



THE PLACE OF PERIURBAN NATURAL SPACES FOR A SUSTAINABLE CITY



Appendix
Note
Good practice

FEDENATUR Report
To the European Commission, DG Environment
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**EUROPEAN COMMISSION
DIRECTION GENERAL
ENVIRONMENT**

Direction B/Quality of Life – Health,
Nature and Biodiversity
ENV. B4 – Health and urban zones



Managing urban development for nature conservation

The development of urban areas can result in the destruction of sites of significant social, ecological or landscape interest. Sensitive management, however, can help to protect these areas and preserve them for more appropriate development in the future.

Example:

The protection of Can Carreres (Llobregat Park, Barcelona)

Description of the operation

This operation involved modifications to the town planning regulations affecting an area with special ecological and landscape value; the aim was to protect and reserve the area as a public amenity, whilst at the same time safeguarding landowners' rights as regards residential construction.

- **Aims**

The protection of over 20 hectares of privately-owned property of high environmental and landscape quality, situated between the urbanised zone and the forest, in order to reserve it for use by the general public at no extra cost to the local municipality.

- **Principle features**

The Can Carreres Vell area had been classed as an "unprogrammed zone for urban development". A private application was submitted to the municipality, requesting authorisation to develop the area with the construction of over 600 dwellings. The local commission responsible for the environment and sustainable development of Sant Boi de Llobregat saw the need for a formal assessment of the land's potential and of the measures required to protect them. Following a study carried out by an external multidisciplinary team, including a group of landscape consultants from the University of Barcelona, a proposal was prepared for the transfer of some of the planning rights of this area to another part of the commune; this would enable over 20 hectares with particular ecological and landscape value to be preserved.

- **Difficulties**

The agreement was particularly complex and took over 2 years to achieve. Negotiations were required with private and commercial land-holders; proposals had to be elaborated acceptable to all parties in order to avoid contentious proceedings. Steps had also to be taken to obtain authorisation to modify the town planning controls in force from the Generalitat de Catalunya (the autonomous government responsible for town planning).

- **Results**

The outcome can be considered extremely positive: construction will be limited to 600 dwellings; the old quarter of Can Carreres will be renovated; a green zone of several hectares is to be established, cost-neutral for the municipality; and 20 hectares are to be classified as a forest area and public amenity.

- **Cost:** 0€.

Potential for duplication:

This operation has been cited as an example of Good Practice by regional administrations, municipalities, architectural colleges, and various establishments within the University of Barcelona. It is seen as a reference in the development of new approaches to sustainable town planning; any locality seeking to follow this path, however, must, if it wishes to avoid the legal and economic pitfalls, take into account the complexity involved and the range of procedures to be followed. There is a great deal of information available on this project (studies, proposals, agreements, urban action programme).

Addresses

Ajuntament de Sant Boi de Llobregat
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08830 Sant Boi de Llobregat
Spain

Bibliography, website, useful addresses...

www.stboi.es



Creation of a network of protected areas

There is value to be gained in establishing authentic networks of interconnected protected areas, planned and managed within the context of wider regional policies and answering the need for high-quality space in areas of dense population.

Example:

The network of protected areas in Barcelona Province (Xarxa de Parcs Naturals de la Deputació de Barcelona)

Description of the operation

- Aims

The assessment, planification and management of all of the Free Areas in Barcelona Province, with regard to their ecological, territorial, social and economic value.

- Principle features

Essentially underway since 1999 (although the first park was created in 1972)

- Results

- Creation of a network currently consisting of twelve protected areas covering more than 100 000 hectares.
- Development of the Territorial Information System for the

Network of Free Areas. The system is used for the analysis, characterisation, and management of those areas of Barcelona Province not destined for urbanisation, as a preliminary to assigning a territorial project to them.

- Introduction of new methods of territorial management for these areas (syndicates, landowner associations), offering an alternative to the nature parks, which in some areas are subject to less formal management.

- Cost

Annual budget for the area concerned 30 million €

Potential for duplication:

This type of operation should be applied to all Free Areas in the urban environment.

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Bibliography, websites...

