usefulness of the study of birds and their migrations as a teaching tool. We have helped and trained teachers to implement the work with birds at formal. A book specifically on the Osprey has been published.

Using Osprey satellite-tracking in School Program, New Hampshire, USA

Iain MacLeod

The Squam Lakes Natural Science Center in New Hampshire, USA has created an education program for middle-school aged children that focuses on Ospreys and migration. The program looks at adaptations, conservation status in US and migration. Using Google Earth images and data from satellite-tracked Ospreys from New Hampshire, the program allows students to track the birds in near-real-time. The in-classroom program includes a visit with a live “glove-trained” Osprey. An interactive outdoor activity demonstrates how the satellite technology works by having students simulate the interaction between a tagged Osprey, the orbiting satellites and data download point. The next step for this program is to create relationships with schools in South America. One tagged NH Osprey is wintering near civilization in eastern Brazil and will allow communications between school students in New Hampshire and Brazil. The project in New Hampshire is primarily funded by the state’s largest electric utility company (PSNH).

The birds as tools for learning Nature conservation and also the subjects at schools: The case of Urdaibai

Ainara Azkona, Aitor Galarza

In a society where the ornithological culture barely exists, it is very important to create a base for getting the children closer to the wildlife in order to engage them in to the protection and conservation of the Nature. The project of Urdaibai Bird Center and the little schools located in the Urdaibai Biosphere Reserve has the aim of using the birds as a tool for learning in accordance with the age of the children. On one hand, each semester they choose one species of bird of Urdaibai for learning about it with our guidance and support. Then, they do interdisciplinary works integrating different subjects, from Nature Sciences or Geography to Mathematics, Basque language, Spanish or English, Music or Computer classes, using the bird as an excuse to learn in a different way. On the other hand, they learn to do scientific work in the field: monitoring the nest-boxes and bird feeders and obtaining the data of them, getting the information of the birds ringed and recaptured there by our ringers and after that, they process all the data and create audiovisual materials with the results. Finally, the material developed by the students is shown in their website. This project provides the schools with a different way of teaching but it is also a tool for making the children be aware of the problems of the nature around them and for involving them into the protection and conservation of the wildlife and their habitats.

Migrating Birds Know No Boundaries - Birds as peace makers in the Middle East

Yossi Leshem, Mansour Abu Rashid and Imad Atrash

The unique location of the Middle East, in a junction of three continents, Asia, Europe and Africa, makes it a global bottleneck for bird migration. One billion birds migrate over the region annually. On the other hand, the geopolitical status of the region since ancient times suffered conflicts and wars. The three authors and other colleagues developed a multidisciplinary concept to get the people from the three nations to join forces on resident and migrating bird studies under the title *Migrating Birds Know No Boundaries*. A migration stork project in cooperation with Max Plank Institute, Radolfzell, Germany using satellite transmitters to follow 120 storks as well as developing a network of ringing stations in the three countries, and following the migration with a network of ground observers. We developed three websites in which the students in about 500 schools followed the migration online (www.birds.org.il), (<http://www.wildlife-pal.org>). Part of the educational studies was to go out in the field to enjoy migration and in many cases the students met each other and became friends. Another regional project is operating since 2002 with Israeli, Palestinian, Jordanian farmers, using barn owls and kestrels as pest control agent of rodents in agriculture fields. A total of 3100 nesting boxes were mounted in the region. We believe that the experience of the cooperation last 2 decades, can play a key role in developing cooperation in conflict area through the FLYWAYS concept of the Osprey brainstorming seminar, and get together students from Europe (nesting grounds) Middle East (migrating bottle neck) and wintering grounds (Africa).

Space for Daily Life & Space is the Limit

Amnon Ginati, European Space Agency (ESA)

The increasing complexity of modern society, globalisation of the economy, increasing pressure on natural resources, degradation of the environment, and maintaining the security of citizens are significant challenges facing governments and political decision-makers. To meet these challenges, timely access to high quality and reliable information and communication channels is of strategic importance to European governments, citizens and companies. Individual space technologies (Earth observation, satellite navigation, satellite telecommunications, and human spaceflight technologies), alone or in combination with terrestrial systems, play a major and sometimes unique role in providing solutions.



What is IAP?

The Integrated Applications Promotion (IAP) programme is a platform supporting the development of a range of new applications by utilising and integrating different space assets, resulting in improved or new services for the citizens of Europe on a regional, national or global scale. Intrinsic to these new applications is the added value of space in facilitating them, and the long-term sustainability of the resulting services.

The programme will not push any particular technology, but shall respond to users' needs, addressing a number of themes.

