

DOĞA KORUMA MERKEZİ  
NATURE CONSERVATION CENTRE

# Nature Conservation Centre



2006–2011

Nature Conservation Centre, Activity Report 2006-2011

Nature Conservation Centre, Activity Report 2006-2011  
Doğa Koruma Merkezi, Ankara, Turkey  
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# Nature Conservation Centre (DKM)

2006 - 2011



# From the Director



*T*oday's conservation battleground is a complex place. Faced with not only the fight against species extinction and habitat loss, but also equipping the world to survive the effects of a changing climate, conservationists need to find new ways to work.

*We are faced with the twin challenges of conserving half degraded and little understood ecosystems, and transforming the way states, societies, organisations, companies and people work.*

*As conservationists we need to learn both new ways to communicate effectively and how to use rapidly evolving technology to maximum effect. Only then can we hope to bring about changes in the way individuals behave and develop ways to make damaging production processes more nature friendly.*



*It's time we all opened our eyes to these realities and to the changing world. We need to see that it is time to reject our traditional solutions – which have contributed to today's problems – and develop new ways of doing things.*

*Ten years ago, conservation was predominantly directed towards the protection and restoration of species and habitats. Today, conservation solutions increasingly include people, and conservationists work with those who continue to use the landscape in a traditional and sustainable way. Such conservation partnerships must also extend to working together with the potentially damaging sectors of chemicals, mining and oil. In all cases the aim is the same; to cultivate and change practices and behaviour to the benefit of nature and the environment.*



*As nature conservation experts we must face up to our failures and find new ways to work; we must tune-in to the changing world and seize opportunities to make positive changes.*

*Throughout its work DKM uses conservation science to deliver conservation solutions which are comprehensive and innovative. We believe that species' extinctions and habitat degradation generally arise not from a conflict between environment and development, but from a lack of knowledge and an inability to develop appropriate strategies. Starting from this principle the DKM team:*

- works to develop a strong scientific basis for conservation, promoting the use of conservation biology principles and tools;*
- identifies damaging activities and develops ways to encourage adoption of alternative approaches;*
- develops working examples of sustainable use and wise natural resource management as alternatives to strict protection;*
- supports organisations working in nature conservation and natural resource management, helping them to find sustainable-use solutions based on sound science;*
- uses projects as tools to achieve long-term goals, not as ends in themselves;*
- and, most important of all, DKM aims to achieve effective results through efficient partnerships, not individual successes.*



*On DKM's conservation roadmap we are sure there are many things needing to be done which we have not yet thought of, as well as things which we are aware of but have yet to implement. We invite you to work with us, together we can achieve both.*

*Dr Uğur Zeydanlı*

Didem Ambarlı  
Steppe Conservation Programme Coordinator

Yeşim Kınıkoğlu  
GIS Officer

*'DKM is the cornerstone of effective and efficient nature conservation in Turkey, delivering and sharing examples of good practice which use the best of current science and technology.'*





Sunay Demircan  
Chairman

*'DKM is a living organization with a body and a soul: working out of a passion for nature, it observes, researches, produces and shares reliable information.'*



# The Nature Conservation Centre (DKM)



**N**atural entities and biodiversity are not ornaments of our life, rather they are an indispensable part of our existence. The air we breathe, the water we drink, our food, regulation of climate are all dependent on the healthy functioning of the natural system. Each species has a unique role in this system.

Protecting the system and maintaining its healthy functioning is more complex than we think. As yet, there is no natural system in existence which science fully understands the functioning of. Yet we are destroying these systems. The puzzle is to derive solutions to conserve the systems, integrating social and economic dynamics together with natural processes.

The Nature Conservation Centre aims to find solutions by seeking to understand the complexities of nature, fulfilling the multi disciplinary needs of nature conservation through wise use of scientific information and intelligent and creative adaptation of scientific approaches.





## Mission

Through wise use of sound science DKM aims to attain effective conservation of biodiversity and sustainable management of natural resources.

## Objectives

- To achieve wide understanding and application of the principles of conservation science in nature conservation.
- To establish biodiversity conservation as a core objective of all aspects of governance.
- To increase capacity to deliver durable and effective conservation.

## Values

DKM is inspired by nature and its diversity and respects all forms of life, from the simplest individuals to entire ecosystems.

DKM places itself at the cutting edge of biodiversity conservation and works to a high and consistent standard to deliver scientifically sound products.

DKM seeks to understand the local context, working resourcefully and collaboratively to identify pragmatic and innovative solutions, which support sustainable lifestyles and cultures.

DKM puts people first, listening to ideas and sharing experiences in order to find ways to make optimal use of available resources.

DKM believes conservation of nature and its diversity can only be achieved through collaboration and the combined efforts of people, organizations and disciplines.

# DKM 2006–2011

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# Programmes



**Bahtiyar Kurt**

**Conservation Director**

*'DKM is a nature conservation factory: at one end carefully collected data enters, at the other precise and realistically formulated conservation priorities and policies exit.'*



Dr Ayşe Turak  
Systematic Conservation Planning Programme  
Coordinator

*'With the SCP Programme we aim to facilitate the planning of efficient conservation action. The process we follow is based on organizing different types of environmental and biological data in such a way that they can all be evaluated together.*

*This makes it possible both to identify priority areas which support complementary biodiversity and to develop appropriate conservation recommendations. In the face of rapidly increasing threats to biodiversity, we believe that by using the SCP approach to identify where and how to invest limited resources for the greatest possible conservation return, we increase both the probability of positive efforts being initiated for conservation and of the ultimate chance of those efforts being successful.'*



# Systematic Conservation Planning (SCP)

How should conservation priorities be determined for a region? Is it possible to plan conservation action in a way that ensures healthy biodiversity in perpetuity and at the same time allows utilization of natural resources? How can we conserve as much biodiversity as possible – particularly the most threatened – as efficiently as possible? The answer to all these questions is through SCP, a planning tool which provides an objective approach to answering questions and solving conservation problems at different scales. DKM uses SCP in many aspects of its work and supports other institutions wishing to use it in their work.

SCP for a region involves:

- Compiling information on the biodiversity, socio-economy, threats, opportunities for conservation and the priorities of the implementing bodies;
- Determining conservation targets, conservation priorities and conservation requirements;
- Evaluating and analysing the data using 'multi-criteria optimization' in order to develop a plan for conservation management which ensures the persistence of biodiversity and other natural resources.

Since 2000, SCP studies have been carried out in Turkey with the participation, collaboration and support of many institutions. DKM's future targets for the Systematic Conservation Planning Programme are:

- Completing conservation plans for all regions of Turkey in partnership with appropriate government bodies;
- Collaborating with relevant institutions to implement the plans;
- Carrying out scientific studies in partnership with the international conservation and scientific community, aiming to improve the SCP approach and adapt it to the circumstances and needs of individual countries;
- Participating in and giving support to the use of SCP in neighbouring countries.

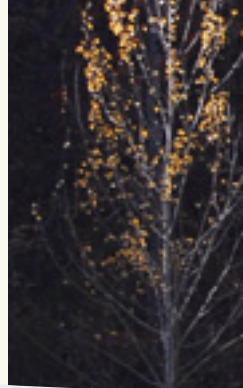
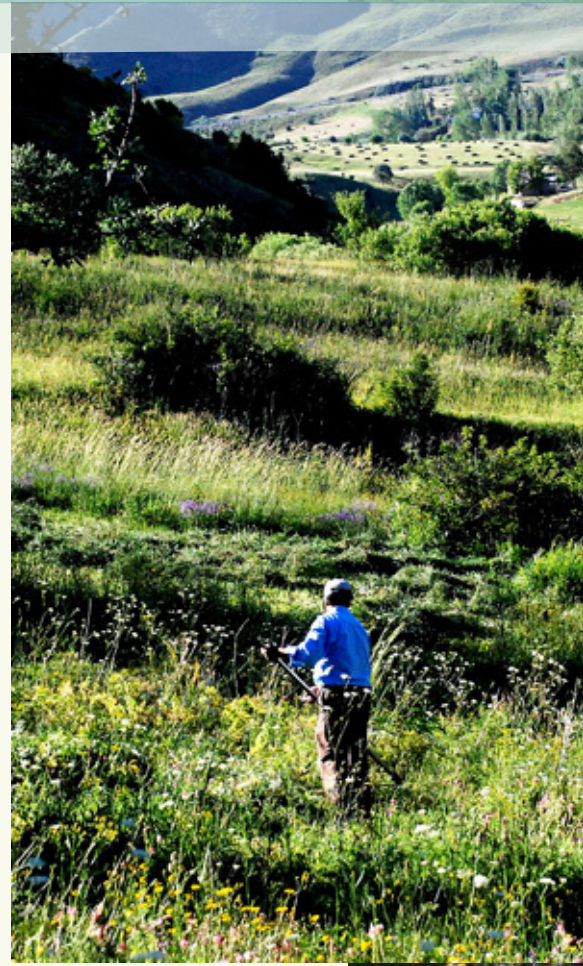
In Turkey, SCP studies are part of the work of the National GAP Analysis Programme, a programme coordinated by the Biodiversity Monitoring Unit, within the Ministry of Forestry and Water Affairs. In all studies the DKM team has played a key technical and strategic supporting role. Additionally, DKM took responsibility for the management of the Anatolian Diagonal Biodiversity Project and the Black Sea Gap Analysis Project.