The introduction of biological conservation corridors

Parks and other natural sites under protection should not be considered in isolation - there is a need to plan for and manage geographical and ecological corridors linking up periurban natural spaces (PNS).

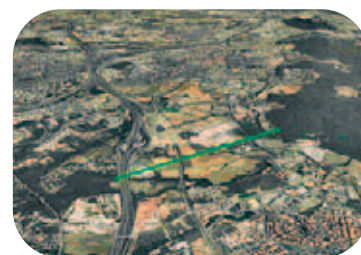
Example:

Collserola Park – Liaison corridor between Collserola Park and its North-West

Description of the operation

- Aims
The provision of ecological and/or landscape connections between different PNAs, in order to avoid their physical isolation and loss of biodiversity.
- Principle features
 - Assessment of possibilities, from an urban and territorial perspective
 - Conclusion of an agreement with the administration responsible for urban development (municipality) to work together on a model including conservation corridors
- Difficulties encountered
 - Prevailing town planning practices
 - The economic and land-holding context
- Results
Introduction of a planning model protective of the environment and guaranteeing PNA interaction.

Plan for corridors linking Collserola Park and the natural areas to its south-west.



Hypothetical model showing the ideal corridors (circles) to be created to avoid PNA isolation. Collserola Park is in the centre.

Potential for duplication:

This type of operation merits introduction as a general model for all metropolitan areas; its success would depend on the level of political will available to carry it through and seek common ground for the economic and ecological interests at stake.

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Fax: +34 93 280 6074

Bibliographie, sites web...

Saunders, D. & R. Hobbs, editors (1993) *The Role of Corridors*, University of Minnesota Press, Minneapolis, 457p.
D. Simberloff & J. Cox (1987) *Consequences and Costs of Conservation corridors*, *Conservation Biology*, vol. 1 (1) 63-71

Elaboration of a Park Reference Document

It is important that a reference document be prepared for each park in the form of a strategy plan. Such a document would formally define the plans for the site; it would render these accessible externally and provide a baseline for the technical and financial programme.

Example:

The Po River Park and Turin's metropolitan parks (Stupinigi Park, Mandria Park, Collina di Superga Park)

Description of the operation

In Turin, thanks to the "Corona Verde" Green Belt project, integrated management strategies for the periurban and urban zones have been introduced, in collaboration with the working group on urban quality in particular, and in parallel to activities by the association Turin International.

- Aims

Bring together all those concerned and agree upon a strategy plan for the creation and management of Turin's green spaces.

- Principle features

Drawing up of a reference document adopted by Turin International and approved within the plan of the Green Belt programme.

- Difficulties encountered

Bringing together of all interested parties.

Potential for duplication:

The drawing up of a strategy plan for green areas could be usefully duplicated in other European regions.

Addresses

Office of the Pò River protected zones – Parco Fluviale del Po –
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E-mail: parcopoto@inrete.it

Bibliography, websites...

www.to_internazionale.org
www.provincia.torino.it
www.parks.it/parco.po.to

The promotion of multiple uses and functions for parks



Example:

Rehabilitation of the Salburúa wetlands (Vitoria-Gasteiz, Basque country, Spain)

Description of the operation

- Aims

Rehabilitation of a zone of great environmental value; development of the area for public access and for environmental education activities; flood protection for the town.

- Principle features

As part of a flood-protection project for Vitoria-Gasteiz, funded by the Cohesion Fund, plans were made to rehabilitate the Salburúa wetlands/marshes (drained half-way through the nineteenth century) in order to regulate the river flow. Land was therefore purchased under this project in 1998, and hydraulic and other conservation work was carried out. In later operations it was also possible to increase the surface area of the wetlands and improve the vegetation cover and network of footpaths; modest park facilities were also introduced (hides and a reception centre).

periurban natural spaces often attract a diversity of activities, as typical of the urban as of the rural environment. These sites can therefore perform a variety of different functions (social, environmental, cultural...). In the light of this, the organisation and management of these areas should aim not only to ensure their conservation but also to facilitate the coexistence of any functions compatible with their long-term sustainability. It is also, of course, essential to control any functions liable to endanger or conflict with the essential purpose(s) of the area.



