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Whale-watching off Tenerife, the Canaries. Photo: Vidal Martin

NATURA 2000 – TEN YEARS ON – MOVING FROM VISION TO REALITY

2002 marks the tenth anniversary of the Habitats Directive, but is it a cause for celebration or disappointment? It has to be said, the first ten years have not been easy and the establishment of the Natura 2000 network has taken longer than hoped for but the fact that the sites proposed so far exceed 15% of the Community territorial space is nevertheless something to celebrate! (see pages 8–9)

Also, the adoption of the list of Sites of Community Importance for the Macaronesian Region in December 2001 represents an important landmark for Natura 2000. Whilst Macaronesia is the smallest of the six Biogeographical Regions, it is far from insignificant, as the articles on pages 2–7 illustrate. Covering over 30% of the territory of the islands concerned, this is an impressive statement of commitment by the Spanish and Portuguese authorities.

The remaining lists for the different regions are forecast to be finalised in the next two years but already attention is being focused on ensuring that there is a good framework in place for their long-term management. While the primary responsibility here rests with the national authorities, the EU has a role to play with the commitment to co-finance management measures included in Article 8 of the Directive. A working group has been set up to examine the financial needs and basis for such financing (e.g. through the CAP) and to come up with recommendations before the end of this year. The Commission is committed to use these recommendations to launch a debate on the issue with the Council and Parliament in 2003. In the meantime the Life-Nature fund, whilst small in relation to the overall needs of the network, continues to pioneer the preparation of management plans and new management techniques on thousands of sites across the EU. This issue looks at its involvement in conserving Europe's endangered migratory fish (pages 10–13).

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The NATURA 2000 Newsletter is produced by the LIFE and Nature Conservation Unit of the Environment Directorate General (DG ENV) of the European Commission. This newsletter is produced three times a year and is available in English, French, German, Spanish and Italian.

El Teida National Park, Canary Islands. Photo: Carlos Ibero

Uncovering the secrets of Macaronesia

On the 28 December 2001, the Commission adopted the first list of sites of Community importance (SCI) under the Habitats Directive. This concerned the biogeographic region of Macaronesia, one of the six regions identified by the Directive. There can be no doubt that this is a landmark event in the realisation of the Natura 2000 network, but what does this tiny region have to contribute? A lot as it happens, read on and find out why!

Azores

Despite its small size the Macaronesian region is very diverse. Photos (left to right): Ana Guimarães, Ana Guimarães, Carlos Ibero

In classical antiquity, Macaronesia, which is Greek for the 'happy isles', was a fabled island paradise beyond the end of the known world. Today, in the EU context, it is made up of around 20 islands which, together, form the archipelagos of the Azores, Madeira (both part of Portugal) and the Canaries (Spain). They have a number of important features in common. For instance, they are all situated in the Atlantic Ocean and have a generally sub-tropical climate; they are also of volcanic origin having been formed by underwater eruptions over 40 million years ago. The fact that they have never been part of a larger continent has had an important influence on their biodiversity which is notably more abundant than many island ecosystems. But this is where the similarities end. The differences are much more pronounced. Take the nine islands that make up **the Azores** for instance, these are located far out to sea, a third of the way between the Iberian Peninsula and Newfoundland in Canada. Their climate is heavily influenced by the North Easterly trade winds, making it mild but also very wet all year around. The Azores also has a rather gentle topography with undulating hills and peaks rather than abrupt precipices. This makes them ideal for dairy farming; currently they supply 30% of all Portugal's dairy products providing employment for a significant proportion of their 237,000 inhabitants.

Madeira

The archipelago of **Madeira** is situated 750 km further south of the Azores and is much closer to the Portuguese mainland. It is made up of two main islands and a series of smaller uninhabited ones, called the Ilhas Desertas. Unlike the Azores, the topography of Madeira is precipitous and jagged. It is not unlike a shard of glass sticking out of the ocean. The highest peak rises quickly to 1,861 m and, as a result, half the slopes have a gradient of

Canary Islands

25% or more. This abrupt landscape has a strong influence on the local climate making it much wetter on the north facing slopes than on the south facing ones. The weather conditions also become more extreme the higher one goes and the top of the mountain is regularly shrouded in clouds, sometimes even covered in snow. The smaller islands, by contrast, manage to escape these influences since they lie below the cloud belt.

Despite this rugged landscape, agriculture is still the mainstay of Madeira's economy although it is based on small-scale subsistence production. Tourism is equally important generating 10% of the island's GDP and employing 6% of the islanders (of which there are a quarter of a million).

The third group, **the Canaries,** is by far the largest, covering a total surface area of around 7,000 km² and supporting over one and a half million inhabitants. These islands are also the most easterly, situated just 115 km away from the African continent. As a result, the weather is generally much warmer and drier, creating arid, almost desert-like, conditions on the lower lying islands like Lanzarote or Fuerteventura. Most of the seven islands have a very irregular and dramatic topography, with deep valleys and high mountain peaks reaching up to 3.718 m (the Teide on Tenerife which is also the highest mountain in Spain!). Because of their height, the Canaries also regularly experience temperature inversions which leads to the formation of a band of clouds around the mountains at 900–1,500 m. Thus, within just a few kilometres, one can move from a desert like area with less than 100 mm of rain a year to an almost 'tropical' rainforest!

A treasure-trove of unusual plants and animals

It is these starkly contrasting landscapes and micro-climates, together with the volcanic origins of the islands, that have made the Macaronesian region so rich in biological terms. On the Canaries alone over 14,000 species have been identified so far and new discoveries are still being made today (the giant lizard of Gomera was only identified in 1999). Species that were originally brought in from mainland Europe on the trade winds or ocean currents several million years ago have had ample time to adapt and specialise to the wide-ranging habitats and ecosystems, be they coastal cliffs and dunes, exposed mountain areas or humid evergreen laurel forests.

This also explains why there is such a high level of endemism on the islands. In the Canaries again, 32% of the vascular plants and around 45% of the fauna species are found nowhere else in the world. In terms of species per unit of surface area this level of endemism is certainly the highest in Europe and important in the world context too, equalling that of the Galapagos. The same is true of the Macaronesian fauna, particularly amongst the bird species. There are 13 endemic birds, of which 8 are on Annex I of the Birds Directive, such as the Azores bullfinch *Pyrrhula murina*, or Zino's petrel *Pterodroma madeira* (see box).

Finally, a word should be said about the abundant marine life as well. The deep waters and nutrient-rich upwellings surrounding these oceanic islands make them very attractive for marine mammals. The Azores have no less than 24 species, including bottlenose dolphins, sperm whales and pilot whales frequenting its waters; whereas the deserted islands off Madeira offer the monk seal a last refuge on this side of Europe. The sea bird colonies are equally prominent, especially on the Azores, which is an important transition area between the tropics and the temperate region.