The initial themes addressed in the programme are:

- Space for Health
- Space for Security and Safety
- Space for Energy, Transport
- Space for Civil Protection/Crisis Management
- Space for Africa, Baltic, Arctic, Alps, Small Islands, etc
- **Space for Environment and Education**

In consultation with users and stakeholders, and in response to their needs, further thematic areas will be explored, identified and will be included in the course of the programme implementation. Additionally, cross-thematic areas such as the influence of climate on energy, health or environment will also be addressed.

Why is it needed now?

The potential of satellite-based systems is currently under-utilised. There is, therefore, a need to introduce a new programme logic, which is able to embrace a wide range of new applications within the same approach, which starts from a set of user needs rather than a particular technology solution, and which develops an appropriate application or service, combining all the existing space and terrestrial assets necessary to build the right response; in short 'integrated space applications'.

What are the benefits?

The IAP initiative will bring satellite-based solutions to new markets, create new communities of users, develop technological synergies between existing satellite-based systems and promote the use of space. The current estimate of the potential market involving satellite-based services is around 50 times greater than the cost associated with the development of the satellite infrastructure.

Benefits to society are numerous. To name a few, integrated services are of importance to disaster assessment and management, all forms of transport including those on the open seas, safety policies and health services (particularly early-warning systems and epidemiology intelligence) encompassing preventive, nominal and emergency situations. IAP is already active in diverse applications ranging from assisting with development and education in Africa to aircraft safety (e.g. prevention of bird strikes), facilitating novel and innovative solutions and services that previously were unimaginable. Integrated applications are thus already benefiting European industrial competitiveness, while serving the needs of European societies and wider communities, and contributing to European non-dependence and autonomous decision-making capacities.

The Rationale for Integrated Satellite Applications and their relevance to the bird migration ecology, Flight Safety and Education

ESA's integrated Applications (IAP) programme will be introduced, including a presentation of the results from several projects/services that are particularly relevant for environment in general and birds collision risk reduction and education in particular. The rationale, partnerships and methodology for using Integrated Space Applications in the following three thematic areas will be analysed, presented and discussed:

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- Integrated Applications Promotion (IAP) and the partnership with European Investment Bank (EIB)
 - “FlySafe” birds collision risk management for flight safety
 - “Space 4 Education”

Rationale for thematic selection

Within each of the three chosen themes, satellite technology has proven to be critical in bringing solutions to the associated community of interest.

Within each theme, the communities of interest have some experience in using solutions based on space technology (i.e. satcom, satnav, EO and Telemedicine), but not always systematically and usually only in isolation rather than in combination.

Each theme also provides a mix of business and government related applications, thus displaying different types of business cases for the deployment of space-based integrated solutions.

Guidance on implementation strategies

The IAP programme has a wide range of feasibility studies and demonstration projects, providing practical experience in how to address the development of integrated solutions to problems, needs and opportunities within the areas of interest. Moreover, the programme is open to the implementation of additional studies and projects to address specific new topics that may be identified during the workshop discussions.

The workshop thus provides an opportunity for interested parties to network and discuss potential collaboration, and to commence a dialogue with ESA that may lead to engagement with the IAP programme and ultimately to the development of new, space-based services and integrated applications which will fulfil specific user community needs.

Safeguarding Migratory Soaring Birds along the Rift Valley/Red Sea Flyway

John Cornell

BirdLife International is a Partnership of 116 national conservation organisations and the world leader in bird conservation. BirdLife’s unique local to global approach enables it to deliver high impact and long term conservation for the benefit of nature and people. Because it is partner-led, BirdLife International is extremely well-placed to coordinate the work across national boundaries and throughout flyways in order that it may bring about positive conservation change on the ground for species and communities alike.

The BirdLife International Flyways Programme is an example of a strategic approach to conservation and brings together partners through coordinated projects in three major flyways around the globe. It aims to conserve migratory birds and safeguard them from an increasing number of threats. The three flyways are defined as the Americas Flyway, the African-Eurasian Flyway and the East Asian - Australasian Flyway.

BirdLife and its partners are active in all three flyways, working to conserve migratory species.

Every year, migrating birds traverse mountain ranges, oceans, deserts and inclement weather on their journeys to survive. Their long flights often take them across national borders, continents and cultures all of which can pose a threat to their survival. However, increasingly threats to migrating birds are being posed by intensive agriculture, deforestation, unsustainable hunting practices, collisions with wind turbines,

electrocution by power lines, deliberate persecution, poisoning, pollution and disturbance during the breeding period. In an attempt to mitigate some of these threats, BirdLife and its partners are working hard through the Flyways Programme to put in place new conservation projects that will benefit migrating birds.