- Difficulties

The main difficulty was the acquisition of the land, due essentially to the proximity of the town and the level of demand this generated (urban development).

- Results

From an environmental point of view Salburúa is now a remarkable lagoon complex with over 60 hectares of land under water; it has rapidly become the Basque country's most valuable area of wetland. The quality of this site won it recognition in September 2002 as a Ramsar site under the International Convention on Wetlands of International Importance; it has also been proposed for SCI status (a Natura 2000 Site of Community Importance). Over 125 000 visitors accessed the site in 2002 and every year some 2500 members of the general public or schools are offered a broad programme of educational and environmental activities.

- Cost

- Investment: 1 500 000€
- Running costs: 25 000€/year

Potential for duplication:

The restoration of the Salburúa wetlands is a precious example of the multifunctional rehabilitation of a natural area in a periurban zone. The project demonstrates that flood management operations can be undertaken in combination with ambitious programmes to develop and enhance public amenities and biodiversity.

Addresses

Centro de Estudios Ambientales
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Fax: +34 945 162 695

Bibliography, websites...

www.vitoria-gasteiz.org/ceac/anilloverde/salburua/default.htm

Rehabilitation of old gravel pits

Gravel extraction is a particularly disruptive activity in ecological and landscape terms. Such sites can however be recovered and transformed into areas remarkable for their ecological, landscape and environment-educational value.

Example:

The ponds of Miribel-Jonage, near Lyons, France



The site before rehabilitation



The site during rehabilitation

Description of the operation

Major restoration work was carried out in the Miribel-Jonage park aimed at rehabilitating an area occupied by gravel workings approaching the end of their useful life.

- Aims

The focus of the programme varied from one part of the site to the next: ecology (small islands, marshes, ponds...), landscape (flower meadows), or leisure (beach).

- Features

Ideally, rehabilitation work should be planned by the park before any extraction takes place; under these conditions significant results can be achieved relatively simply and at little cost. Extraction at the Grands Vernes site (see photos) had been carried out in an anarchic fashion for many years, and the site

had been severely degraded (tipped concrete, rubble, etc.). The rehabilitation operation was partially financed by the extraction activities (proceeds from the sale of some of the materials); grant aid (from the LIFE programme in particular) also made significant contributions: clearance of the gravel-working equipment, creation of over 10 islands and shallows... Public facilities were also installed: theme trails, observation posts...

- Difficulties

A number of difficulties were encountered: the discovery of unanticipated degraded areas, the difficulties of working with a quarrying company insensitive to environmental issues...

- Cost

The cost of rehabilitating the two main sites amounted to ca. 750 000 €, for a surface area of approximately 100 hectares.

Potential for duplication:

All gravel workings deserve rehabilitation, from the ecological and landscape point of view. However it is important to stress that this is much easier to achieve if quarrying is still on-going, as the company can be enrolled to participate financially and, more especially, technically.

Addresses

Parc de Miribel-Jonage - SYMALIM-SEGAPAL
Chemin de la Bletta - 69120 Vaux-en-Velin, France
Tel: + 33 4 7880 3067
Fax: +33 4 7204 0795

Bibliographie, sites web...

A report was produced for the LIFE project (1996-2000) presenting details of the programme of work undertaken.
Website: www.parc-miribel.fr



Création of a necklace of islands



Work underway: rehabilitation of a bank

Rehabilitation of a river

Whilst periurban watercourses are often degraded and in need of rehabilitation, they have significant potential as general public sites and for their biodiversity.

Example:

Riera de Sant Cugat (Collserola Park, Barcelona)

Description of the operation

- Aims

Rehabilitation of a river which had been neither managed nor cleaned

- Principle features

Major modifications to the site topography
Cleaning of the river and improvements to its flow

- Results

Recovery of a river ecosystem
Increase in the surface area of the park
Improved residential environment

- Cost

1.600.000 € (Fonds FEDER)



Ford across the river

Potential for duplication:

This type of operation can be replicated at other sites problematic in dimension; it should be stressed, however, that a significant budget is required.

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Rehabilitation of degraded areas

periurban natural spaces display high levels of degradation: urbanisation, construction site litter, abandoned quarries or waste tips. Such sites can cover a significant area and offer high potential in ecological or landscape terms or for their tourism value. They are therefore very important targets for rehabilitation.