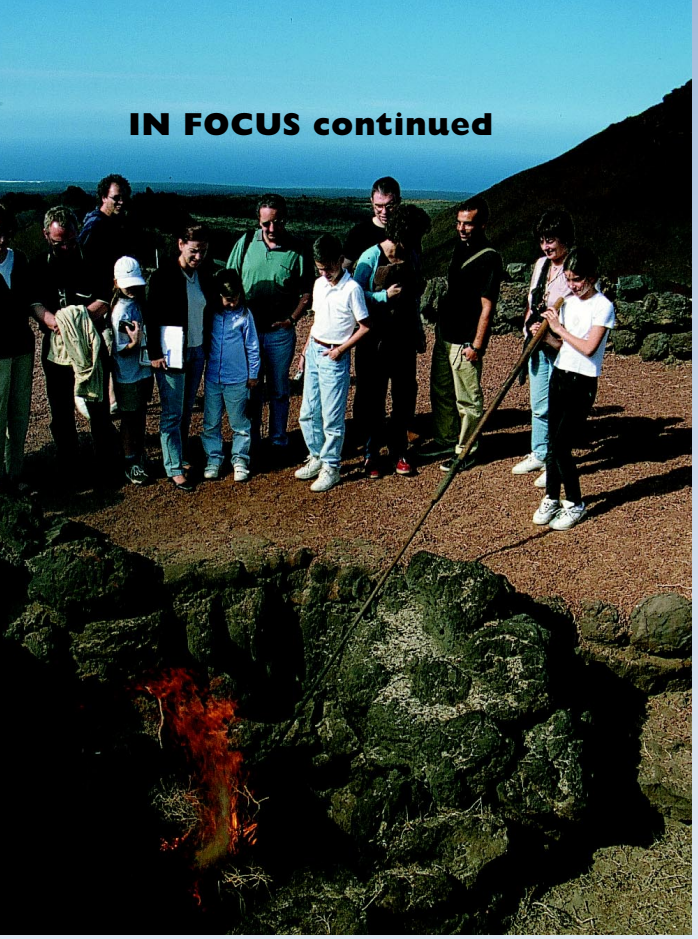
ZINO'S PETREL *Pterodroma madeira*

With just 30 breeding pairs left, Zino's petrel wins the dubious award for being one of Europe's rarest seabirds. So rare in fact that most scientists had already considered it extinct. That is until, one day in the 1960s, an ancient recording of the species' calling song was played to a shepherd living in the central massif of Madeira. He immediately recognised the call, and led the researchers (alias Mr Zino) high up into the Maciço Montanhoso Oriental range. There, on three inaccessible ledges 1,600 m above sea level, they found the only nesting colony of Zino's petrel in the world. Such belated 'fame' did not serve the bird well though – almost immediately after the ledges had been discovered, an egg collector plundered the nests, taking with him three adults and six eggs. Shortly after, the egg collection in the Municipal Museum of Funchal in Madeira was also stolen...

Since that time, and despite the dramatic loss of ten adults to a feral cat in 1991, the population has thankfully stabilised. But its survival remains precarious. In addition to the difficult problem of rat and cat predation, the area around the breeding sites also suffers from heavy over grazing by sheep and goats, reducing the availability of suitable nesting habitats. As for the threats it faces when out at sea, nobody knows – there are very few records of its activities outside its short breeding season on land.

Efforts have been underway since 1986 to address these threats: SPA designation, a European Action Plan, as well as regular programmes to keep the rat and cat populations under control. Last year, conservation efforts moved into another gear with the launching of a new project co-financed through LIFE-Nature and run by the Madeira Natural Park. Through this, the petrel's core breeding area will be brought into public ownership and the livestock within the vicinity removed. Wardening and predator controls will also be stepped up. In time it is hoped that the population will eventually start expanding again.

Photo: Frank Zino



Ecotourism is an increasingly popular activity on the islands. Photo: Marc Thauront

The Macaronesian list of SCIs

This biological wealth is reflected in the numbers of habitat types and species listed in the Habitats Directive. Despite representing only 3% of the EU territory, Macaronesia hosts no less than 19% of the habitat types in annex I of the Directive and 28% of all plants in annex II. The total number of listed species is in fact greater here than in the Atlantic region, which covers almost a quarter of the EU.

In total, 208 Sites of Community Importance for Macaronesia have been approved, involving over 5,000 km² of land and sea. In percentage terms, the terrestrial SCIs cover more than a third of the total landmass of these islands. This is clearly a very significant contribution to the Natura 2000 Network and illustrates the strong commitment of both the Spanish and Portuguese authorities to the whole process.

Apart from the Azores, the islands have had a long history of nature conservation which has no doubt facilitated this process. The Madeira Natural Park, for instance, was set up to conserve the island's important laurel forests (see next article) and today covers 16% of the island. The Canaries, meanwhile, have four of Spain's National Parks including the famous El Teide Mountain NP which was established as far back as 1956.

Nevertheless, despite this strong starting base, important new steps have been taken through Natura 2000 to protect the islands' rare species and habitats. The additional sites range from tiny underwater marine caves (just 2 ha) to more strategic designations involving, for instance, whole species populations. The six islets off the coast of Porto Santo near Madeira are now all SCIs because of their resident population of 36 endemic species of terrestrial molluscs.

The socio-economic context

With such an important part of their territory included in Natura 2000, the question immediately turns towards the effect it might have on the socio-economic activities of the islands. Whilst there may inevitably be some restrictions on certain destructive activities, the opportunities Natura 2000 presents could be more consequential, especially in the tourism sector. If properly handled, sustainable tourism initiatives can even help to improve the economic base and living standards of many of the island communities.

Tourism is already one of the major sources of income for the islands – attracting well over 16 million holiday-makers a year but, for the moment, this is concentrated on the classic forms of mass tourism, mostly along the coast. Yet, all three islands could use their natural and cultural wealth to attract an altogether different type of tourist, one that is more interested in environmentally friendly, quality based and personalised holidays. The opportunities are endless – hiking through Gomera's National Park, whale watching in the Azores or walking the levadas of Madeira (ancient watercourses that carry rainfall from the mountains to irrigated the cultivated territories). All of these have tremendous tourism potential, especially in view of the fact that the climate is warm all year round and access is cheap and easy thanks to charter flights.

The market is also clearly there. Such alternative forms of tourism are growing at three times the rate of the classic sun and sand destinations. Wildlife viewing alone is expanding at an average of 10–12% a year and more and more people are choosing a destination

Annex I & II of Habitats Directive or annex I of Birds Directive	Eur 15 (priority in brackets)	Azores	Madeira	Canaries	Macaronesia total	%
Habitat types	198 (65)	26 (7)	11 (2)	23 (7)	38 (9)	19
Vascular plants	c.450 (121)	25 (5)	42 (6)	66 (35)	128 (48)	28
Fauna	c.200 (26)	2 (1)	18 (2)	6 (2)	22 (3)*	11
Birds	181	8	12	24	31	17

* includes 13 endemic snails from Madeira

	Macaronesian region Area (km²)	% of region	pSCI Marine areas (km²)	pSCI Terrestrial areas (km²)	% of terrestrial area
Canaries	7,242	70	1,760	2,813	**39**
Madeira	797	8	c.200	231	**29**
Azores	2,333	22	88	248	**10**
Whole region	**10,372**	**100**	**2,048**	**3,292**	**32**

because of the presence of a National Park, even if they never actually visit it.

Moreover, because nature based tourism tends to be in more remote rural areas, its impact on the local economy is potentially significant. It could provide jobs for the younger generation. It could also help to diversify the economy and create additional sources of revenue for existing activities – such as farming. Locally produced food products are particularly popular amongst tourists, so is village based accommodation.

But for such ventures to succeed they must be sustainable and carefully thought out, a badly planned project will not only end up destroying the very thing upon which it is based but will also lose valued customers. To be both economically and ecologically viable in the long term, it is essential to focus on quality, hospitality and high environmental standards. Not all Natura 2000 sites will be suitable for tourism but the fact that they exist raises the overall image of the islands, provides a high diversity of potential attractions and a strong legal framework in which to develop these in a sustainable way..

Conclusion

The adoption of a list of Sites of Community Importance for Macaronesia last December has been important for a number of reasons. It is a landmark in the Natura 2000 process and will lead to the conservation of an important part of Europe's natural heritage, but it has also helped to highlight the fact that Natura 2000 need not necessarily be seen as a constraint on economic activities. In the case of Macaronesia it could well be used as a way of revitalising ailing rural economies. Whether this happens in practice now, only time will tell.

Information on funding opportunities for Natura 2000 in the Macaronesian region can be found in a publication by Terra, Madrid. For more information visit: www.terracentro.org or contact Carlos Sunyer on terra@quercus.es

Stages leading up to adoption of the SCI list for a Macaronesian region:

1996 *– Spain and Portugal send in their first proposals of sites;*

November 96 *– First biogeographical meeting (in Tenerife). Reference list is established and an analysis made of the representativity of these in the sites submitted. The Commission asks Spain and Portugal to submit further sites to complete this list;*

July 1997 *– Second biogeographical meeting (Azores), still the list is incomplete for some habitat types and species so Spain and Portugal are asked again for additional submissions;*

November 1997 *– Portugal submits a final list of sites to the Commission;*

October 2000 *– Spain submits a final list of sites to the Commission;*

October 2001 *– the Habitats Committee approves the list by written procedure;*

28 December 2001 *– Sites of Community Importance for Macaronesia are adopted by the Commission, a reservation is made on the habitat type reefs (code 1170) for which there is a lack of knowledge.*

More details about the SCI selection process can be found in issue 6.