The migratory Soaring Bird Project (MSB) is just such a project and is integrating conservation management objectives into targeted public and private sectors in 11 countries along the Rift Valley / Red Sea flyway, a significant route for migrating species within the African-Eurasian Flyway. The sectors being focused on are agriculture, energy, hunting, waste management and tourism.

With a focus on threats from wind energy developments, BirdLife have worked with web developers to create the MSB mapping tool, an interactive online map that enables stakeholders along the Rift Valley / Red Sea flyway to visualise areas of value to migratory soaring birds that might be sensitive to wind energy development. Access to the mapping tool is through the main MSB website here (<http://www.migratorysoaringbirds.birdlife.org>).

The MSB mapping tool seeks to take a more strategic approach to tackling a specific threat to migrating birds by going beyond simply using Important Bird Areas (IBAs) and Protected Areas as potentially sensitive hotspots. MSB mapping tool does this by incorporating tracking and other location-specific bird data to help the user visualise a more complete picture of the potential use of areas by migratory soaring birds.

Linking people for conservation and education: The Osprey Migration Foundation - the story so far

Tim Mackrill

The global distribution and migratory habits of the Osprey *Pandion haliaetus* make it an ideal species for collaborative education projects. In 2011, following a field trip to Gambia and Senegal, the Leicestershire and Rutland Trust (LRWT) initiated a project to link schools in Rutland, UK, with schools in West Africa. The pilot project also involved providing guided fieldtrips for schools in The Gambia run by local wildlife guides, replicating similar opportunities provided by LRWT for local schools at Rutland Water.

Over the course of twelve months, students exchanged letters, photos and videos. This provided them with a unique way to learn about another culture and a new and exciting way to study the migratory journeys undertaken by Ospreys and other migratory species along the Eurasian-African flyway. This, it was hoped, would raise awareness of the need to protect and conserve migratory birds throughout the year.

Following the success of the pilot project, LRWT with support from the International Centre for Bird Migration in Israel and Highland Foundation for Wildlife in Scotland are now extending the project to other parts of the flyway. The centre piece of the project will be an interactive website where schools will have the opportunity to contact each other, either via e-mail or Skype in order to develop links. Each school that registers with the project will have their own webpage where they can provide biographic and background information and explain what they would like to achieve through being involved in the schools link. The website will also provide background information on Osprey ecology and migration and links to resources such as satellite tracking projects and high definition nest webcams.

A key aim of the project is to provide the necessary computer equipment and training for schools situated in developing countries. This will be achieved through partnerships with local NGOs and wildlife guides, who will also provide fieldtrip opportunities for schools.



Beyond the main osprey flyways: what happens in the Central Mediterranean basin?

Andrea Sforzi, Flavio Monti & Jean-Marie Dominici

Although migratory behaviour of large osprey populations in North Europe and North America have been studied for decades in the framework of long-term monitoring programs, in the Mediterranean basin spatial ecology and, particularly, migration and over-wintering are still poorly known.

In the Mediterranean area, the osprey *Pandion haliaetus* is currently present with few tens of breeding pairs. In Corsica, after having been close to the extinction during the '70s, direct management actions allowed the population to gradually recolonize several ancient breeding sites. In the last few years up to 30 pairs bred along the West coast of the island.

In Central Italy (Tuscany) a reintroduction project started in 2006; thirty-three young ospreys were translocated from Corsica and released by means of the hacking technique.

Translocated ospreys were radiotagged (VHF) and data on post-fledging behaviour were collected. In 2011 and 2012 two successful reproduction events occurred and three juveniles grew up and dispersed.

Re-sighting data of ringed ospreys were reported from different localities of Italy (mainly Tuscany) and Switzerland (close to the Italian border).

A wild born chick was retrieved in Subsaharian Africa (Niimi National Park, The Gambia) few months after the onset of dispersal.

Parallel conservation actions (e.g. building of artificial nests) were carried out in Sardinia, Northern coastal Tuscany and the islands of Montecristo (Tuscany Archipelago) to facilitate the process of expansion of the populations.

At a greater scale, the main underlying questions are: 1) do the Mediterranean ospreys undertake a complete migration, comparable to that of the Northern populations? 2) Do they remain in the surroundings of the breeding areas during winter? 3) How far and where do they move? 4) Do exchanges among populations occur in the Mediterranean basin?