# Anatolian Diagonal

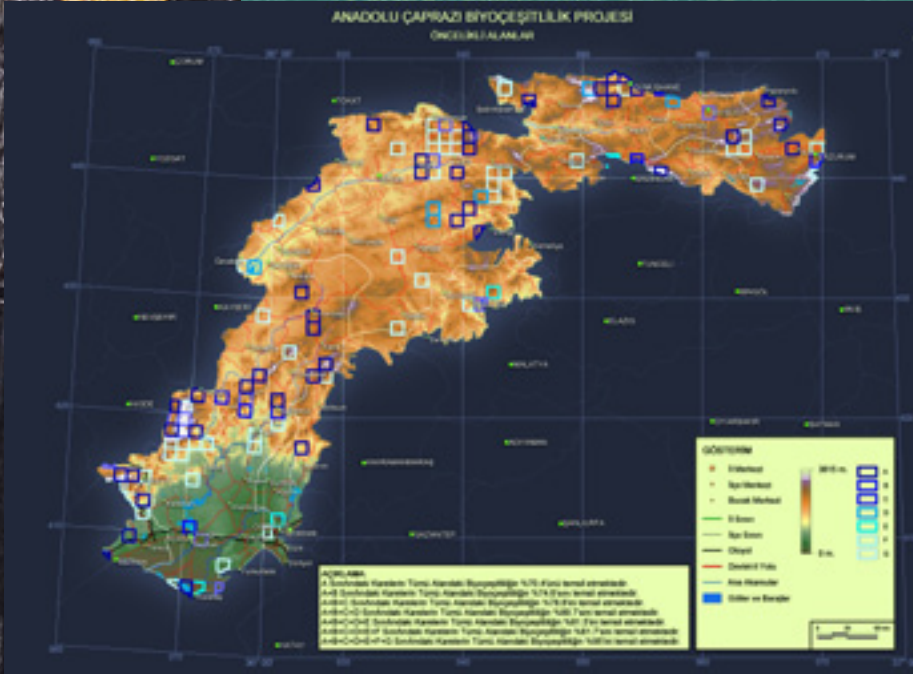
This conservation planning project was implemented by DKM, working in partnership with the Middle East Technical University, General Directorate of Forestry, Ministry of Forestry and Water Affairs' Biodiversity Monitoring Unit, TEMA Foundation and the BTC Pipeline Company. Previously, similar studies had been completed for Southeast Anatolia, the Mediterranean, Coastal Aegean and Lesser Caucasus regions of Turkey.

The project followed SCP processes to study a broad 8.5 million hectare corridor along the Baku-Tblisi-Ceyhan oil pipeline. Priority areas for conservation were determined, the threats identified, appropriate conservation measures to address the threats formulated, the cost of implementing conservation calculated and the conservation opportunities—which would help reduce costs—were investigated.

This major study was only achieved thanks to the participation of many stakeholders. For this reason it now stands as a model for regional institution working, leading the way for future collaborative nature conservation efforts in Turkey. The project identified 71 unique areas in the region, only 4.6% of them under protection. Now all these areas have been designated priority conservation areas by the General Directorate of Forestry; this means they will be considered when permissions are issued and planning decisions made.



Of all the SCP studies carried out in Turkey to date, this project presented the greatest opportunities for testing new approaches. The integration of new elements to the research and planning process made it possible to address previously disregarded aspects of conservation. For example, fieldwork was carried out on additional groups of organisms and the results clearly demonstrated the value of extra groups; ecological and evolutionary processes were mapped making it possible to include them as conservation targets; conservation opportunities were defined and integrated into SCP for the first time.





Aydan Özkil

Nature Conservation Volunteer

*'The few months I spent with the DKM team were an inspiring experience for me. As a city planner I found conservationists to have quite different perspectives and solutions. In nature conservation, humans and nature are considered one entity, and modern approaches are used to integrate both into conservation solutions.'*



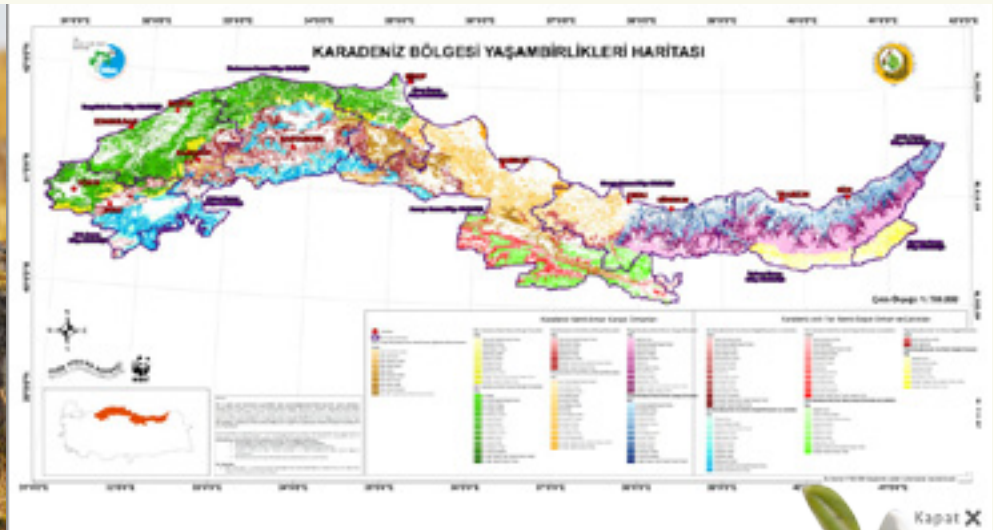


# Black Sea Region SCP



Turkey's Black Sea region is very different from all other parts of the country and supports unique components of the nation's rich biodiversity. To conserve this globally important heritage, sustainable use of natural resources is needed. The Black Sea Systematic Conservation Planning project, started in 2010, aims to develop the infrastructure and tools needed to carry out long-term, systematic nature conservation in this region. The project is being carried out with the financial support of the General Directorate of Forestry and WWF-Turkey. It is identifying the priority sites for conservation in the Black Sea Region, developing forest monitoring and management guidelines for the priority sites, and continuing to develop and disseminate Systematic Conservation Planning methods and practices.

## Black Sea Region Plant Communities



This project is breaking new ground by incorporating the projected effects of climate change into the SCP process. A new 'vulnerability to climate change' layer will make it possible to see which are the most vulnerable sites.



# The Karpaz Peninsula: an Environmental and Socio-economic Evaluation

The Karpaz Peninsula is one of the most unspoilt and best protected areas of Cyprus. Under UNDP's 'Partnership for the Future Programme', DKM carried out a study of the region's environmental and socio-economic conditions.

This research has provided a basis for the development of conservation infrastructure and has been a guiding strategic document for the region's Natura 2000 process.

With its wilderness areas, sand dunes and long shoreline, the Karpaz Peninsula is seen as a potential investment area for tourism. However, it also faces serious threats from development and climate change. DKM thus carried out an integrated study of both the Peninsula's values and its problems, developing and describing a process for sustainable conservation development.