THE HIERRO GIANT LIZARD *Gallotia simonyi*

The Canaries host some of the largest and most unusual lizards of the world. The Hierro giant lizard *Gallotia simonyi* is a prime example. This gentle giant measures 70 cm in length and lives a precarious existence perched high up on one inaccessible cliff on the Island of Hierro in the Canaries. It is quite literally on the edge of extinction – this is its last refuge, covering no more than 2 ha and harbouring around 150–200 wild individuals. No surprise therefore that it was already thought to be extinct until it was 'found' again in 1975. Much has been discovered about the lizard since, thanks to substantial funding through LIFE-Nature. It is, for instance, a relatively slow and docile animal compared to other lizards and, as a result, much more vulnerable to predation and competition. The studies also revealed that the present habitat is far from ideal, under normal circumstances, the species would have lived in the juniper forests where there is a greater abundance of food and shelter.

Spurred on by these revelations, scientists' attentions turned towards developing a recovery plan for the species. The first step was to identify suitable sites where the giant lizard could be re-introduced so as to reduce the risk of it being wiped out by unforeseen disasters. The next was to set up a captive breeding station in order to start trial re-introductions across the Island. Results so far look promising. This is not to say that the lizard's survival is secure but at least its chances are improving.

What is more, its discovery has boosted the local economy as tourists flock to the island in the hope of catching a rare glimpse of this elusive endemic. Little wonder therefore that the Hierro giant lizard is now the island's mascot.

Photo: Diego L. Sánchez

In the mists of time: LIFE in the laurel forests

Macaronesia's unique laurel forests host many rare endemics.
Photo: Paulo Oliveira

Of all the habitat types in the Macaronesian region, none can be more representative than the laurel forests – the island of Madeira may even be named after them – Madeira meaning wood. These ancient cloud forests originate from a time long before the ice age when they covered large tracts of the European continent. Now they exist only in the Canaries, Madeira and in a small corner of the Azores. It is estimated that less than 30,000 ha remain. The most important concentrations are on the islands of Madeira and La Gomera where they still cover over a sixth of the landmass (c.16,000 ha and 4,000 ha respectively).

Their ecological and economic roles

From a biological perspective, these relictual forests harbour an exceptionally high diversity of fauna and flora species, many of which are endemic. Several bird species, such as the laurel pigeons, are specifically adapted to live in these forests and play an important role in their regeneration, dispersing the seeds from the fruits of the laurel trees.

Their economic function is equally important and is linked to their hydrological impact rather than their timber value. Located on the northern slopes of the mountains between 300 m and 1,300 m, these belts of evergreen forests are almost permanently shrouded in mists and clouds. Here, they act like sponges soaking up the rain and moisture from the clouds and filling the islands' aquifers, rivers and streams. They also prevent erosion on the steep mountain slopes. This dual function is particularly noticeable on those islands that have lost their forests, precipitation is significantly lower than usual, leading to water shortages, and the slopes are severely eroded. When the rain does come, it sweeps down the mountainside gouging out large tracks along the way and washing away much of the surface soil.

Over centuries, laurel forests have been cut down for their timber and to make way for agriculture. More recently, they have also suffered from competition with invasive exotics and conflicting land uses (e.g. grazing). As a result, many of the remaining forests are fragmented and degraded, surviving only on the steepest most inaccessible slopes.

LIFE-Nature projects

LIFE-Nature has contributed to the conservation of these important habitats (considered priority under the Habitats Directive) since 1992. Of the 38 projects funded through LIFE in Macaronesia, 13 have focused specifically on the laurel forests and their endangered species (see box). This has resulted in a total EU co-finance of almost 9 million Euro. Thanks to this substantial injection of funds, a wide range of activities aimed at maintaining and restoring the laurel forests and its endemic residents could be undertaken in all three archipelagos. Here are a few examples.

The first priority has to go towards safeguarding the remaining areas of pristine forests. Early on, this involved the purchase, through LIFE, of 678 ha forests of high conservation value on the island of Madeira. Strategically located, these areas helped to reconnect already protected forests within the Madeira Natural Park and so facilitate their overall management. Management plans were subsequently drawn up, surveillance increased and fencing put up at certain locations to keep out roaming livestock.

Several actions were also taken to remove, or at least reduce, some of the worst threats to the forests. On the island of Tenerife for instance, which harbours two important populations of laurel pigeons, *Columba bollii* and *C. junoniae*, a LIFE-Nature project undertook a survey of the use of laurel poles (branches cut from the laurel tree) to support the cultivation of vines and tomato plants in neighbouring fields. It discovered that this practice, which extended over 70 km², had a major impact on the local forests. As many as 18.200 poles were being used per hectare!

The study went on to examine the possibilities of using alternatives to these wooden poles. It concluded that metallic structures were equally effective and only half as labour intensive. Thanks to these findings, the project succeeded in persuading the local districts, who were originally responsible for supplying the laurel poles, to switch to metal ones and the local agrarian service to introduce an incentive grant scheme for farmers to convert their crops to using metal poles. Although the initial investment was high (not all paid by LIFE) the long-term effect of this measure has been significant, both for the farmers and the forests. A classic win-win situation.

Problems of an altogether different nature threaten certain lower elevation laurel forests on the island of Madeira. This concerns the aggressive invasion of the forests by exotic plants brought in from other continents. If allowed to run their course they could eventually smother out the native vegetation and overrun the forests. A particularly voracious species, which has recently undergone a phase of rapid colonisation, is *Hedychium gardnerianum*, a Himalayan species, first introduced in 1934 as an ornamental garden plant.

To combat this problem once and for all, a massive eradication programme was launched with the help of LIFE-Nature in 1998 to try to get rid of this invasive plant from an area of 200 ha. This was a very labour intensive and back-breaking job. *Hedychium* spreads like a thick blanket along the forest floor using rhizomes – miss 1 cm and a new plant will begin to grow within months. There was no choice therefore but to do this work by hand, a task made no easier by the fact that the terrain was very difficult to access and the rhizomes 'fought back' unleashing copious amounts of water when cut into.

The project eventually succeeded in clearing a substantial area thanks to the intervention of the army who sent in a team of 10 soldiers to help out twice a week. Not all of the project area was cleared but at least they managed to establish a 'cordon sanitaire' to prevent further invasion into the forests. Farmers were also asked to help out by cultivating their plots immediately adjacent to the cordon sanitaire so that the species would be prevented from re-sprouting. And what did they use as compost, the 850 tonnes of rotten *H. gardnerianum* of course! In fact, this turned out to be so good that some farmers are cutting down *H. gardnerianum* themselves to make their own composts.

Finally, because so many laurel forests are severely fragmented their only chance of survival in the long-term is through regeneration and expansion. Because of this, several LIFE-Nature projects set out to replant forest patches in strategic areas, such as on Gran Canaria where just 1% of the original forest remains. This involved extensive work in collecting seeds, setting up tree nurseries and refining the restoration techniques. Much of this was pioneering work since few such trials had been done before.

The project has proven to be a success on several accounts. It created an additional 64 ha laurel plantation adjacent to the original forests, it drew attention to the plight of these rare habitats amongst the local community which responded very positively and it brought about a change in policy within the local administration. Not only did the latter ask for the restored area to be put forward as a Natura 2000 site after the end of the project but it also established a means of using EU Regulation 2080/92 to re-afforest farmland to help initiate further laurel plantations in the area.