Example:

Can Cuyàs (Collserola Parc)

Description of the operation

- Aims

Recovery, essentially for environmental reasons, but also for the public, of a space occupied by vegetable gardens and illegal construction.

- Principle features

Planning of improvements with the municipality of Montcada
Major topographical changes
Consolidation of the bed of the river
Reforestation
Creation of trails
Creation of 2 rest areas

- Difficultés rencontrées

Location of the degraded area within an industrial zone and near a resource-poor neighbourhood.
Presence of vandalism

- Results

Increase in the size of Collserola Park
Operation on-going. Two phases remain.

- Cost (unfinished)

341.194,20 €



*Creation of a stepped walkway after
the rehabilitation operation*

Potential for duplication:

This type of operation should be applied to all degraded areas in the periurban environment.

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Collaboration on the rehabilitation of a waste tip

Periurban parks have often to deal with incompatible activities within their boundaries (landfilling, quarrying, manufacturing...) for which management responsibility lies not with themselves but with external public or private organisations. In these situations concertation procedures are essential if the impact of these activities is to be controlled.

Example:

Turin's Po River Park – the Lanzo estuary protection zone

Description of the operation

- Aims

Introduction of a programme for the recovery of a waste disposal site, basing the selection of priority areas on the terms set out in the zonal plan.

- Description

The authority responsible for the river park created a special itinerary based on the rehabilitation of the area occupied by Turin's city landfill in the commune of Basse di Stura. The zonal plan for the area under protection actually provided for the closing of the waste disposal site on 31.12.2003. With proper scheduling and management of the waste collection system, however, a proposal was made for a postponement of the closure date, despite the provisions set out in the Park plan. The authority was able to propose an itinerary covered by a joint management agreement, and based on the provisions in conventions regulating the recovery of degraded areas. There was thus no need to request enforcement measures, demonstrating that it is possible to devise relatively complex systems for the resolution of conflicts.

- Principle features

preparation of the agreement once the principle has been approved by the Park's governing body.

- Difficulties rencontrée

bringing together of all the administrations concerned, at the start of the operation.

- Results

acceptance of the proposition.

- Cost

To be evaluated in the agreement currently under preparation.

Potential for duplication:

The scope for collaborative management practices is more obvious during phases such as the rehabilitation.

Addresses

Office of the Pô River protected zones – Parco Fluviale del Po - Tratto turinese
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Bibliography, websites...

www.parks.it/parco.po.to

Forest Park

Periurban woodland can be a major attraction for the public, particularly in the Mediterranean region. These areas are often in poor condition and closed to the public; hence the advantage of undertaking conservation measures and rendering them publicly accessible.

Example:

Montbaig Forest Park (Llobregat Park)

Description of the operation

Planning and implementation of conservation measures and improvements to the areas on the Montbaig mountain open to the public: access roads and car parking facilities, access controls, sign-posting, restoration of the indigenous vegetation and of historico-cultural features to be exploited in the information centres and landscape interpretation, fire prevention, creation of itineraries...

- Aims

Recover and render accessible for public use a wooded area in highly degraded condition of 84 hectares, forming part of the metropolitan green belt in the immediate vicinity of Sant Boi de Llobregat.

- Principle features

On the advice of members of their Environment and sustainable development commission, the municipality of Sant Boi prepared and implemented a set of conservation measures aimed at both protecting the environment and landscape of Montbaig mountain and at ensuring full public access as far as the summit (alt. 309 metres, site of the Sant Ramon Hermitage).



- Difficulties

The most sensitive phases involved the establishment of an overall plan of action and the reaching of consensus with the various groups and individuals concerned.

- Results

The operation was very well received by the people of the commune and of the wider area of Baix Llobregat – a particularly symbolic piece of woodland had been restored from a degraded and inaccessible condition and provided with new resources and facilities.

- Cost

600.000 €

Potential for duplication:

Parts of the plan (sign-posting, fire prevention measures respectful as far as possible of the local vegetation...) were taken on and implemented by Sant Boi's neighbouring communes. A procedure plan and a general plan of action can be made available to interested municipalities.