Prof. Dr Mecit Vural  
Gazi University Biology Department  
DKM Science Committee Member





Charlotta Chan  
Nature Conservation Volunteer



# Identifying Prime Butterfly Areas Using SCP

Prime Butterfly Areas (PBAs) are the highest priority sites for conservation due to the rare, endemic and/or threatened species of butterfly they support and often also for their high species diversity. Turkey's PBAs have been identified by DKM using SCP approaches and tools. The work was done as part of the project 'Developing a Basis for the Active Conservation of Turkey's Butterflies', implemented in partnership with Butterfly Conservation Europe (BCE) between 2009 and 2011 and financed by the Dutch government's BBI-Matra programme.



The PBAs were identified according to two principles: Efficiency – sites which support complementary species assemblages, and Effectiveness – sites where active conservation is likely to be practical. By following the SCP approach, it was possible to target and achieve a specified level of representation for all butterfly species in a small set of sites. Data for 358 butterfly species were analysed and a total 65 PBAs, covering 1.12% of the 90,800 km<sup>2</sup> of Turkey's terrestrial land, were identified.

This study has provided a potential new model for BCE's ongoing project to develop national PBA gazetteers for all European countries. The innovative elements of the Turkish study are the adoption of a multi-criteria decision-making process, and the use of efficiency – in addition to the more traditional scoring system – to ensure effective representation of species.



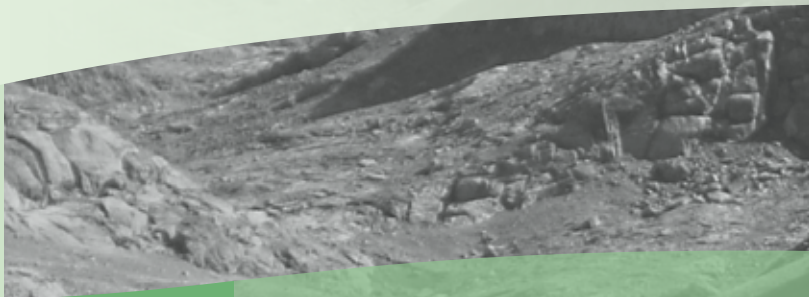


**Tansu Gürpınar**  
Founding Member  
Doyen of Nature Conservation in Turkey

*'DKM has a special place among nature conservation organisations working in Turkey. This derives from the organisations' principles, methods and performance. Firstly, DKM is innovative. It follows developments in the world and adapts them for implementation locally. DKM is a researcher. It is aware of the importance of reliable data and reliable information for reliable decision-making. This is the hallmark of DKM and produces sound results. DKM employs scientific methods.*

*Projects are managed with both academic discipline and sensitivity. DKM collaborates. At all levels and at all stages of its work, it works with everyone with respect and goodwill. Finally, and most importantly, DKM does all this selflessly, unreservedly for nature.'*





Dr Deniz Özüt

Forest Conservation Programme Coordinator

*'DKM's forest conservation programme draws on scientific and applied conservation studies from all over the world to develop practical tools and measures for the conservation of forest diversity in Turkey. Working with its partners, especially the General Directorate of Forestry, DKM carries out studies and develops practices appropriate for delivering conservation locally.'*



# Forests and Biodiversity Programme

Globally, forests support almost 65% of the Earth's species and make major contributions to regulating the climate and sustaining water supplies; they provide a wide range of timbers and fruits, and unique opportunities for tourism and relaxation. In Turkey, native forests lie in two of the world's top 25 wildlife hotspots and are exceptionally rich in species.



*Forest's greatest enemy is fire and tree-planting its best friend. True or false?*

Contrary to popular belief, forest fires – and insect pest outbreaks – are natural processes and not major problems for forests. The greatest threats, those that lead to the fragmentation and complete loss of forests, are almost exclusively initiated by man – clearance of trees for agriculture and grazing, urban sprawl and intensive timber production. Today, with worldwide natural disasters and global climate change, people are beginning to recognise that tree-planting is not enough to restore forest ecosystems and that an holistic approach to environmental problems is needed. One holistic approach, being followed by DKM's Forest Programme, is to broaden our focus; from conserving protected areas to wise and sustainable use of the whole landscape.

*What does DKM do for the conservation of forests?*

DKM aims to conserve the biodiversity and functioning of forest ecosystems by:

- Cataloguing forest biodiversity and surveying its distribution;
- Setting conservation goals that focus on threats and practical solutions;
- Identifying the key partners to work with, the sectors to work in and the priority issues to work on to achieve the conservation goals;
- Working with its partners – developing practical tools and approaches to address specific issues and testing them in pilot projects – to integrate biodiversity into sectoral planning and management systems.





# Sustainable Use of the Kaçkar Mountains' Forests

The Kaçkar Mountains' forests form one of Turkey's oldest and most valuable ecosystems. Situated in the extreme northeast of the country, these old native forests support a rich variety of life, including large numbers of endemic plants, good populations of large mammals – such as brown bear, wild goat, chamois and wolf – and the continuing traditional lifestyles of many local people. From a global perspective these mountains form the southwest end of the Caucasus, a region internationally agreed to be uniquely important for global biodiversity. BirdLife International, for example, includes the Caucasus as one of the world's 217 Endemic Bird Areas.

The project – implemented by DKM, TEMA Foundation, Middle East Technical University, Artvin Culture & Cooperation Society and the General Directorate of Forestry, and funded by the European Union and the BTC Pipeline Company – aimed to lay the foundations for conserving the integrity of the Kaçkar Mountains' forests.

The project carried out surveys of the plants, butterflies, birds, mammals, reptiles and amphibians of the Kaçkar Mountains and, through questionnaires, defined the socio-economic structure of the region. This information was then used in updating the region's forest management plan, following the latest ecosystem-based methods. Training workshops and field visits enhanced the technical knowledge and expertise of local forest personnel and finally, all the information generated and lessons learned by the project were brought together to produce the Kaçkar Multisectoral Management Plan.





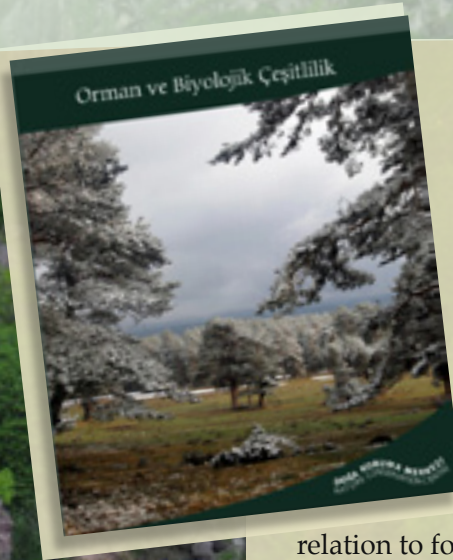
An aim of the project was to establish a rural development model based on cultivating and marketing local products. Economically valuable natural resources such as redcurrants, cornelian cherries, sumac, honeybees and local salmon were researched and, to increase income from existing agricultural produce, the missing links in the production-marketing chain were identified and tackled through pilot projects. To decrease the amount of firewood taken from the forest, the concept of house insulation was introduced and a building insulated as an example. By putting an economic value on local forests it was possible to convey the value of forests regionally and through campaigns the value of the region was communicated to both local and national audiences, from the man in the street to administrators.

The home ranges and ranging behaviour of rare and threatened large mammals were investigated by fitting them with GPS-tracking collars. With the information gathered it was possible to introduce people to alternative ways and methods to live side-by-side with species such as Brown Bear – with minimum harm on both sides. Technical training and fieldwork increased the knowledge and expertise of local wildlife officers. Counts of large mammal populations made in collaboration with the Directorate of Nature Protection and National Parks made it possible to establish local hunting quotas, and the baseline information is now available for establishing a wildlife development area in the region.



The range of tourism experiences and the development of the tourism sector in the region was reviewed and compared with elsewhere in Turkey and globally. Then, working with relevant stakeholders, a regional tourism strategy was formulated. In an area extending from Erzurum to Rize, accessible destinations were selected according to their suitability for activities such as festivals, trekking, rafting and mountain biking. These activities and localities were then discussed and fine-tuned using suggestions from tourism companies.





## 'Forests and Biodiversity' Book

The 'Forests and Biodiversity' book tells about the components of forest biodiversity, their interactions and their

relation to forest management – identifying biodiversity-friendly forest management operations.