LIFE NATURE PROJECTS FOR THE CONSERVATION OF MACARONESIAN LAUREL FORESTS AND ITS ENDANGERED SPECIES

MADEIRA	**Beneficiary**	**EC funding**	**%**
Conservation of Montado do Urzal – Parque Natural da Madeira	Parque Natural da Madeira	155.250	75
Urgent measures for the conservation and recovery of habitats and species of community interest of Madeira	Parque Natural da Madeira	800.000	75
Measures for the management and conservation of laurel forests in Madeira	Parque Natural da Madeira	193.820	60
Recovery of priority species and habitats of Madeira	Parque Natural da Madeira	515.092	55
Recovery of laurel forests in Funduras	Direcçao Regional de Florestas da Madeira	517.677	75
Conservation of prioriry and rare plant species of Madeira	Direcçao Regional de Florestas da Madeira	805.463	75
Conservation of Zino's petrel through restoration of its habitat	Parque Natural da Madeira	1.187.724	70
AZORES	**Beneficiary**	**EC funding**	**%**
Conservation of the Arores bullfinch (*Pyrrhula murina)* in the laurelforests of San Miguel Island (Azores)	Direcção Regional dos Recursos Florestais	350.000	75
Study and conservation of the Azorean natural heritage	Direcção Regional dos Recursos Florestais	1.461.905	75
CANARIES	**Beneficiary**	**EC funding**	**%**
Recovery of the laurel forest in Gran Canaria	Cabildo insular de Gran Canaria	750.000	50
Actions for the conservation of the blue chaffinch in Gran Canaria and laurel pigeons in Tenerife	Gobierno de Canarias	1.100.000	75
Increase of the population of *Columba bollii* and *Columba junoniae*	Gobierno de Canarias	484.258	75
Conservation of 5 priority species of the laurel forests of the Canary Islands	Gobierno de Canarias	448.852	75

Use of laurel poles to support vineyards.
Photo: Ana Guimarães

NATURA BAROMETER

(as of 18/3/02)

Nota Bene:

- The Natura Barometer is based on the information officially transmitted by Member States.
- Numerous sites have been designated according to both the Birds and Habitats Directives, either in their totality or partially; the numbers given may therefore not necessarily add up.
- The % in surface area is indicative. It relates to the total surface area, terrestrial and marine, in relation to the terrestrial surface area of the Member State. Various Member States (DK, NL, ...) have designated substantial portions of their coastal waters.
- Certain Member States have proposed large areas including "buffer zones" while others have only proposed the core areas. In both cases Article 6 of the Habitats Directive also applies to new activities which are foreseen outside a Natura 2000 site but likely to affect it.
- The global assessment of national lists may be revised, upwards or downwards, following more complete scientific analysis of the data, particularly at the relevant biogeographical seminars.

Member State	Birds Directive					
	Number of sites classified	Total classified area (km²)	% of national territory	Site Maps	Natura 2000 Forms	Assessment of SPA classification
België/Belgique	36	4,313	14.1%			
Danmark	111	9,601	22.3%			
Deutschland	448	27,058	7.6%			
Ellas	110	8,111	6.2%			
España	303	61,832	12.3%			
France	117	8,989	1.6%			
Ireland	109	2,236	3.2%			
Italia	342	13,707	4.6%			
Luxembourg	13	160	6.2%			
Nederland	79	10,000	24.1%			
Österreich	83	12,080	14.4%			
Portugal	47	8,468	9.2%			
Suomi	451	27,500	8.1%			
Sverige	403	24,892	5.5%			
United Kingdom	233	13,115	5.4%			
EUR 15	2,885	**232,062**				

For further information contact: Micheal O'Briain, DG ENV.B.2 for SPA classification.

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incomplete
largely complete
incomplete
complete
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Habitats Directive						Member State
Number of sites proposed	Total proposed area (km²)	% of national territory	Site maps	Natura 2000 forms	Assessment of national list	
274	1,788	5.8%				*België/Belgique*
194	10,259	23.8%				*Danmark*
3,352	30,974	8.7%				*Deutschland*
236	27,228	20.7%				*Ellas*
1,219	115,636	22.9%				*España*
1,109	37,980	6.9%				*France*
364	9,953	14.1%				*Ireland*
2,425	41,799	13.8%				*Italia*
38	352	13.6%				*Luxembourg*
76	7,330	17.7%				*Nederland*
130	8,915	10.6%				*Österreich*
94	16,502	17.9%				*Portugal*
1,381	47,154	13.9%				*Suomi*
3,453	57,476	13.9%				*Sverige*
567	23,541	9.7%				*United Kingdom*
14,912	**436,887**					**EUR 15**

e and/or not computerised

and computerised

computerised and validated

nificant progress

notably insufficient

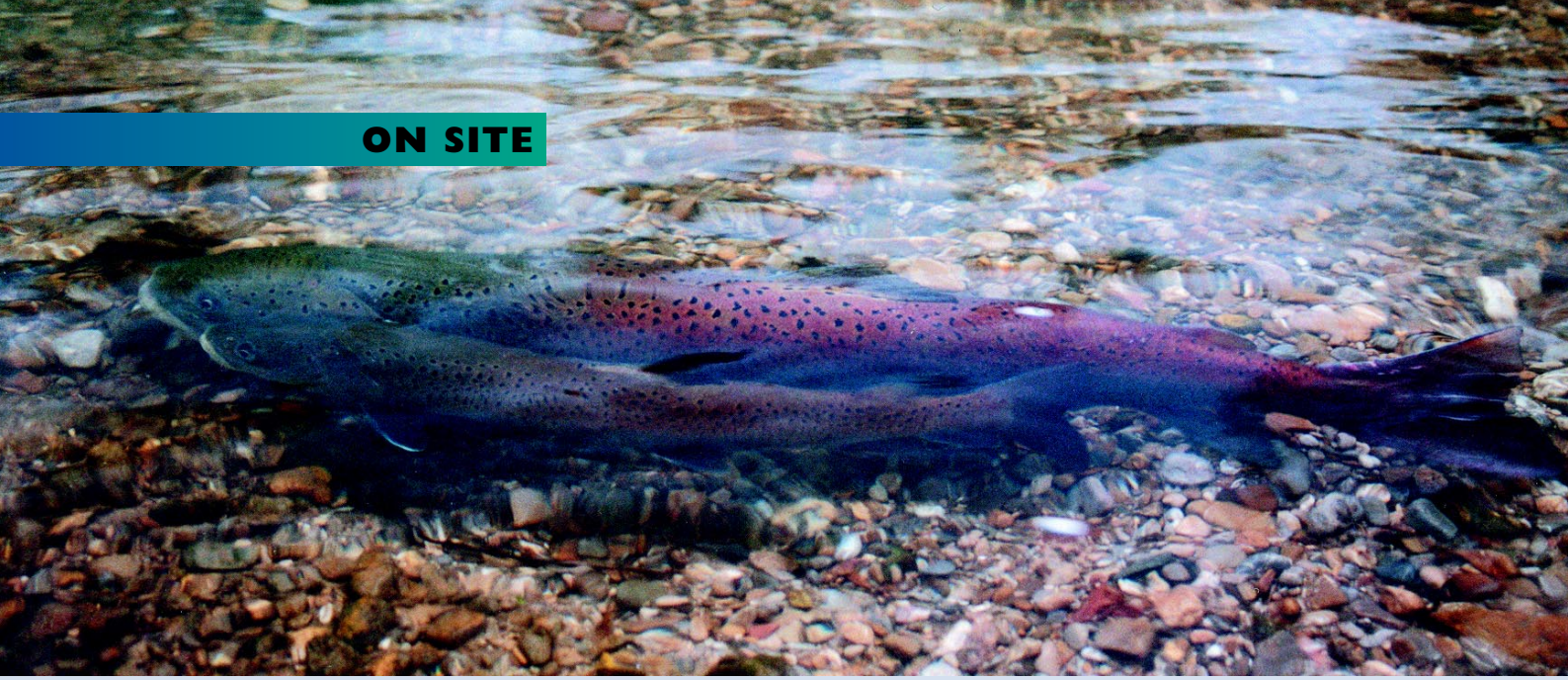
substantial list but still incomplete

complete

For further information contact: Fotios Papoulias, DG ENV.B.2 for proposed SCIs.