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Reforestation

Where the urban periphery possesses no natural areas at all, there may be occasion to regenerate such areas, through the reconversion of ex-farmland or degraded sites (quarries, wasteland...).

There are a range of possibilities here, from the creation of a town park (with relatively unnatural vegetation) to the intensive rehabilitation of existing natural ecosystems. There is generally a compromise to be found between the desire to render the area accessible to the public and the aim of establishing a diversified ecological system.

Example:

Reforestation in Milan's Parco Nord

Description of the operation

• Aims

Over the last 15 years the Parco Nord of Milan has undergone significant reforestation, with the aim of creating an agreeable natural environment in areas of the metropolitan area lacking green spaces.

• Features

Planting is carried out progressively at a rate of some ten hectares per year.

A number of different experimental techniques have been trialled by the park, in collaboration with partners such as the University of Milan's Institute of Botany. The work has been performed partly by the park staff and partly by private contractors.

The forestry programme is planned taking into account the nature of the site (land type, soil conditions, infrastructural aspects...) and functional considerations (recreational value, biodiversity, noise reduction...).

Several types of woodland are planned:

- woody barriers, predominantly composed of trees
- urban planting (60 % trees, 40 % shrubs)
- decorative shrubby hedging
- thick "natural" bushes

Native species are generally used (*Quercus robur*, *Populus nigra*...), but exotic species are also accepted (*Sophora*, *Quercus rubra*...).

• Difficulties

The year-by-year approach means that methods can be progressively improved as solutions are found to the technical problems encountered.

Potential for duplication:

This type of operation can easily be reproduced.

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Animal reintroductions



Periurban areas have suffered the loss of animal species in the last few decades as a result of modifications to their milieu or of overexploitation. The reintroduction of such species wherever environmental conditions allow is well worth considering, particularly from the biodiversity point of view. This type of operation can also be useful for educational reasons and can provide valuable common ground for work with the stakeholders concerned (hunters, fishermen)

Example:

The White-clawed crayfish in Milan's Parco Agricolo Sud

Présentation de l'expérience :

- Aims
Reintroduction of the crayfish *Austropotamobius pallipes*, classed as a "rare species" by the IUCN and as a "species of priority Community interest" by the Habitats directive 92/43/CEE.
- Principle features
 - Bibliographical survey of the historical occupation of the park's hydrography by populations of this species.
 - Production of a protocol for identifying native and non-native crayfish prior to census work.
 - Ecological characterisation of zones suitable for reintroduction operations.
 - Selection of two zones for reintroduction – the two nature reserves in the park, Fontanile Nuovo and Sorgenti della Muzzetta.
 - Reintroduction in the autumn of 2002



Reintroduction zone in the Fontanile Nuovo nature reserve

- Results
Pour évaluer les résultats, réalisation de contrôles :
 - captures périodiques d'écrevisses ;
 - vérification de la dépose d'œufs ;
 - vérification du succès reproductif ;
 - vérification sanitaire.



Fontanile Boscana, in the Sorgenti della Muzzetta nature reserve

Potential for duplication:

The reintroduction of crayfish or other species is both feasible and justifiable on other sites. This does involve complex procedures, however; it requires preparatory research and a high level of follow-up. Prior to reintroduction it is essential to identify why the species was lost, and to verify that it will be able to survive on the site (size of habitat, food resources, competition with other species...). The proliferation of North American species often excludes any possibility of reintroducing the White-clawed crayfish.

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Modifications to the network of transmission cables

periurban natural spaces are often affected by power transmission lines: impact on the landscape, bird mortality (collisions), cost of vegetation control along the lines... There is often scope for modifying the layout and management of the lines taking the environmental dimension into account.

Example:

Miribel-Jonage Park, near Lyons, France

Description of the operation

The park is crossed by a large number of high-tension cables. One of these was due for reinforcement (taller pylons) in an especially sensitive area (crossing ecostrategic water courses). The electricity company EDF (Electricité de France) agreed to change its plans, after pressure from nature conservation organisations and action by the park itself.

- Aims

Reduce the environmental impact of the lines.