With 216 pages divided into nine chapters, the book gives a short history of Turkish forestry, examines Turkey's legislation for the protection of forest biodiversity, and provides information on the non-economic values of the forest ecosystem. Detailed accounts of specific forest biodiversity are given, including old-growth forests, forest wildlife and monitoring forest biodiversity. The book, which includes high quality photographs, illustrations and tables, is intended for all those interested in forestry and biodiversity.

Serra Çetin

BTC Turkey EIP Coordinator

*'The Baku-Tbilisi-Ceyhan Pipeline Company's Environmental Investment Programme (BTC-EIP) and DKM started working together in 2004 with the 'Lesser Caucasus Forests Gap Analysis Project', and continued with the 'Anatolian Diagonal Project', implemented 2006-2009. Since then the partnership has achieved national impact with the 'Integration of Biodiversity into Forestry Project'. Through these projects SCP studies have been carried out with a wide range of partners, including the Middle East Technical University (METU) and the Turkish Foundation for Combatting Soil Erosion, for Reforestation and the Protection of Natural Habitats (TEMA).*

*'The EIP's aim is conservation and sustainable use of biodiversity throughout the pipeline region. However, due to the involvement and support of DKM, the EIP has been able to go further and be instrumental in the adoption of SCP by the General Directorate of Forestry.*

*As a result, this modern conservation approach will now be used in the conservation and planning of forests throughout Turkey.*

*'We believe these projects are milestones in the development of Turkey's forestry and we wish DKM every success in its future studies.'*

# Integrating Biodiversity into Forestry

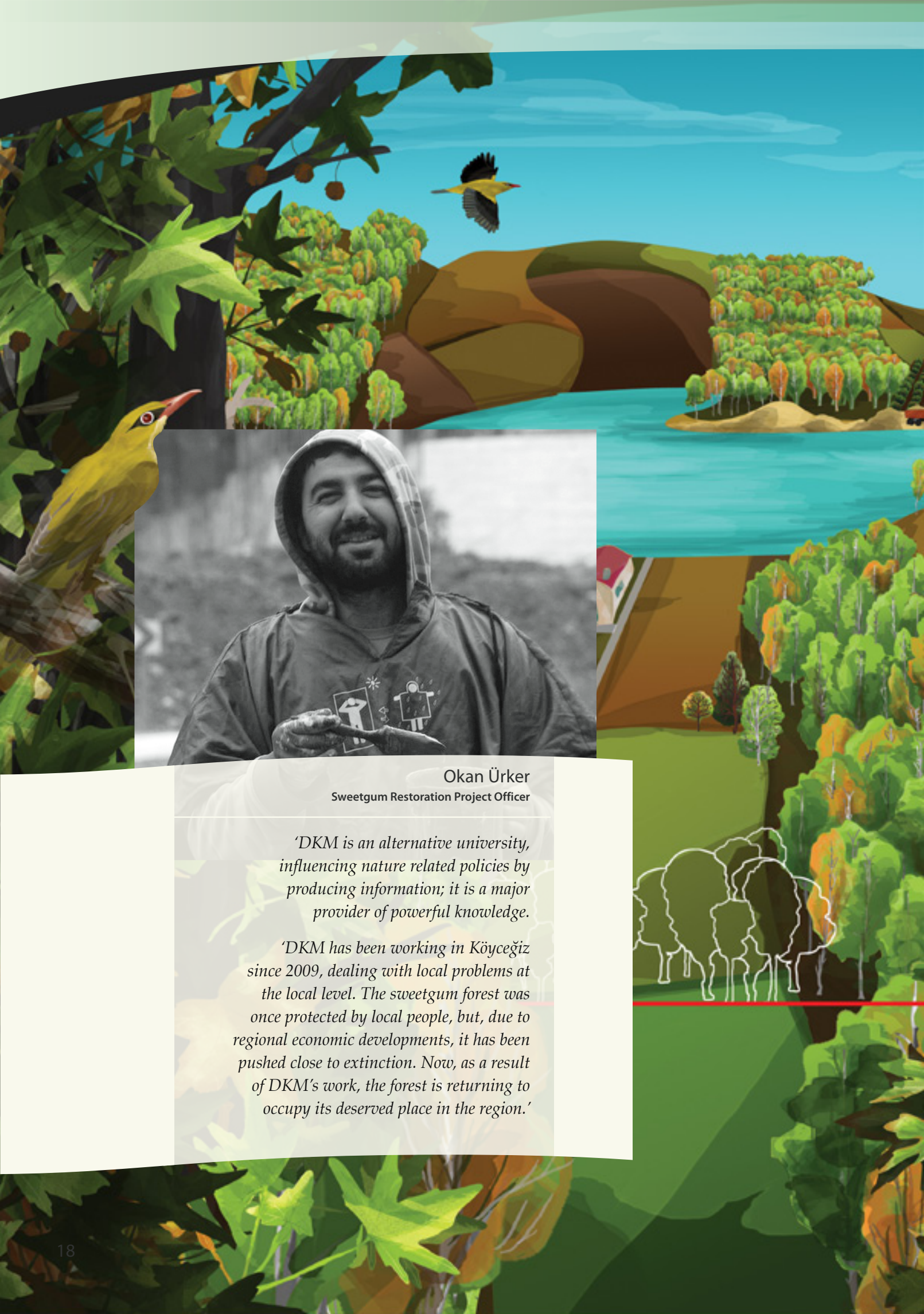


Almost all of Turkish forests (95%) are owned and managed by the state. This project is thus working together with the General Directorate of Forestry (GDF) to develop methods and approaches which will integrate the conservation of biodiversity into forestry practices nationally. Working with GDF forest planning strategies and principles established in 2004, the project aims to provide cost-effective and widely applicable tools to identify those forests in each forest management directorate which are of notably high value for biodiversity, and to propose appropriate forest management strategies which will help to conserve those values.

The project is producing handbooks for forest planners and managers. The first, 'Integrating Biodiversity into Forest Management Planning Handbook' was produced in collaboration with the state forest planning department. The book introduces target forest biodiversity elements and summarises survey methods for determining if they are present. To guide work done at forest management directorate region scale, the handbook explains how the results of these biodiversity surveys can be used to model their distributions within the region and thus pinpoint the priority biodiversity zones. The handbook goes on to explain how these results can be used by forest planners to influence individual forest planning decisions in specific zones, and where these decisions should be presented in the Forest Management Plan. The project's second book 'Integrating Biodiversity into Forestry Practices Handbook' recommends forestry principles and practices from which target forest species and groups will benefit.

It is hoped that the handbooks will serve as a starting point for better conservation of the biodiversity of Turkey's managed forests. They will be used by planners, who review and update forest management plans of more than 210 forest management directorates every 10-20 years, and by forest chiefs and managers.





Okan Ürker

Sweetgum Restoration Project Officer

*'DKM is an alternative university, influencing nature related policies by producing information; it is a major provider of powerful knowledge.'*

*'DKM has been working in Köyceğiz since 2009, dealing with local problems at the local level. The sweetgum forest was once protected by local people, but, due to regional economic developments, it has been pushed close to extinction. Now, as a result of DKM's work, the forest is returning to occupy its deserved place in the region.'*

# Bringing Back the Sweetgum

Ebru Bakkaloğlu Tüzecan, Coca-Cola Turkey

*'DKM, with its innovative ideas, is introducing many creative solutions to Turkey's environmental sector. The sweetgum forests project, implemented with our support, is a good example. The solution of 'wildlife corridors', selected and adapted for use in this project, has now been adopted by state bodies too, providing one of the most important guarantees that the solution will be sustained.'*

Anatolian sweetgum (*Liquidambar orientalis*) is a threatened endemic tree species found wild only in southwest Anatolia. Although the tree species and its forests have been legally protected for many years, it has a shrinking distribution; since the 1950s, Köyceğiz's sweetgum forest has shrunk from 6500 hectares to a highly fragmented 1300 hectares. The largest remaining forest patches are around Köyceğiz Lake and are still under threat.

'Bringing Back the Sweetgum' focused on enlarging the area of sweetgum forest by reforesting and connecting the largest patches around Köyceğiz Lake. Determining the suitable corridors was a critical part of the process, as it was seen that their location could help to arrest the ongoing process of fragmentation. To involve local institutions and people in 'bringing back the sweetgum', additional activities were held targeted at ensuring the remaining sweetgum forests are conserved, demonstrating the ecotourism potential of the area and raising nationwide awareness of the issue.