To answer to these and other questions a PhD project was developed by one of us (F.M.), in collaboration with the Maremma Regional Park (I), the University of Ferrara (I) and the CEF-CNRS of Montpellier (F). The presentation reports some of the main results of the Italian project and some first findings of the PhD project, focused on the Central - Western Mediterranean osprey populations.

Ospreys Global Education Study

Morven Snodgrass

As a country school Head Teacher at Logie Primary School (Moray Council), I embarked on our Global Ospreys work in 2007 with an osprey named Logie and it provided us with an excellent opportunity to participate in cutting - edge Global Citizenship work and to raise the profile of our school community. Global Ospreys was very much a whole school project as Logie's roll sat between 35 and 50 children from Primaries 1 – 7 (children of 5 – 12 years old). Small rural schools do whole school studies very well indeed due to the dynamics of smaller numbers and pupils being able to follow-up the core work in differentiated groups, if desired. We tracked our Ospreys weekly by using the link on Roy's website and the Global Ospreys work tied in well as part of our sector-leading Eco Schools' Green Flag work. Eco Schools Scotland is a nationally recognised body which assesses Educational establishments in terms of Eco work. Assessors are stringent in their approach, so to reach Green Flag status is a feather in one's cap. We worked closely with Radio Scotland and listeners from all over the UK followed the progress of the Logie Ospreys, whether it be live, or by podcast. This opened up a new awareness of digital technology to our children and gave them an insight into radio broadcasting too. In 2012, as Headteacher at Kingussie Primary and Nursery School (Highland Council) I was provided with a similar opportunity to track another local osprey. Kingussie is a bigger village school than Logie, roll fluctuates between 100 and 170 Primary children with 2 Nursery classes of 3 and 4 year olds. We embarked on the Kingussie Global Ospreys study last session and again, as an Eco Green Flag School (we have just achieved our 2nd award), we used the Ospreys study as part of our accreditation. Our innovative work in the previous session with WWF on Climate Change, also a Global Study, culminated in the children performing in the Scottish Premiere of the One Sun One World musical at Aviemore, while I and a colleague presented our Global Work at this year's Scottish Learning Festival in Glasgow, the biggest Educational event in the UK. Our new focus as a Teaching staff has been Learning and Teaching Methodology across the Curriculum, looking at the HOW as opposed to the WHAT of Learning and Teaching. Global Education provides an ideal background for us and in Scotland, we have adopted Curriculum for Excellence, which is World class due to its Child – Centred approach and focus on innovation and creativity. The use of websites, live data and the tracking of the birds weekly is perfect for this. We have a link to Roy's website and blog from our own school website and use digital technology through the interactive whiteboard to keep up to date with our Osprey, Fearn's developments. Many of our pupils access the websites from home and also log in to Roy's Autumn Watch appearances on television (BBC). Duncan MacDonald, our Countryside Ranger has been the key person in delivering Osprey Education on a weekly basis. Lots of very active Learning has taken place, with the use of games and fun interactive activities to balance out our use of websites, listening and note-taking. Each pupil has a project jotter dedicated to the Ospreys. We have plans for the project to be extended to expand the school's International links.

First Draft For Discussion

A New Global Vision: Google Birds
Online Monitoring Of Endangered Species By Satellite
In The Air, Ground And Oceans
Combining Research, Conservation And Education



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The Eagle and the Osprey

Friends are likely to be full of surprises. Sometimes the friend you're not so close to and don't meet so often turns out to be the one that offers you support and help exactly when you need it, and your close friend sometimes in such situations turns out to be not so close after all.

I'm mentioning all of this because one of my friends surprised me in the last while with an unexpected and even very problematic "trick". So problematic, that I decided to expose his name. The friend is no other than Dr. Yossi Leshem, the renown bird researcher, who about two weeks ago, with characteristic ornithological deviousness, sent me and many others of his acquaintances a link to an interesting website, without warning us in advance of the seriousness of the possible consequences.

Before I continue, let me say that this custom of sending me a variety of odd links, so that I can experience a rabbit smoking a cigar or a cat dancing ballet, is completely unacceptable in my opinion. But when Dr. Leshem sends a link, it's wise to be even more wary as the dangers are addiction and losing touch with reality.

And so, at the hour when most Israeli citizens were proudly listening to the Israeli Prime Minister announcing firmly that Israel "will respond with force" to the terrorist attack in Bulgaria, and recovering, if that was possible, from Kadima leaving the coalition, we were watching bleary-eyed Dr. Leshem's latest attraction: the online broadcast of the life in the nest of a raptor called the osprey.