The Natura Barometer: commentary on progress

- Under the Habitats Directive, Germany has made substantial progress over the last year adding 1,156 new sites and increasing by 50% the surface area covered by its pSCIs. Significant progress in notifying additional proposed SCIs can also be reported for Sweden (998 new sites), France (79 new sites) the UK (68 new sites) and Belgium (65 new sites).
- Under the Birds Directive there has been significant progress in Greece (60 new sites) and Spain (43 new sites). Despite the fact that the overall total for Germany is reduced (to exclude sites in Baden-Württemberg which are not of ornithological importance) there has been good progress in this country too in designating new sites. A few new sites have also been notified by Sweden and the United Kingdom.



The Huchen in the spawning grounds. Photo: Andreas Ernest Zitek

LIFE in the fast stream: conserving Europe's migratory fish

Adopting a strategic approach

Like birds, fish sometimes undertake the most incredible journeys to get from their feeding grounds to their breeding sites and back, paying little heed to national or even international boundaries. Take the Atlantic salmon from the Loire River, for instance, it starts life in a freshwater stream in the heart of France only to end up a few years later 6,000 km away, feeding off the coast of Greenland. This is one of the more extreme examples, but most other salmon and less well-known fish, such as the sturgeon, *Acipenser sturio*, houting, *Coregonus oxyrhynchus*, sea lamprey, *Petromyzon marinus* or shad *Alosa* sp. have adopted similar, albeit less dramatic, lifestyles.

Unfortunately, all have suffered massive losses over the last 50 years and are now endangered. No less than eight true migratory fish species are listed on annex II of the Habitats Directive, three of which are considered priority. Over-fishing at sea has been a chief threat for some of these species, but the wide-ranging assault on their main habitat – the river – has further precipitated their demise. Insurmountable barrages and dams prevent them from reaching their breeding grounds upstream, canalisation destroys the fragile substrate needed for spawning whilst pollution takes its toll at any stage of life.

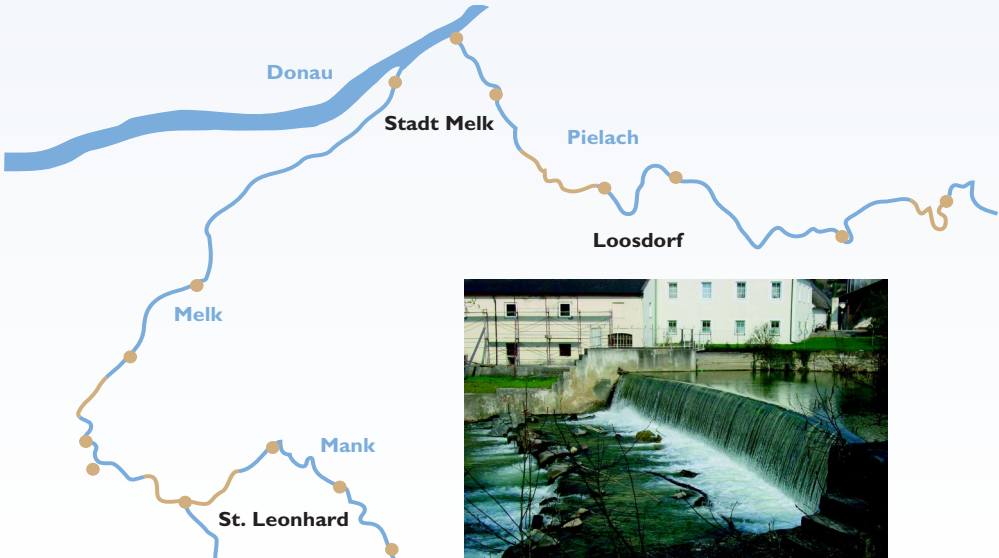
The only way to tackle such a complexity of threats is to adopt a strategic approach to their conservation. This is precisely what is being done, with LIFE co-financing, for three of Europe's largest migratory fish.

The Danube Salmon

The first concerns the huchen or Danube salmon, *Hucho hucho*. This central European salmonid is known to reach two metres and weigh a massive 100 kg, even though it lives exclusively in freshwater. Once widespread in Austria and southern Germany, its range shrank dramatically following the construction of a series of large hydroelectric power plants, which effectively blocked access to many of its natural spawning streams. Nowadays, it is restricted to four separate tributaries of the Austrian Danube, but even here populations are all threatened with extinction.

One of these last strongholds is the Pielach-Melk river system in Lower Austria. Here the spawning grounds are still relatively intact, but their access is restricted by no less than 13 obstacles, such as weirs and small hydroelectric mills, located over a distance of 45 km. In 1999, work began, through a LIFE-Nature project, to render each of these obstructions passable for the huchen and, ultimately, to create a river continuum over 78 km, which would reconnect isolated populations.

To achieve this ambitious task, the project has a number of hurdles of its own to overcome. The first difficulty is the technical design of the fish passes, which need to be adapted according to individual



circumstances. In some cases, it is enough to dismantle the weir and re-naturalise a short stretch of river. For others, more complicated solutions are required, such as the construction of fish ladders or bypass channels. At one site, for instance, a 4 metre high weir is being used to feed three mills. Dismantling it was not an option, instead a 300-metre river bypass was dug and the mill owners were paid compensation for the loss of electricity generation.

The problem of compensation is a sensitive issue. Water use rights go back a long way, sometimes one hundred years or more. Many private owners have used these to build mill weirs for small-scale hydroelectricity production. But a newly built fish pass will also need a minimum flow of water throughout the year to be effective. It may therefore be appropriate in this circumstance to consider paying compensation for the loss of electricity production. The question is how much? By using detailed calculations of hydroelectricity losses the project has succeeded in developing an equitable mechanism for one-off payments to mill owners who agree to reduce their electricity production for the sake of the fish.

Finally, because all obstacles within the river system have to be removed for the project to be considered a success, it was essential to involve a large number of stakeholder groups at an early stage into the project, including the water authorities, private land-owners, local angling clubs, municipalities and NGOs. Not only does this help to implement the project in a coherent manner but it also allows those involved to witness the effects of their localised actions on the overall conservation programme. By the same token, it helps bring pressure to bear on the more reluctant land-owners, in the hope that they will eventually bow to social peer pressure.

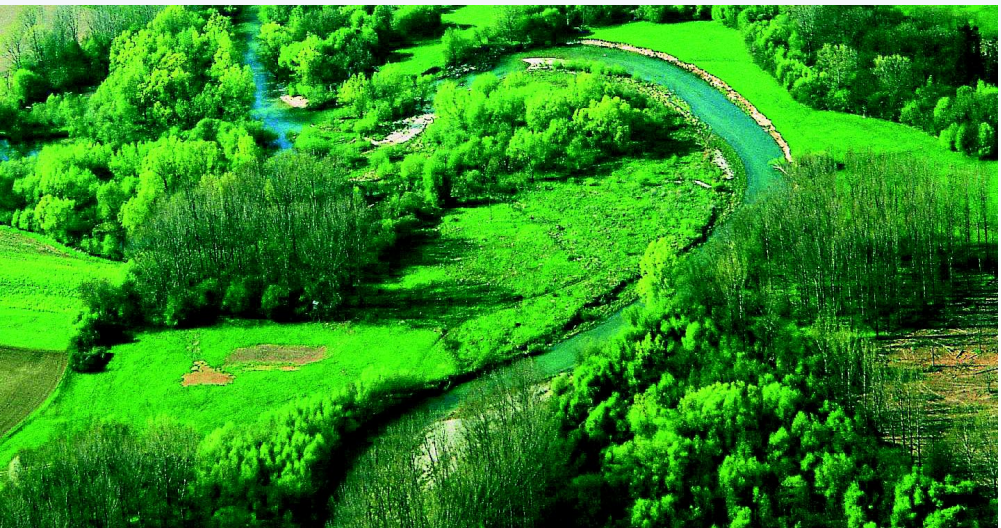
The project still has one year to go, but already the results are looking good. A couple of months after the first obstacles were adapted, several fish species, including the huchen itself, have already started to extend their range. Others, such as the nase (a favourite prey of predatory huchen) are also showing signs of benefiting from improved access to upstream spawning sites.