Project activities were grouped into two main areas of action: the corridor study and awareness raising. The project outcomes included a 'Conservation and Threat Status Report' on the sweetgum and 'Sustainable Tourism in Köyceğiz'. These paved the way for implementing the 'Sweetgum Action Plan' of ÖÇK (Specially Protected Areas Directorate), identification of the corridors, planting of 7000 sweetgum seedlings on a 13 hectare pilot site and establishment of a 'Sweetgum Volunteer Network' for follow-up post-project work.

This project is important for having demonstrated the 'Corridor Method' as a new reforestation strategy in Turkey, and it is hoped that this approach will now be utilised in other parts of the country to re-establish a healthier pattern of forest. Additionally, the tourism in Köyceğiz area is relatively little developed, and there is now an opportunity to promote the cultural and ecological value of the sweetgum through ecotourism in Köyceğiz. Studies are being carried out to ensure local people and the sweetgums benefit from any new developments.

Bu proje "hayata arti"  
gençlik programı tarafından  
desteklenmektedir.

*Coca-Cola*  
**HAYATA ARTI**  
VAKFI

yada



# Şavşat Project

The first pilot study to incorporate the new approaches and methods for the integration of biodiversity conservation into forestry management, was performed in Şavşat Forest Management Directorate in 2011. Using the integration handbooks prepared by DKM, and funding provided by the General Directorate of Forestry, core and buffer zones for the conservation of forest biodiversity were determined for inclusion in the forest plans; these zones were designated as forest patches where nature conservation is the priority function.



The outcomes of this pilot study, together with the handbooks produced in the integration project, will be used to prepare Şavşat Forest Management Directorate's forest management plans, due to be reviewed and updated in 2012.

To determine the zones, experts first conducted field studies, collecting data to determine the distribution of target forest species and other aspects of biodiversity – such as old-growth forests. These data were then analysed using processes such as distribution modelling and optimization to pinpoint the conservation zones and ensure that each biodiversity element was well represented, meeting the targets set. During 50 days of fieldwork and several local meetings and workshops in Trabzon and Artvin districts 13 experts took part.





Mustafa Durmuş  
Forest Conservation Programme Data Officer

*'DKM makes a unique contribution to the sustainable conservation of biodiversity in Turkey, developing and implementing sound science projects and delivering practical, workable results: as of today it's unrivaled.'*





Hilary Welch

Senior Conservation Officer

Dr. Özge Balkız

Species Conservation Programme Coordinator

*'DKM aims to carry out scientific, repeatable and concrete conservation studies.'*





# Species Conservation Programme

Species are being lost faster than ever before, and one fifth of all living things are now considered to be facing extinction. This period in which we live, referred to by many scientists as the sixth mass extinction, is principally caused by unsustainably high human pressure on natural resources. Throughout the world, the main factors threatening living things with extinction are the same: habitat loss and fragmentation, depletion of natural resources, introduction and spread of exotic species, pollution and climate change.



## *DKM's Vision for Species Conservation*

DKM's Species Conservation Programme targets the conservation of specific high priority species and their habitats. To date studies have focused on endemic and threatened species, flagship species and species which have synergies with other DKM programmes.

To achieve conservation targets, it is vital to carry out scientifically sound and objective research combined with tailor-made, on the ground conservation action. DKM delivers this via a standard methodical approach:

- Identifying gaps in the available information,
- Identifying the main threats to species/species groups,
- Developing local/national conservation strategies through participation,
- Implementing on-the-ground action at selected sites,
- Disseminating details of DKM's strategic way of working, its projects and their outcomes, aiming to establish an open library of examples which can be used to guide and design work on other species/species groups.

## *DKM's Species Conservation Projects*

To date, DKM's species conservation studies have focused on two priority species and one species group: oriental sweetgum, Datça palm and butterflies.

Oriental sweetgum (*Liquidambar orientalis*) is a tree endemic to Turkey, categorised as Vulnerable to extinction. From 2010-11 DKM implemented a conservation project at the tree's main locality in Köyceğiz on the Mediterranean, studying changes in the landscape ecology. Working with local people, selected degraded areas were replanted with oriental sweetgum, reconnecting some of the remaining forest patches.

Turkey is exceptionally rich in butterfly diversity and supports many endemic species. Between 2008-2011 DKM implemented three butterfly projects in Turkey, which aimed to: (i) develop a basis for the active conservation of Turkey's butterflies, (ii) raise awareness of the threat of illegal commercial collection of butterflies, (iii) increase the capacity of butterfly watchers in Turkey. DKM has been the Turkish representative of Butterfly Conservation Europe since 2007, and in 2011 published both the Red Book of Butterflies in Turkey and a Conservation Strategy for Butterflies in Turkey. Further work is planned to develop the recommendations in these documents into conservation action.

The Datça palm (*Phoenix theophrastii*) is a species with a naturally restricted distribution. DKM has carried out detailed research into the species' conservation status and ecology and proposed a range of conservation actions. The next step is to carry out a pilot study in Bodrum Gököy in order to start putting the proposed conservation activities into practice.

# Turkey's Butterflies Project



Butterflies are valuable indicators of the health of our environment because they are very sensitive to change. They rapidly give us vital clues about the effects of human activities, of changing farming practices, pesticides, air pollution and climate change.

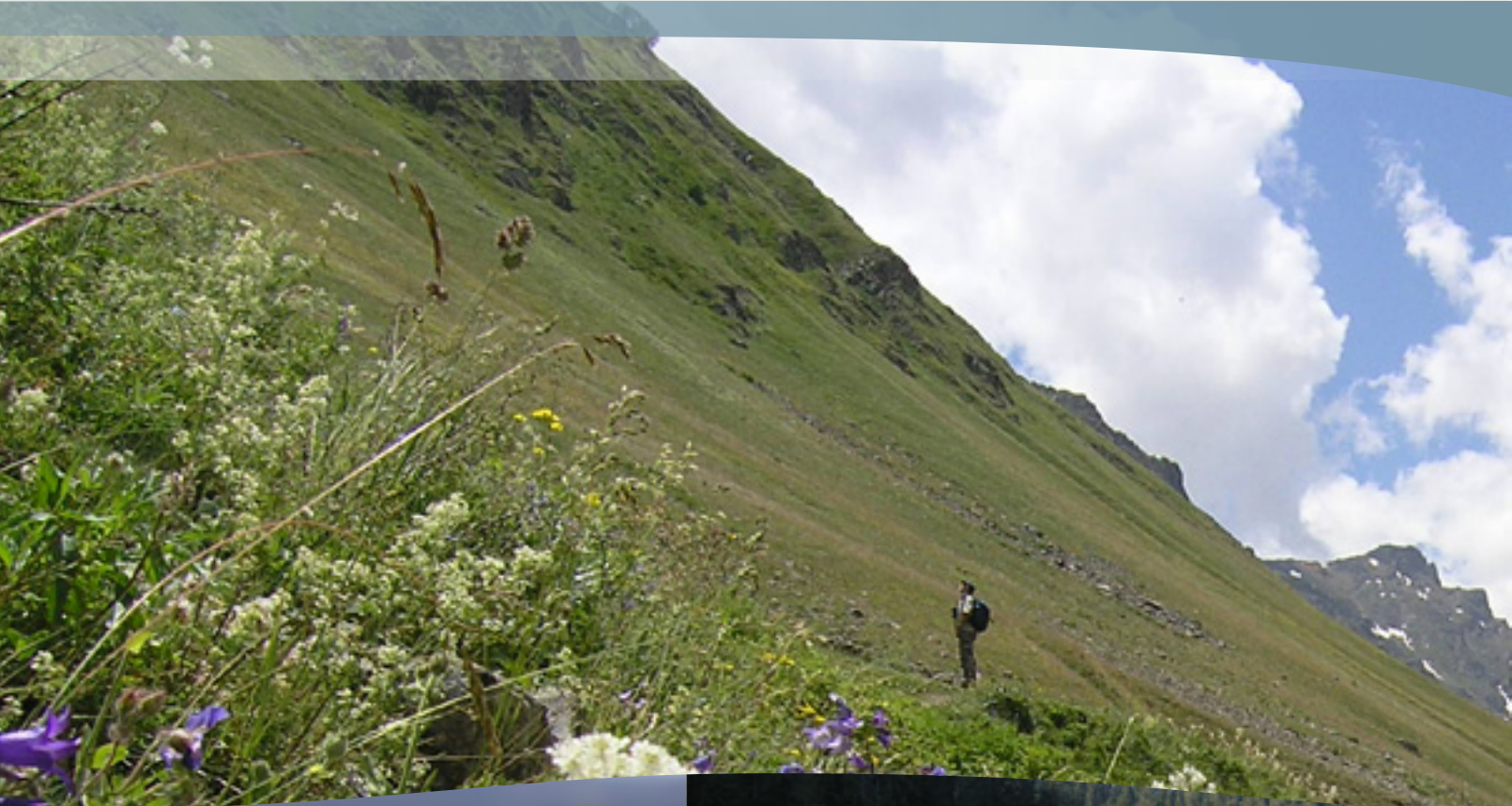
With its 380 butterfly species – of which 45 are endemic – Turkey supports more butterfly species than any country in Europe. This is due to its geographic location, topography, climate and its long history of human settlement, all of which have created a rich geography for butterflies. Despite this, butterflies remain an under-valued part of Turkey's natural heritage.