The osprey is a historical Hebrew bird, and his history and that of our nation have been intertwined for generations. It is mentioned in the Bible and Talmud – and though unfit for eating according to Jewish law, like the Jews it too eats fish on the Sabbath. In fact, it eats fish also the rest of the week as this is its favorite dish which it is expert at fishing from water. The osprey is of medium size, but of interest is that the

female is bigger than the male – a very good trait in my opinion, and that's how it should be.

The above-mentioned osprey family built its nest high in a tree somewhere in Scotland, and a camera installed in the nest broadcasts 24/7. The viewers observe a big flat nest, built from branches and twigs, occupied by three chicks. Two of them are big and strong, named by me and a few others partial to all things Scottish, and especially their liquid legacy, "Glenfiddich" and "Glenlivet", and the third smaller chick "Downy" since when Glenfiddich and Glenlivet already had feathers, Downy still wore a coat of down.

Every so often one of the parents arrives with a fish quivering in its claws to feed the chicks with pieces torn from the fish with their curved beak. Glenfiddich and Glenlivet push Downy aside and so get most of the morsels. The Jewish heart cringes, but nothing can be done.

The photography technique is nothing new, by the way. Such cameras broadcast from different bird's nests in Israel and overseas. But in the osprey's nest in Scotland there is something especially captivating, and that's exactly the problem, as before the victim notices what's going on, he has already fallen under the spell, and once again can't cut himself away from the show. And this is what happened to innocent bystanders who got addicted to watching the Scottish ospreys, and haven't worked for a fortnight, don't sleep and don't set foot out their house, ignore the news and relate only to those other humans watching the same nest. In other words, they contact each other all hours of the day and night: "Downy ate a bit", "Glenfiddich is already spreading his wings", "the mother prefers him, that's obvious", "it rained all night, they're going to get a cold"...

The Internet has many dangerous sites, and these bird sites which look innocent and friendly, are in fact the most deadly of all. So I am taking this opportunity to speak out to the children of Israel to supervise what sites their parents are

surfing in and spot the symptoms if something not good is happening to them. If they carry their laptop from room to room, or close themselves in a room for hours on end, if strangled screams are heard from these rooms, if their eyes are red and pupils expanded, if their cellular internet bills have tripled, and if they hold weird conversations like: "do you think one fish will be enough for all three?" – this is the time to interfere and confiscate their computer.

Accompanying Reflections

Have we all become bird researchers? No. Is the action in the osprey nest so fascinating? Again no. To tell the truth, it's quite monotonous. So what does this addiction derive from?

There is an element of curiosity, as well as escapism, but beyond this, the feeling is that finally we have encountered a serious reality program. And indeed, the ospreys are dealing with true day-to-day survival issues, they know what they are doing, and they do it extremely well.

And besides this – they are more intelligent than the participants in "Big Brother" and more interesting than the participants in the last "Connected". And it's also the most real reality program. Whoever is kicked out the nest doesn't go home and start giving interviews left and right – he simply dies. Survival, simple and real, and not the temporary absence of conditioner – take note, producers and editors looking to improve their programs.

I am taking this opportunity to speak out to the children of Israel: if your parents carry their laptop from room to room, if strangled screams are heard from their rooms, if their eyes are red and pupils expanded, and if they hold weird conversations like: "do you think one fish will be enough for all three?" – this is the time to interfere and confiscate their computer.



Osprey at Sinai (Photo: Yossi Eshbol)

Relevant Websites:

www.ospreys.org.uk

www.roydennis.org

<http://www.luomus.fi/english/zoology/satelliteospreys/index.htm>

<http://www.bioweb.uncc.edu/bierregaard/ospreys.htm>

www.fundacionmigres.org

www.birdcenter.org

www.birds.org.il

<http://birdmap.5dvision.ee/en>



(Photo: Nadav Cassuto)



Iain MacLeod with glove-trained Osprey (Photo: Amanda Gillen)