The Loire Salmon

The second LIFE project focuses on a very unusual kind of Atlantic salmon *Salmo salar*. Most salmon tend to inhabit coastal rivers along the North Atlantic, but there is one population, located in the Loire-Allier river in France, that still spawns far inland – right in the heart of France. It is, in fact, the last of the true long distance swimmers in Europe, once common in major inland rivers such as the Rhine, Elbe or Maas.

This highly migratory salmon from the Loire faces an even more complex situation than the huchen. One of the main problems is that it has to navigate one of France's most important rivers in order to reach its favourite spawning grounds. Not only is this a long journey – just under 1,000 km – but it is also a veritable obstacle course for the fish in terms of barriers and impediments. In previous times the journey that would have taken the salmon two months to do,

A well preserved section of the Pielach river.
Photo: Hannes Seehofer, Freigabe BMLV mit GZ 13088/169-1.6/95



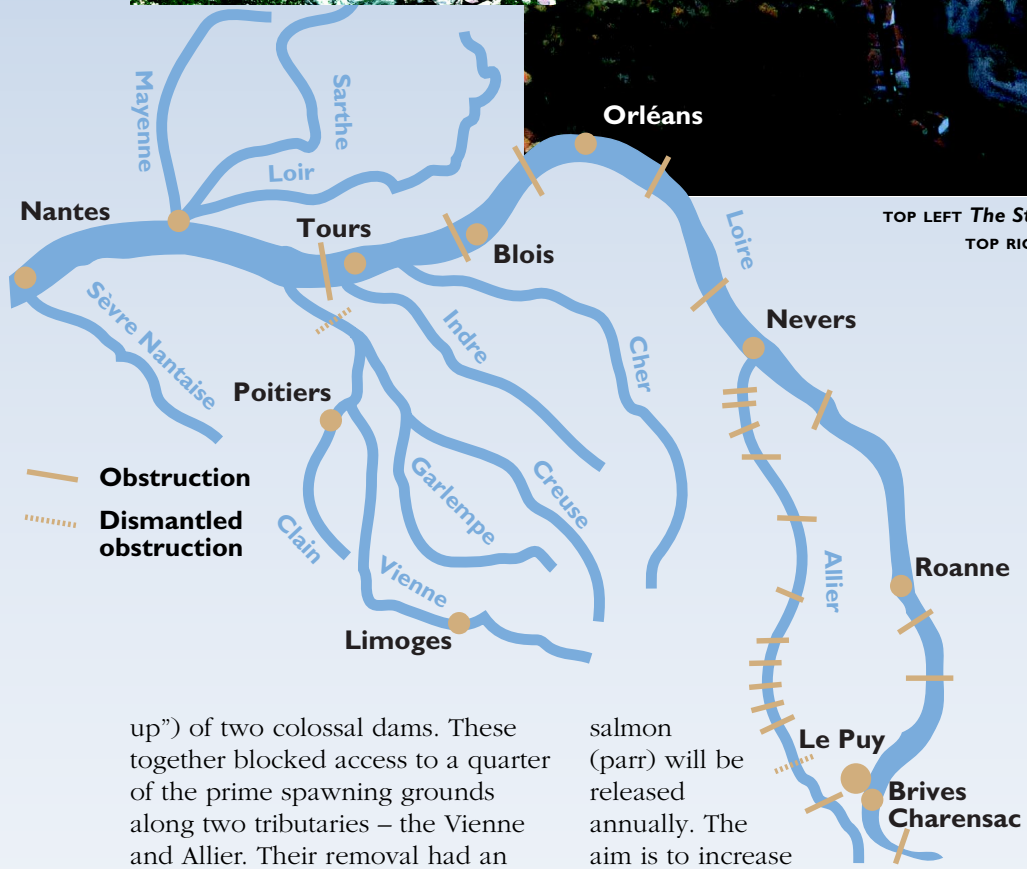
Adult Loire salmon. Photo: JM Bach, Logrami

nowadays, because of the large number of obstacles along the way, it takes six. This has dire consequences on its survival since it does not feed during its journey upstream and relies entirely on fat reserves accumulated at sea.

The problems first began when the Loire was modified to render it navigable, then came the drive to exploit its hydroelectrical potential. Power plants, dams, nuclear cooling stations soon sprang up all along the river. Added to which was an increasing problem of pollution and silt, which eventually built up as a kind of "sediment plug" in the mouth of the river. By the early 1990s, there were so many big constructions along the Loire, that proposals to create yet another dam met with a strong backlash of popular opinion. After a bout of intensive public debate, a rescue plan for the Loire, sponsored by the national government, was finally launched in 1994 in order to reconcile economic development, flood control and environmental protection. The salmon, being an important symbol of the river, was one of the main targets of this recovery plan and considerable efforts have been made since to overcome 20 of the most problematic obstacles along the river.

The scale of the operations is substantially greater than that required in the Danube tributaries – some barriers are totally insurmountable concrete walls 70 m high!. This calls for considerable ingenuity as well as funds. Fish ladders and even a fish elevator have been placed at various locations along the river but perhaps the most dramatic action so far has been the dismantling (or "blowing

TOP LEFT *The St Etienne du Vigan dam before being blown up.*
TOP RIGHT *The town of Lavoûte-Chilhac on the Loire.*
Photos: JM Bach, Logrami



up") of two colossal dams. These together blocked access to a quarter of the prime spawning grounds along two tributaries – the Vienne and Allier. Their removal had an immediate impact on the salmon, 6 months later the salmon was once again present in their upper reaches.

The problems facing the Loire will continue to be addressed through the "Plan Loire Grandeur Nature" but it is already clear that this alone will not guarantee the survival of the salmon. The number of adults returning to the river every year is still too low (500 a year) to be sure of breeding success – a problem exacerbated by the fact that considerable numbers are taken in fishnets whilst at sea and never make it back.

That is why, in January 2001, a captive breeding programme was launched with the financial support of LIFE. It is foreseen that one million eggs will be produced every year and around 200,000 juvenile salmon (parr) will be released annually. The aim is to increase the number of adults returning to the river to 1,500 by the end of the project in 2004 and to 2,500 by the year 2007.

So far, captive breeding has been relatively straightforward and already a considerable number of salmon at various stages of development from alevins to smolts have been released into the river. Now starts the waiting game! It will be 2–3 years before the salmon return to the river and the effects of the release programme can be assessed. But hopes remain high, especially as this project will continue to work in parallel with the improvements being made to the river habitat. Plans are also afoot to use the Loire salmon for re-introducing the species into other Central European rivers which have lost their native salmon populations. Its genetic profile as a migrating long-distance swimmer would be ideal.

The European Sturgeon

The Atlantic sturgeon is the third large migratory fish to have received financial support from LIFE-Nature. This is the biggest of them all, reaching 3 metres in length. It is also unfortunately the most endangered. Once present in most European seas, there appears to be now only one single wild population left. This is located in a large estuary off south-western France called the Gironde which is fed by two rivers, the Dordogne and the Garonne. According to current estimates, the total population here is no more than 500–4,000 individuals.

The Atlantic sturgeon suffers from many of the problems experienced by other migrating fish: loss of spawning areas, pollution, obstructions along the river but these tend to pale into insignificance when compared to the real culprits of its demise. This is unquestionably the continued fishing of adults both in the estuary and out at sea. Although this practice has been illegal since 1982, there continues to be a high degree of poaching. The eggs in particular (i.e. caviar) can fetch spectacular prices on the black market. Added to this is the inevitably high loss due to accidental bycatches in commercial fishing nets, such as purse seines, sometimes occurring as far afield as the Baltic or

North Sea. To make matters worse, the species takes at least 10–15 years to reach sexual maturity and to produce offspring for the first time.