Since 2007, DKM has been the Turkish representative of Butterfly Conservation Europe (BCE). Between 2009-2011, DKM carried out a project in partnership with BCE, supported by the Dutch Government's BBI-Matra Fund. The project focused on establishing a scientifically sound basis for the active conservation of Turkey's butterflies.

The project's first task was to digitize and organise all available butterfly distribution data for Turkey into a database. Then, following scientific standards set by the International Union for Conservation of Nature (IUCN), experts researched and assessed the level of threat faced by each species of butterfly in Turkey. These red list assessments formed the core of the first Red Book of Butterflies in Turkey, published in February 2011. Next, the data were used to identify a total of 65 high priority Prime Butterfly Areas (PBAs). Individually these sites are priorities for conservation due to the rare, endemic or threatened species they support, or for their notably high species richness. As a set they assume additional importance because together they include all species occurring in Turkey. Finally, in participation with experts and key stakeholders, a national conservation strategy was developed, presenting the threats faced by butterflies and identifying the conservation actions needed. The Conservation Strategy for Butterflies in Turkey was published in June 2012 and shared with all interested individuals and organizations.







Assist. Prof. Dr Evrim Karaçetin  
Consultant, Turkey's Butterflies Project  
Erciyes University

*'At DKM, butterflies have a special place. As the Turkish representative of Butterfly Conservation Europe (BCE), DKM has identified and filled the key gaps in the butterfly conservation tool kit: A Red List of endangered butterfly species, a Conservation Strategy for all species and a Hand Guide for combatting the illegal collection of butterflies. It give me great pleasure to work with DKM. You work with the whole team as one unit, supporting one another and together producing common outputs. I feel lucky and honoured to work together with this model organization.'*



# Stop Butterfly Smuggling Project



One of the threats to Turkey's rich butterfly diversity is their illegal collection from the wild, for private or trade purposes. This is a particular problem in eastern and northeastern Anatolia where butterfly richness is extraordinarily high. Turkey is responsible for the protection of this natural diversity through its obligations under the national and international agreements it has signed. However, currently the responsible authorities face a variety of difficulties in preventing both the illegal collection and international trafficking.



Through face-to-face interviews and research into the current law, information was collected of the on the ground problems inherent in implementing the required legal process. This was then synthesized and presented in an easy to use hand guide for local implementers, and a poster, to raise awareness of the problem and deter collectors. Both resources were disseminated widely to relevant bodies. Additionally, local meetings were held in Artvin and Erzurum provinces to raise awareness of the special importance of the Kaçkar Mountains.

The 'Stop Butterfly Smuggling Project' was supported by the Dutch Embassy's Matra-KAP programme, from 2009-11. The project aimed to encourage an end to illegal butterfly collecting by raising the awareness of both the perpetrators and those whose job it is to uphold the law. The project targeted Artvin and Erzurum provinces, with a focus on the Yusufeli and İspir Regions of the Kaçkar Mountains, a region supporting more than 250 butterfly species.



Ministry of Economic Affairs,  
Agriculture and Innovation



Geoff Welch

Conservation Advisor

*'DKM is firmly established as the leading objective science-based conservation organisation in Turkey with experience from the species to the landscape level. Much of its work on the use of GIS, remote sensing and systematic conservation planning is at the forefront of the use of these tools for identifying cost-effective conservation opportunities on the ground. This strong science-based background underpins the numerous collaborations that the organisation has with NGOs, government and the private sector.'*



# Datça Palm Research and Monitoring Project

The biodiversity of Southwest Anatolia is distinct from all other regions of Turkey. This is the only region where three endemic tree species can be found: oriental sweetgum, grey holm oak and the Datça palm. With a total of only four isolated populations – in Eksere Valley (Datça), Hurmalibük (Datça), Gölköy (Bodrum) and Karaöz (Kumluca) – the Datça palm is the rarest of the three.



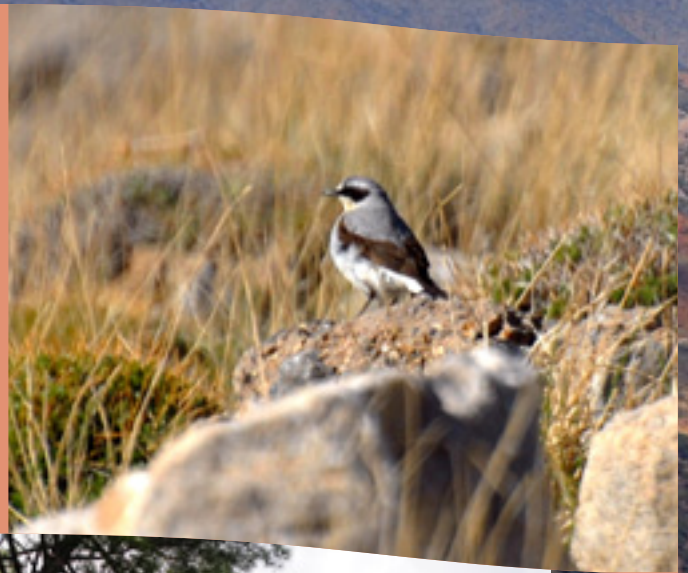
It is probable that, in the past, Datça palm was a much more widespread species in the Western Mediterranean. However because of human pressure and competition from other species, mainly the calabrian pine, over time its distribution has shrunk to the current four populations. We are thus fortunate to have even limited information on the ecology of this species and the threats it is facing. Through the study carried out for the Specially Protected Areas Directorate, information about the ecological characteristics of the species was collected, threats acting on the species were evaluated, a monitoring programme was prepared and a conservation strategy produced.





Semra Yalçın  
Species Conservation Programme Project Officer

*'DKM is a team which works scientifically, implementing projects on biodiversity conservation, climate change and forest ecosystems out of a passion for nature.'*





# Climate Change Programme

Global climate change is one of the greatest environmental challenges of our time, threatening to affect all creatures on the planet, including humans. Every day, tens of thousands of scientists and government officials work tirelessly seeking ways to overcome it.

The fight against climate change takes place on two fronts: mitigation – limiting or preventing greenhouse gas emissions, and adaptation – ameliorating the effects of irreversible impacts.

## *DKM's Approach*

DKM believes that protecting the world's ecosystems and the services that they provide – long perceived as the most efficient way to fight famine and drought – will also reduce the impacts of climate changes. For this reason DKM works to produce and disseminate effective and applicable models for adaptation to climate change.

DKM is working to define how ecosystems and habitats in Turkey are likely to be affected by the various predicted climate change scenarios, and what kind of climate and socio-economic changes human populations living in these reshaped environments can expect. But the main question DKM would like to find the answer to is what changes in political and technical procedures are needed to counter climate changes.

DKM's first work on climate change issues was in the Seyhan Basin, south Turkey. Its vision is now to carry out similar studies in other habitats throughout Turkey and to disseminate the results internationally.