חומר רקע

- בהובלתה של ד"ר אורנה שמחון, מנהלת מחוז צפון, ובשיתוף עם פרופ' יוסי לשם, מאוניברסיטת תל אביב והחברה להגנת הטבע, יחד עם שותפים נוספים, מתקיימת זו השנה השלישית תוכנית סביבתית מוצלחת ביותר "כן לציפור", בנושא המגוון הביולוגי וקיימות בדגש ציפורים במחוז צפון, בה לוקחים חלק 93 בתי ספר בכיתות ד' (מחציתם מהמגזר הערבי).
- השנה מצטרף למיזם מינהל מדע וטכנולוגיה כדי למנף את הלמידה בנושא נדידת ציפורים ברמה מערכתית ארצית בכלל המחוזות, ומרחיב את התוכנית בדגש על למידה שיתופית ולמידה בדרך החקר המדעי ופתרון בעיות כחלק מתוכנית העבודה והיעדים של הפיקוח על מדע וטכנולוגיה והפיקוח על התקשוב.
- בתאריכים 3-6 בפברואר 2013 יתקיים סמינר בינלאומי במלון בכפר בלום בדגש של למידה שיתופית בין בתי ספר בכל העולם בעזרת מעקב Online אחר שלכים מקננים, נודדים וחורפים. השלך נבחר כמין הולואקטי (שמקנן באירופה, אסיה וצפון אמריקה), נודד "בצווארי בקבוק" במזרח התיכון ובישראל מיצרי גיברלטר ואיטליה לעבר אפריקה, מצפון לדרום אסיה, ומצפון אמריקה לדרום אמריקה, וכך יכול לשלב תוכנית לימודית בין בתי ספר מכל העולם.
- הסמינר יעסוק בתוכנית פעולה ללמידה שיתופית לממש את הידע המדעי טכנולוגי, האינטרנט, משדרי הלוויין והקשר למגוון הביולוגי והנדידה לפורטל אינטרנט גדול המוקם בסיוע הממשלה בתוכנית לקידום אתרי מורשת, שיהווה תשתית לימודית למערכת החינוך, התיירות והמדע.
- בסיומו של הסמינר, תגובש תוכנית חינוכית מדעית שתוצג ביום עיון למורים למדע וטכנולוגיה, למפקחים, ולמנהלים, מובילים בנושא החינוך המדעי-טכנולוגי, בתאריך 6/2/2013 בין השעות 08:30-15:00 (מצ"ב התוכנית).
- ביום העיון תוכלו ללמוד, להביע דעה, ליהנות מסיוור טיבוע בבוקר למשכימי הקום, ולסיוור באגמון החולה בעגלת המסתור.
- בעקבות הסמינר, הפיקוח על הוראת מדע וטכנולוגיה בשיתוף עם הפיקוח על תוכנית לימודית בנושא.
- פרופ' לשם וצוותו יעבירו בשיתוף עמנו השתלמויות למורים בנושא, כדי שכבר בשנה"ל תשע"ד (1.9.2013) יתחילו בתי ספר מעוניינים בחט"ב ללמוד את התוכנית החדשה, בהלימה לתוכנית הלימודים וליעדים המרכזיים של מדע וטכנולוגיה.

למשתתפי הכנס בנושא שלכים, תקשוב, אינטרנט ולמידה שיתופית

מינהל מדע וטכנולוגיה והפיקוח על הוראת מדע וטכנולוגיה פועל בשנים האחרונות לקידום תוכנית היעדים של משרד החינוך, לחיזוק הידע והמיומנויות, קידום הישגים, שיפור עמדות והעלאת המוטיבציה של תלמידי ישראל ללימודי מדע וטכנולוגיה.

על מנת לקדם יעדים אלו, משרד החינוך הקצה משאבים: תוספת שעות הוראה, הדרכות והשתלמויות, תכנית הלימודים עודכנה על התכנים ועל המיומנויות שתלמידים נדרשים בה ואף פותחו חומרי עזר למורים ולתלמידים.

החל משנת הלימודים תשע"ב עוסק הפיקוח על הוראת מדע וטכנולוגיה בשילוב **מודע ומתוכנן** של למידה בדרך החקר המדעי ופתרון בעיות בתכנית העבודה הבית ספרית. תלמידים בכיתות ו' ו'כיתות ט' נדרשים לבצע תהליך שלם של חקר מדעי ופתרון בעיות, תהליך שתוצריו מוצגים בירידים בית-ספריים, עירוניים ומחוזיים, תהליך המסתכם באירוע שיא של **יריד חקר מדעי ופתרון בעיות ארצי**.

בשנה"ל תשע"ג החל מינהל מדע וטכנולוגיה לשלב למידה התנסותית בתוכנית הלימודים במדע וטכנולוגיה ותהליכי החקר המדעי ופתרון הבעיות. **התנסות פעילה** (ניסויים ותצפיות) היא אחת מאסטרטגיות ההוראה-למידה המרכזיות והייחודיות של המקצוע, היא משמשת מקור לעניין, הנאה וסקרנות לתלמידים ומקור השראה ורוח לאנשי החינוך **של תחום זה**.