The combination of late maturity and high fishing pressure is lethal and is no doubt the main contributing factor to its currently low population. According to information gathered during the first LIFE-Nature project which set out to discover more about the life history of this elusive species, the last known reproduction in the wild occurred eight years ago in 1994. By chance, in 1995, two sexually mature adults were also caught and produced a significant number of juveniles which could, for the most part, be released back into the wild. The offspring from these two years now represent the last hope for the species' survival in Europe. If they don't make it to the age of sexual maturity and breed then the species will be gone for good.

On a more optimistic note, the natural spawning grounds are there waiting for them, most have been protected as N2000 sites following the first LIFE project, including the estuary itself which covers 32,765 ha. Work is also underway through the second LIFE project to determine the appropriate management requirements for these pSCIs (although the threat of gravel extraction which is hanging over one of them still needs to be resolved).

The overall profile of the sturgeon has also been raised amongst the fishermen and the local population alike thanks to a massive information campaign run by both projects. Over 2,500 fishing boats and professional fishing organisations have been contacted individually to persuade them not to fish the sturgeon and to show them what to do in case of accidental capture. This will be followed up shortly by an easy to use guide on how to release captured sturgeons safely. Slowly but surely a small network of stakeholders in support of the sturgeon is beginning to form. Meanwhile efforts continue to try to breed the species in captivity although the results so far are not looking good.

At the end of the day though, it is clear that the species will only survive if the problem of illegal poaching is tackled effectively. With all the good will in the world, there is always someone tempted to take fish illegally unless there is sufficient police surveillance and strict law enforcement. Nobody has been prosecuted yet for capturing or even selling Atlantic sturgeon despite some blatant abuses, and until the competent authorities decide to show their muscle, the plight of this species hangs in the balance.

LIFE IN UK RIVERS

A LIFE-Nature project on seven Natura 2000 Rivers in the UK and 13 annex II freshwater species was launched in 1999 by English Nature, the state conservation agency. Its objective is fourfold:

- To produce river conservation strategies for seven rivers in the UK;
- To produce a handbook on the ecological requirements of *Ranunculus* habitat and 13 species of Annex II including the salmon, *Salmo salar*, bullhead, *Cottus gobio*, freshwater pearl mussel *Margaritifera margaritifera*, allis and twaite shad, *Alosa alosa* and *A fallax*, river, brook and sea lampreys, *Lampetra fluviatilis and L planeri, Petromyzon marinus,* and the white clawed crayfish *Austropotamobius pallipes*;
- To develop cost-effective monitoring and assessment techniques for SAC rivers;
- Raise awareness and disseminate results.

More information can be found on the website: http://www.english-nature.org.uk

For further information contact:

- *The Huchen LIFE Project: Dr Erhard Kraus, Amt der Niederösterreichischen Landesregierung, Abteilung Naturschutz, email: post.ru5@noel.gv.at; tel +43 2742 90 05 15256 website: www.life-huchen.at*
- *The Loire Salmon: Mme Marie-Laure Gianetti, Loire Grands Migrateurs (LOGRAMI) email: logrami@wanadoo.fr; tel +33 4 70 45 73 41; Websites http://perso.wanadoo.fr/logrami or http://www.rivernet.org/loire/*
- *The European Sturgeon LIFE project: Mr Guy Pustelnik, Directeur, Establissement Public Interdepartemental Dordogne; email: epidor@perigord.tm.fr; tel +33 5 53 29 17 65*

Atlantic sturgeon. Photos: LEFT O. Guerri/ EPIDOR BELOW A. Boroles/ EPIDOR

A new round of biogeographical seminars planned for 2002

Now that the Macaronesian list has been adopted and Member States have had time to reflect on the outcome of the first round of the biogeographical seminars, proposing additional sites where necessary, work can begin on finalising the lists for the five remaining biogeographical regions. First up is the Alpine region where the Community list is expected to be approved during the 2nd half of 2002. As for the Atlantic, Mediterranean, Boreal and Continental biogeographical regions, final meetings will be held throughout the year.

Financing Natura 2000

As Natura 2000 moves from vision to reality, additional funding will be needed to secure the sustainable management and restoration of the sites within the network. Article 8 of the Habitats Directive allows for Community co-financing of the necessary conservation measures for SCIs required under article 6.1 of the Directive. The Commission has recently set up an expert working group to assist in this process. Their remit is twofold: to provide figures of the financial amounts needed at Community level, and to propose Community financial means and instruments to satisfy these needs both in the medium (2000–2006) and long-term.

The working group is made up of experts from Member States, NGOs and landuser groups and is assisted by various Commission services responsible for EU funds (agriculture, structural funds, LIFE ...) under the overall coordination of the Nature unit of DG Environment. Their work started in December 2001 and is due to be completed by September 2002. Preliminary conclusions are being discussed at a Green Week seminar on financing Natura 2000 in April and at a high level conference on the Habitats Directive, organised by the Spanish Ministry of Environment in the Canaries in May. The working group's final position paper will then be used as a basis for preparing a Commission Communication to the Council and European Parliament on financing Natura 2000 in 2003, in time for the mid term review of the Structural Funds and the Rural Development Programme.

New guidelines on assessing plans and projects

Last year the Commission published an interpretation document entitled 'Managing Natura 2000 sites: the provisions of Article 6 of the Habitats Directive'. Now it has followed this up with a second non-mandatory methodological guide on the provisions of article 6(3) and 6(4) relating to the assessments required where a plan or project may significantly effect a Natura 2000 site. This document provides logical stage by stage guidance on how to carry out or review such assessments in practice, using model flowcharts and worked examples. As such, it should be of use to developers, consultants, site managers, competent authorities and national agencies both in the EU and in accession countries. *For copies go to DG Environment's website (see page 16).*

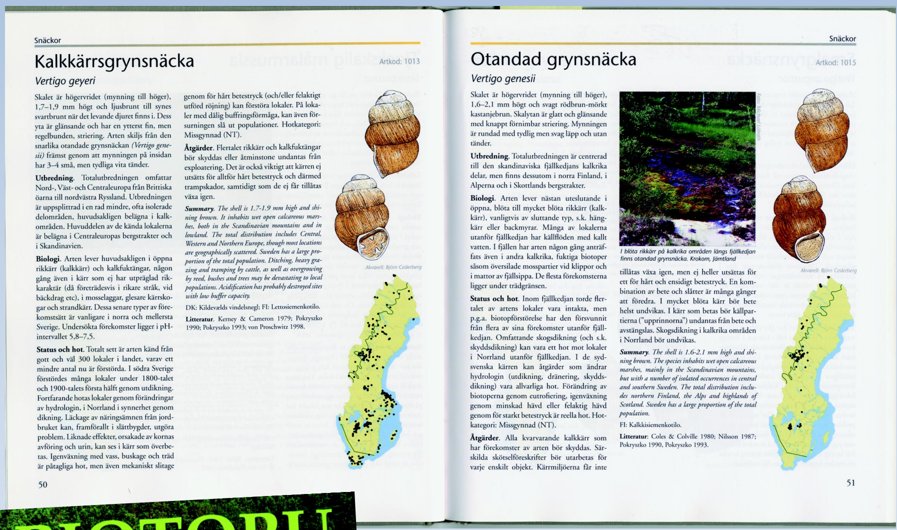
First round of LIFE III

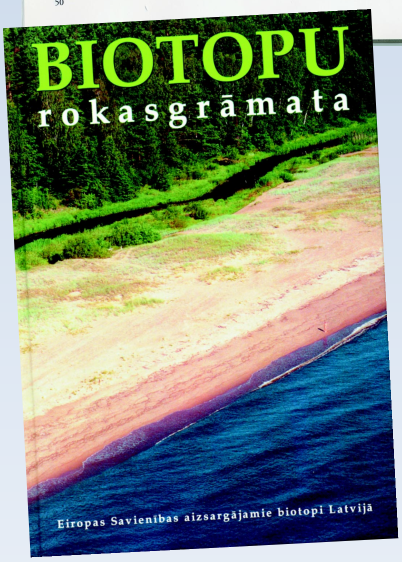
In June 2001, a total of 94 nature projects were selected for funding under the first round of LIFE III. Together, they will receive €79.5 million in co-finance from the EU. Conservation actions are foreseen on more than 450 Natura 2000 sites covering approximately 13,000 km². For the first time, Estonia, Latvia, Hungary and Slovenia also participated in LIFE-Nature and, now, they have 10 projects up and running in their respective countries. Summaries of the projects can be found on DG Environment's website (address on page 16). Meanwhile, the selection exercise for 2002 has begun. 188 proposals have been submitted this year and, already, it is clear that the overall quality of the applications continues to improve, which means there will be tough competition for the €70.5 million available. The final decision is expected in June 2002.