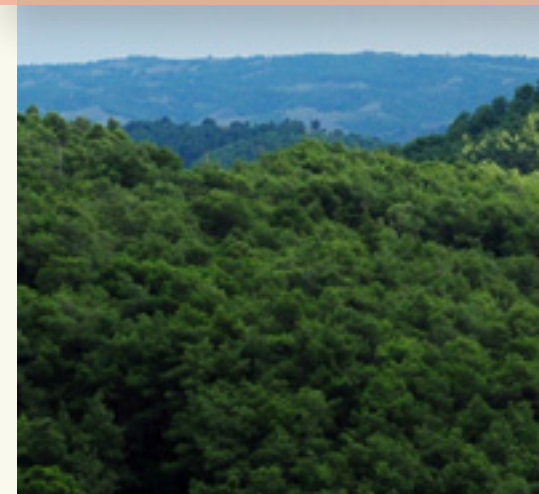
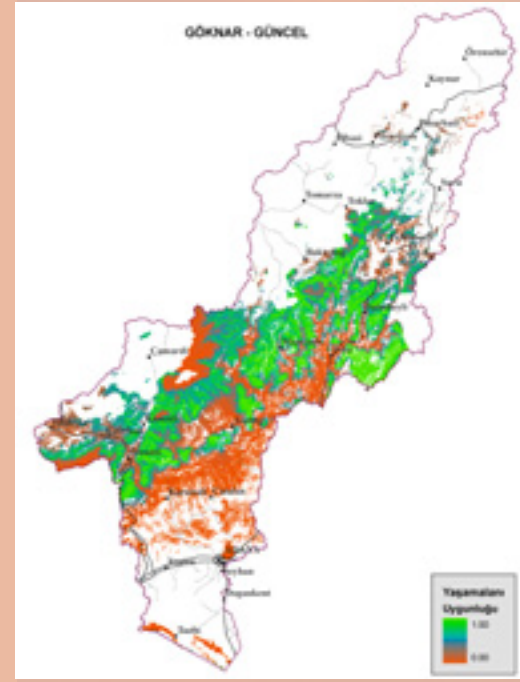
Water availability and wise water use are the main areas where increasing problems are predicted with climate change. Extreme fluctuations in meteorological events, rainwater harvesting and rising temperatures increasing water surface evaporation are expected to be major issues. Water is a vital resource for all who share this planet, wild creatures and humans, so good management of water is a priority for DKM and it works to produce future water scenarios for Turkey.

# Forests and Climate Change Project

This project was implemented in 2009-2010 by the Adana Forest Regional Directorate in cooperation with DKM. The project was supported by the UNDP-UN Joint Programme for Advancing Turkey's Capacity to Adapt to Climate Change.

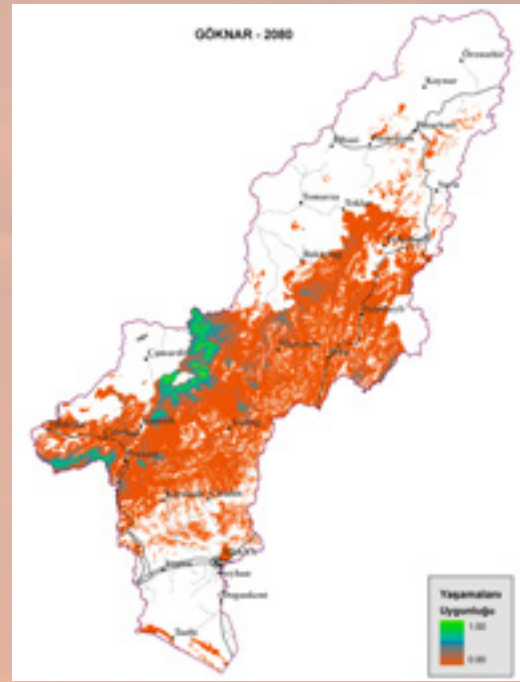
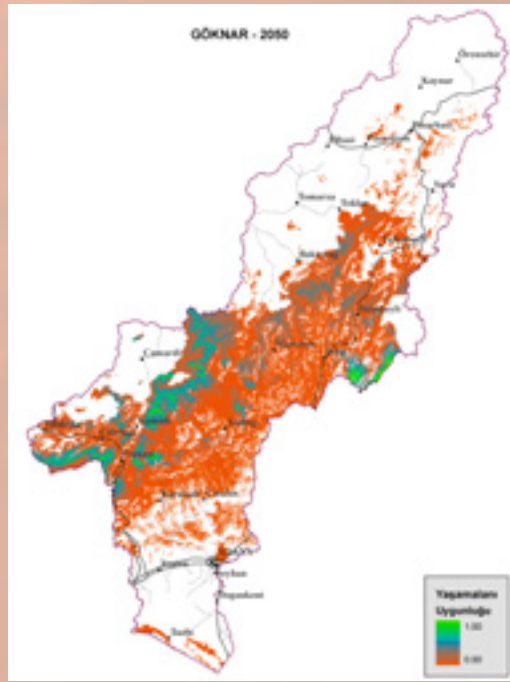
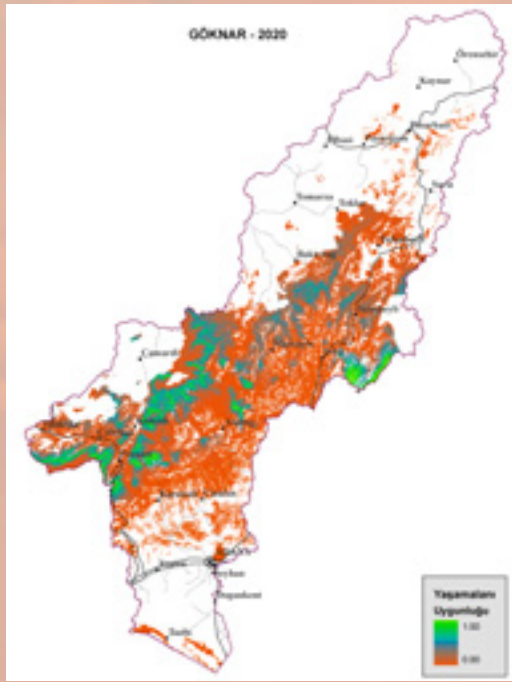
In considering the impacts of global climate change in the Seyhan Basin the project had the following aims:

- To determine the effects of climate change on forests.
- To determine the possible vulnerabilities of forest ecosystems.
- To develop measures to minimise adverse effects on these vulnerabilities and instead encourage adaptation.
- To integrate these measures into forestry practice.



The project mapped expected changes in regional forest growth through a forest types map, climate models and other physical evidences (topography, bedrock, slope etc). By using a group modelling approach, growth modelling of five main forest types in the basin (calabrian pine, European black pine, juniper, cedar, fir) was completed together with projections for 20-80 years of growth. With these data forest zones vulnerable to climate change were identified.





In order to encourage adaptation of vulnerable forest zones to climate change and reduce harmful effects, recommendations were developed to support and maintain the health of ecosystem services and biodiversity. Since, within forest management plans these elements are considered 'other forest products', the recommendations were developed in a format which can readily be incorporated into forestry management and silviculture practices. This will make their adoption easier and make it possible for the General Directorate of Forestry to apply them in other regions.

Prof. Dr Nüzhet Dalfes  
ITU Eurasia Institute of Earth Sciences  
DKM Science Committee Member

*'One can only be grateful to the team who took on the task of the climate change and forestry project in the Seyhan Basin. The level of cooperation between one of Turkey's most exceptional state organizations, the General Directorate of Forestry, and a manifestly special NGO, the Nature Conservation Centre, provides a serious source of hope for those who consider science-based natural resource management important.'*

# What is the Future for Water in Turkey?

What is Turkey's water potential? What effects will climate change have on water availability and use? How will water be apportioned in the future and how will this effect natural systems?

Mehmet Ali Çalışkan, YADA Foundation

*'As environmental concerns are becoming increasingly important – socially and economically – we need civil society to provide us with new approaches to policy making. DKM, with its holistic approach, is leading the way with thought-provoking new ideas. It is both developing novel solutions for environmental problems and generating model examples through implementation. Solving problems by establishing a balance between environmental and community benefits makes a significant contribution to the new era.'*



DKM is undertaking a series of studies to find answers to these questions. After identifying all current water-related problems, it develops computer models to forecast potential future scenarios. Through this work it is bringing together all sectors of society – national and local government, private enterprise and academia. DKM's work in this area is expected to continue to grow.