לקידום יעד זה המינהל למדע וטכנולוגיה משלב תוכניות חוץ קוריקולריות ופועל עם גופים מקצועיים בלתי פורמאליים, כמו מוזיאוני המדע, גנים בוטניים וזואולוגיים ועוד, המדגישים למידה התנסותית, ונותנים תמיכה וסיוע לבתי הספר בכלים מתאימים להצלחה בכך.

אני רואה בכנס זה המדגיש למידת חקר בנושאים של מעקב אחר נדידת ציפורים באמצעות משדרים, מקלטי לוויין המוצמדים לציפורים הנודדות, הנחקרים תוך כדי למידה שיתופית- שיתוף פעולה בין מדינות, המעורבות במעקב אחרי נדידת הציפורים, מנוף וחיבור אמיתי לקידום יעדי מינהל מדע וטכנולוגיה, תכניות הפיקוח על הוראת מדע וטכנולוגיה, והפיקוח על התקשוב, **ללמידה בדרך החקר המדעי ופתרון בעיות וללמידה שיתופית**.

קשר זה נעשה בשנים האחרונות במחוז צפון בהובלתה של ד"ר אורנה שמחון מנהלת המחוז בשיתוף עם פרופ' יוסי לשם אוניברסיטת תל אביב והחברה להגנת הטבע, בתכנית המעשירה והחשובה, **"כן לציפור"**.

השנה אנחנו מבקשים להחיל תכנית זו ותכניות נוספות בנושא חקר ציפורים נודדות במחוזות נוספים במערכת החינוך במדינת ישראל.

מאחלת לכל באי הכנס, למחנכים ולכל השותפים לתוכנית בראשותו של פרופ' יוסי לשם למידה מהנה ממעוף הציפור לתוך לימודי מדע וטכנולוגיה.

שושי כהן,

מנהלת תחום מדעים ומפמ"ר מדע וטכנולוגיה, משרד החינוך

משרד החינוך המינהל למדע ולטכנולוגיה

יום שלישי י"ט טבת תשע"ג

1 בינואר 2013

הזמנה

**הנכם מוזמנים לסמינר בנושא: שלכים, משדרים נקלטי לוויין - למידה שיתופית ולמידה חוץ
כיתתית, שיתקיים ביום רביעי, כ"ו שבט תשע"ג, 6.2.2013
(מלון פסטורל כפר בלום)**

**08:30-09:30 - היכרות עם טיבוע ציפורים (מותנה ברישום מראש), הטיבוע יתקיים בכפר בלום,
נצא מחניית מלון פסטורל בשעה 8:30 בדיוק.**

09:30-10:00 - התכנסות וכיבוד קל.

10:00-10:20 - ברכות

מנחה: פרופ' יוסי לשם

הגב' שושי כהן – מנהלת תחום מדעים ומפמ"ר מדע וטכנולוגיה

הפעילות החינוכית והתקשוב

ד"ר אורנה שמחון - מנהלת מחוז צפון, משרד החינוך

פרופ' פרטי סרולה - פינלנד

10:20-10:40 רוי דניס (סקוטלנד) - המיזם החינוכי והמדעי עם השלכים בסקוטלנד

10:40-11:00 טים מקריל (אנגליה) - המיזם החינוכי עם השלכים באנגליה, והקונספט הגלובלי

11:00-11:20 ד"ר רוב בירגרד (ארה"ב) - פעילות חינוכית עם בתי ספר, בדגש שלכים

11:20-11:40 פרופ' אמנון גינתי (הולנד) - סוכנות החלל האירופאית ושילובה במיזם

11:40-12:00 גב' שושי כהן - מפמ"ר מדע וטכנולוגיה - מדיניות משרד החינוך בנושא חקר מדעי

טכנולוגי ולמידה שיתופית

12:00-12:20 ד"ר מירי דרסלר - מנהלת מרכז המורים הארצי למדע וטכנולוגיה לבית הספר

היסודי, המרכז לחינוך מדעי וטכנולוגי, אוניברסיטת תל אביב - שילוב מיומנויות

שיתופיות בתהליכי חקר

12:20-13:00 פאנל של המרצים - יענה לשאלות הקהל בנושא החזון של למידה שיתופית

בדגש נדידה, שלכים, משדרי לוויין וקשר בין יבשות

13:00-13:30 כריכים וכיבוד

13:30-13:45 נסיעה לאגמון החולה

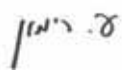
14:00-15:00 סיור בעגלת המסתור לצפייה בהאכלה של 30,000 עגורים