'Starter' and 'Co-op' measures to be launched in 2002

The Commission is about to publish a call for proposals to solicit bids for the two new accompanying measures – known as 'starter' and 'co-op' – which were introduced under the LIFE III Regulation. In brief: 'starter' measures are intended to help proponents prepare LIFE-Nature projects involving partners from two or more Member States or participating accession countries. The maximum available for each successful bid is €30.000 (100% EU funded) provided the work is completed within 10 months. 'Co-op' measures, meanwhile, are intended to support an exchange of experience between projects. Proposals must involve at least three on-going or past LIFE-Nature projects targeting the same or similar conservation issues (e.g. same species, habitats ...). The maximum available is €60.000 per project over a period of 24 months. Because of limited funds (the total budget for this first round is €600.000) only the very best applications can be funded. Watch out for the call for expression of interest in the Commission's Official Journal and on the DG Environment website.

European mink, Mustela lutreola. Photo: Tiit Maran





Habitat and species interpretation guides

Denmark, the Czech Republic and Latvia have all recently published illustrated guides of the habitat types listed in the Habitats Directive which exist in their countries, whereas Sweden has produced one on its listed fauna and flora. All four are amply illustrated with colour photos of the species/habitats concerned and provide concise descriptions of their characteristics as well as their national distribution. *For copies of the Swedish guide go to http://www.artdata.slu.se/books.htm (short summary given in English of each description), the Danish guide contact Miljøbutikken Læderstræde 1, København, tel +45 33 95 4000 (price 160kr), the Latvian guide contact Ivars Kabucis at the Latvian Fund for Nature, tel +371 7034894. The Czech guide can be obtained from: Agency for Nature Conservation and Landscape Protection, Kalisnicka 4–6, Prague 3 CZ 13023.*

Natura 2000 in Alto Adige, Italy

Guides of another kind are also starting to appear now. The province of Bolzano/Alto Adige, in Italy, has, for instance, produced one of the first publications to focus entirely on its Natura 2000 sites. Beautifully illustrated, the book traces the history of nature conservation in the province and provides a comprehensive overview of how the Habitats Directive and LIFE-Nature projects are being implemented. It then goes on to describe each of its 34 Natura 2000 sites in detail. *For copies (in Italian or German) contact Provincia Autonoma di Bolzano/Alto Adige, Ripartizione Natura e Paesaggio, Via Cesare-Battisti, 21; I-39100 Bolzano.*

LIFE after LIFE

To mark the tenth anniversary of LIFE-Nature, the Commission has produced a new report examining the long-term effects of LIFE-Nature funding on nine projects that finished 3–4 years ago. The present conservation state of the species and habitats targeted and the long-term management of the areas concerned are reviewed in each case. For instance, did LIFE fulfil its catalytic role? Do the sites continue to be managed appropriately? Have new threats been identified? Are there sufficient resources to address these? The concluding chapter teases out certain elements of success that may be useful for future projects. *For copies go to DG Environment's website (see page 16).*

Micro-habitats first E conference

A first E conference was organised at the end of last year on the conservation of micro-habitats. This was sponsored by the Generalitat Valenciana through their LIFE project on the conservation of priority habitats in Valencia, Spain and follows on from an international workshop held in October 2001 involving experts from Germany, Italy, France, Greece, Portugal and UK. Topics for discussion included micro-habitat management and further applied research needs, ensuring their legal protection and raising public awareness. The scope for developing multinational projects on small habitats was also explored. A lot of useful information was generated during the six weeks from the 112 participants from 23 countries. This, and the conclusions of both events, can be found on http://www.microhabitats.org

Analysis of the socio-economic impacts of Natura 2000

Continuing in the line of publications, a study carried out by the Institute of Ecology and the Department of Economics of the University of Klagenfurt, on behalf of WWF Austria, examines how Natura 2000 designation affects the regional development potential of four model regions in Austria. Its conclusion is that Natura 2000 seems, on balance, to generate new economic opportunities and positive spin-offs, notably within the tourism sector and, to a lesser degree, within the agriculture, hunting and fishing sector. The study concludes by recommending an improvement in the information policy for Natura 2000 and an enhancement of existing compensation and funding schemes, adapting these to reflect better the importance of Natura 2000. *For copies (in German with English summary) look up http://www.e-c-o.at or contact email: eco@aon.at.* A second study done by BirdLife Austria on behalf of the Chamber of Commerce in Lower Austria is also available, this focuses on possible impacts of Natura 2000 on private enterprises in two areas. *For copies contact andrea.stockinger@wko.at*

NEWS ROUND UP continued

European Union Actions plans for priority species

A further eight action plans have been developed for some of Europe's most threatened bird species listed in Annex I of the Birds Directive. These include the bittern, the great and lesser-spotted eagles and the ferruginous duck, amongst others. The Commission's new publication comes as a welcome addition to the first 23 action plans published in 1996. Developed by BirdLife International with EU financial support, the plans are the result of extensive consultation with Member State authorities, NGOs and scientific experts across Europe. Every plan reviews the current threats and conservation status of the species and recommends a number of priority measures for its recovery. *For copies write to DG ENV.B.2 – address on page 16.*

Elements of good practice in integrated river basin management

The results of the three seminars on the new Water Framework Directive, organised jointly by WWF and the European Commission's Environment DG, is now available on http://www.panda.org/europe/freshwater/seminars/seminars.html. The seminars focused on water and agriculture, the role of wetlands in river basin management, good practice in river basin planning. The report will be of interest to all those involved with water planning and management at regional and local levels.

New rural environment award

A new award has been launched to recognise significant contributions made by individuals (preferably younger persons) to the positive management of Europe's rural environment. This concerns, in particular, conserving or enhancing the landscape, providing biodiversity, preserving rural cultural heritage or contributing to sustainable development within the area. The winner (who will be awarded €10.000) will be selected by a panel made up of representatives from three Swedish organisations: the Anders Wall Foundation, Royal Swedish Academy of Agriculture and Forestry, Friends of the Countryside and the European Commission's Environment DG. *Applications must be submitted by 31 May 2002 to the Royal Swedish Academy, PO Box 6806, SE-11386 Stockholm, Sweden. For details contact Johan Nordenfalk on blekhem@nordenfalk.pp.se*

LIFE-Nature websites

Here is the latest selection of websites from LIFE Nature projects:

- The Finnish Forest and Park Service has a new website on all past and present LIFE-nature projects it has run or been involved in. Direct links are provided to at least eleven individual project websites where full details can be found, in English, of their activities: http://www.metsa.fi/natural/projects/index.htm

- Conservation management of Amvrakikos wetlands in Greece http://users.forthnet.gr/ath/arvid/life/ (in English and Greek)
- http://www.ukmarinesac.org.uk (English only) contains over 20 downloadable scientific publications on the conservation of, and threats to, marine SACs together with a series of best practice guides on how to manage these complex sites, based on the experience of a four year LIFE project in the UK.

NATURA 2000 NEWSLETTER

Editors: Kerstin Sundseth (Ecosystems LTD., Brussels) and Nicholas Hanley (DG ENV B2)

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This newsletter is produced three times a year and is available in English, French, German, Spanish and Italian. To be included in the mailing list for this newsletter, send your name and address to DG ENV B2, European Commission, 200 Rue de la Loi, B-1049, Brussels. Email: nature@cec.eu.int Fax: +322 296 8824. Alternatively you can consult DG ENV's homepage: http://europa.eu.int/comm/environment/nature/home.htm where you will find this newsletter and other documents relating to the EU's conservation policy.

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