At the same time, DKM is seeking to understand how wetlands in the Mediterranean Region will be affected by climate change and what adaptive measures will be needed to counterbalance these. In order to examine this issue DKM is preparing an all-inclusive approach, and plans to play a key role, together with strategic partners in the region, in identifying and resolving climate-related problems in the Mediterranean.



A current nature conservation priority in Turkey is to measure the effect of hydroelectric power plants (HEPPs) on river ecosystems and to develop solutions. To date, DKM experts have prepared two reports on this subject: one on the effects of planned HEPPs on wildlife in the Barhal Valley, north-east Turkey (2009) and the other on the ecological impacts of HEPPs in Turkey as a whole (2011).



# DKM and the Business World

The majority of the environmental problems the world faces today stem from the industrial revolution and the relentless ambition of free enterprise. With this history DKM believes that the private sector must play a significant role if we are to succeed in improving the quality of the world's environment. The effect the private sector has on the environment is controlled by the ways businesses are planned, implemented and wound down. Fortunately, these days the private sector understands the value of sustainable business and is willing to be actively involved in resolving environmental problems. DKM thus values its work with the private sector.

We cooperate with the private sector under four main themes:

## No Net Loss Approach

It is important for companies to effectively manage their impact on the environment during the investment and operational phases. We help companies to avoid, or at least minimise their impact during the planning and operational phases. We also propose ways to restore or otherwise offset the impact on natural environments in cases where damage is unavoidable.



Hüma Ülgen  
Conservation Biologist and  
Green Business Advisor

*'I have found cooperating with the private sector for the conservation of nature very satisfying. We have been able to achieve high conservation-value results rapidly and cost-effectively. The DKM team will thus continue developing new partnerships with companies.'*



## Offsetting

Some private sector operations have irreversible effects on nature. In these cases, offsetting the damage becomes a worthwhile option. The offsetting measures we propose range from becoming active on the international carbon market to biodiversity conservation and restoration in an alternative location.

## Additionality

Some companies implement programmes that not only aim to minimise and offset their impact on nature, but also to provide additional benefits to it. However, it is very important that these programmes are science-based, otherwise they run the risk of being populist quick fixes providing little real conservation gain. DKM's team of experts help companies to define and implement their corporate environmental responsibility programmes in terms of sound ecological and conservation science.

## The Gold Standard Foundation

The Gold Standard Foundation is an NGO that certifies high quality carbon offset projects. DKM developed recommendations for the improvement of the Gold Standard's environmental standards for small scale hydroelectric power plants (HEPPs). DKM reported on the impacts of the planning, construction and operational phases of HEPPs on ecological processes, ecosystem services and the environment in general, and developed implementation guidelines to enable projects to reduce their environmental impact.

## Ecosystem Services and the Business World

Our modern life depends on services provided by many ecosystems. Fish stocks, freshwater, forest products, erosion control, clean water and air are just a few of the services used by companies for their businesses, generally at no cost. However, businesses which depend on these services are more at risk from the continuing degradation of nature, and its reducing ability to keep providing these services. Today, many companies are investing in systems to help them manage potential risks and capture potential opportunities related to ecosystem services and their business. DKM uses dynamic models to predict future scenarios for specific ecosystem services a company depends on for its business, thus enabling them to better define their investment and operational strategies. These studies help both to decrease the environmental impact of the business on nature, and the financial cost to the business of operation and production.



## The Baku-Tbilisi-Ceyhan Pipeline Company, Turkey

The BTC Pipeline Company developed and implemented many environmental standards during its planning, construction and operational phases. DKM supported BTC in planning, implementing and monitoring the biorestitution of the pipeline Right of Way, and helped to develop Biorestitution Guidelines for field managers and ecologists. DKM also played a critical role in the successful implementation of BTC's Environmental Investment Programme in Turkey, providing services on ecology, strategic planning, capacity building, monitoring and sustainability.

# Publications



'Forests and Biodiversity' book and poster  
(Turkish only)



'Butterfly Project' brochure (Turkish and English)



'Red Book of Butterflies in Turkey'  
(Turkish and English)

'Conservation Strategy for Butterflies in Turkey'  
(Turkish and English)

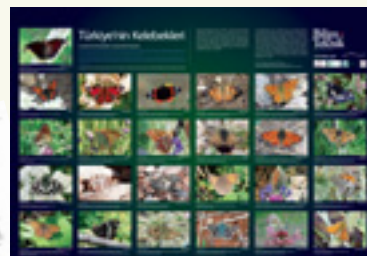


'Stop Butterfly Smuggling' hand guide  
(Turkish only) and poster  
(Turkish and English)



Threatened Butterflies of Turkey (Turkish only)

*This poster was published in National Geographic's July 2011 issue.*



Butterflies of Turkey (Turkish only)

*This poster was published in Bilim ve Teknik Magazine's May 2011 issue.*







'Climate Change and Forestry: Models to Implementation' for Adana Regional Directorate of Forestry, book (Turkish only)



'Adaptation of Forest Ecosystems and Forestry to Climate Change in the Seyhan Basin' project brochure (Turkish only)



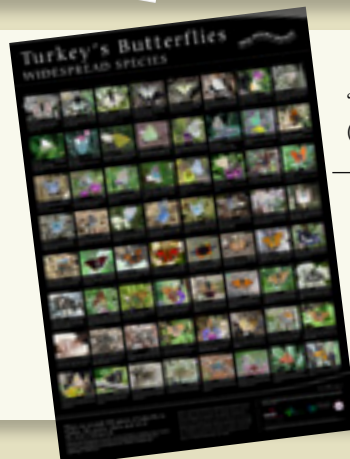
'Systematic Conservation Planning of the Black Sea Region' project book and brochure (Turkish only)



'Bringing Back the Sweetgum' project poster and brochure (Turkish only)



'Trees of Turkey' poster (Turkish only)



'Butterflies of Turkey' poster (Turkish and English)

You can find and download DKM's publications at <http://dkm.org.tr/yayinlar>  
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# The DKM Team



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METU Biodiversity and Conservation Laboratory  
DKM Science Committee Member

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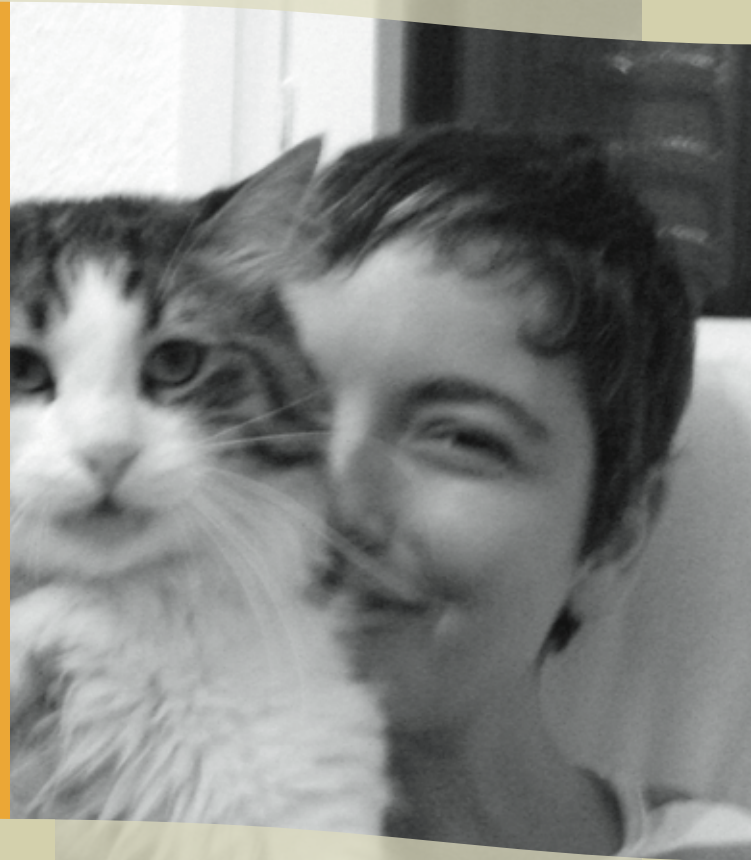
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*Administration Officer*



Ersoy Kılıç  
Administration Officer



Güngör Genç  
Graphic Design Consultant

*'With the professional, perfectionist and fun DKM team it is always a pleasure for me to visualize the outcomes of important nature projects. Especially with such beautiful photographs...'*



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