15:15 פיזור

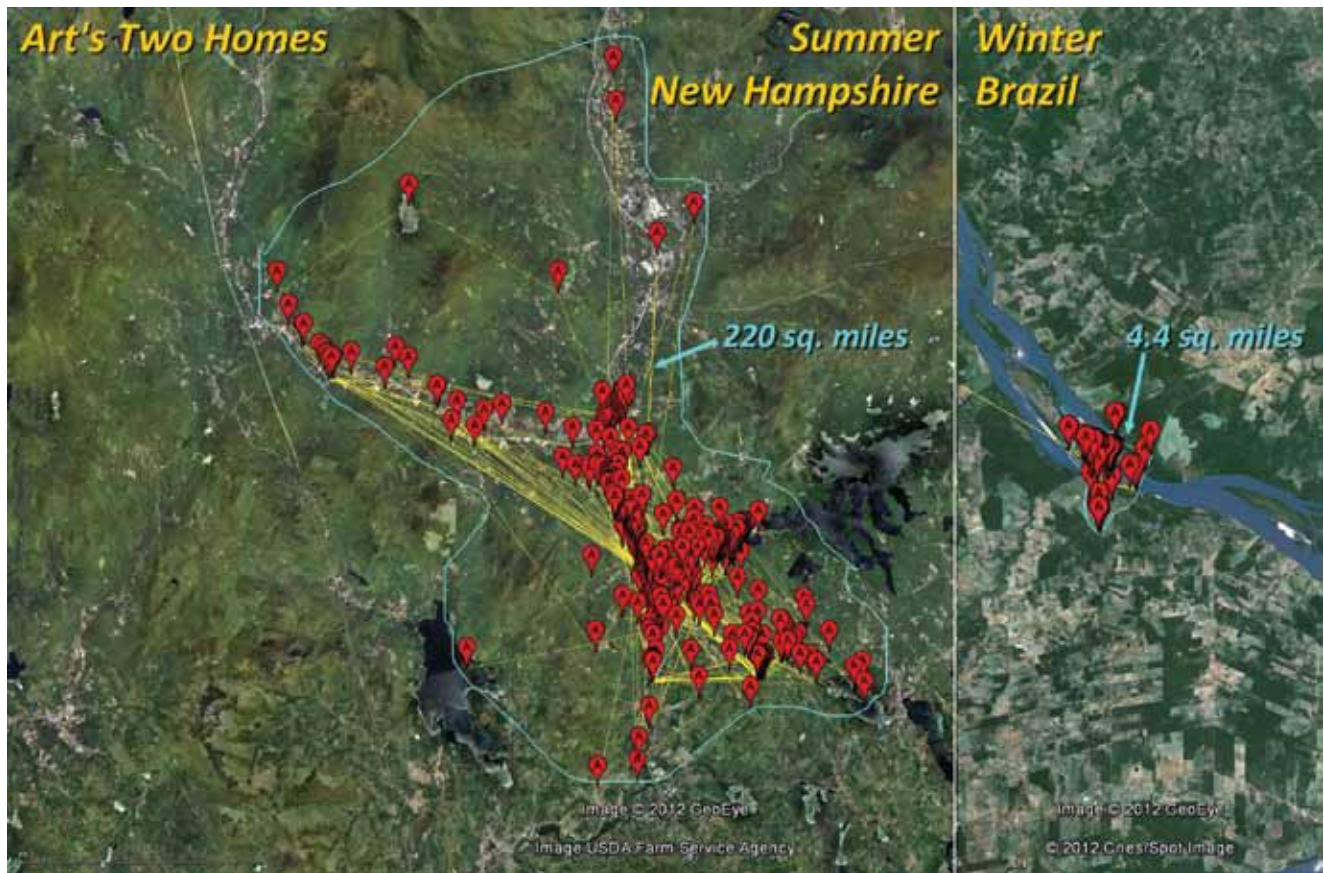
ההגעה ברכבים פרטיים, השתתפות לא כרוכה בתשלום, אך דורשת הרשמה מראש בדוא"ל של יוסי לשם:

yleshem@post.tau.ac.il

בברכה,



ד"ר עופר רימון
מנהל מינהל מדע וטכנולוגיה



Summer and Winter ranges of "Bridgewater Art" in New Hampshire and Brazil (Iain MacLeod)



(Photo: Nadav Cassuto)

שלכים, אינטרנט ומשרדים נקלטי לוויין - למידה שיתופית ולמידה חוץ כיתתית

סמינר סיעור מוחות, כ"ג-כ"ו שבט תשע"ג, 3-6 פברואר 2013
מלון פסטורל, כפר בלום, עמק החולה



צילום: נדב קסטנו