- Principle features

EDF looked at several hypotheses for redistributing the power to be provided across the existing grid. It became clear that many of the lines could be dismantled, if one of the lines in a less sensitive location was reinforced. The line causing most of the

problems was dismantled, under the assiduous surveillance of the park (organisation of the work, access routes...). Other measures have also been taken to reduce the impact of the lines: the use of spirals to avoid collisions with birds, less intense maintenance of the vegetation under the cables...

- Results

The outcome in environmental and landscape terms is very positive.

- Cost

The only cost to the park has been the significant amount of time required to obtain changes in EDF's plans.



Potential for duplication:

Improvements of this nature should be aimed for as a matter of course in sensitive periurban areas. They require major investment in terms of lobbying and negotiation.

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Bibliography, websites...

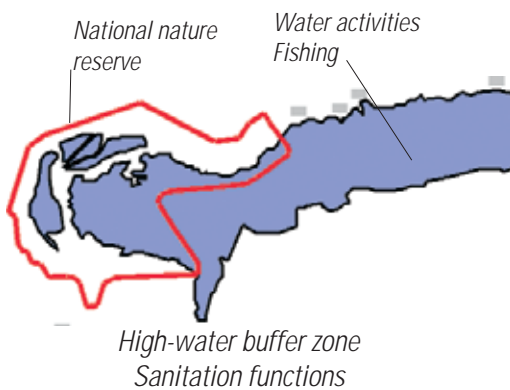
www.parc-miribel.fr

Collaborative lake management

Expanses of open water attract a variety of users (leisure activities, fishing...) and fulfil a number of important functions (biodiversity, flow regulation...). Their management can be handicapped by the conflicting requirements of their users. There is therefore a need for formal concertation procedures, to facilitate the management of water levels, for example, or to inform choices as to the geographical location of areas to be reserved for particular activities.

Example:

The lake at Saint-Quentin-en-Yvelines, France



Three of the main functions of the lake: fishing, biodiversity, recreation fishing, biodiversity and leisure activities

The 120 ha St-Quentin-en-Yvelines lake is the largest in France's Ile de France region. It is located in a new town of over 150 000 inhabitants and fulfils a number of functions:

- an expansion area for flood control, performing an almost completely natural drainage and cleansing function;
- maintenance of a high level of biodiversity (fauna, flora, habitats) of European importance
- (protected status at national level – national nature reserve);
- coexistence and development of fishing activities, water-based activities (leisure, competition, schooling), and environmental education activities.

The lake provides the central focus for the outdoor leisure area of Saint-Quentin-en-Yvelines:

- 600 ha in the town of St-Quentin-en-Yvelines
- a park providing recreational and landscape benefits, picnic areas, sports and outdoor facilities: a nautical centre, riding school, pool with wave machine, 3 golf areas, games, organised events, restaurants, accommodation, orientation course, tree trail
- environmental education (demonstration farm, national nature reserve)

Description of the operation

• Aims

Reconcile the development of a range of sporting and recreational activities (boating, fishing) with programmes to preserve a remarkable natural heritage, improve the quality of the water, and develop concerted management procedures for the water levels.

• Principle features : the history

- 17th century: creation under Louis XIV of the St-Quentin en Yvelines lake (reservoir for the Château de Versailles' water gardens).
- Fishing and hunting already present, as a household economic activity - Fishing association (1938).
- 1969: creation of the St-Quentin en Yvelines outdoor leisure area (1965: new base de loisirs concept, organised around lakes or stretches of water).
- 1986 (ministerial decree) creation of the national Nature reserve (official proposals date back to the seventies).
- Present day: an outdoor leisure area responsible for the management of

a national Nature reserve, a nautical centre of national and European stature, a fishing association recognised nationally.

• Difficultés encountered

- Before creation of the Reserve: conflicts of interest (an area of wilderness in a periurban environment earmarked for development (urbanisation & tourism / leisure activities).
- Over a period of some ten years: conflicting uses (sailing/nature reserve, fishing/sailing, fishing/nature reserve).
- Currently being assessed, or on the way to being resolved: inventory of the research available or required; request for clarification of the rights and obligations of the water users; impact of human activities upstream (agricultural and urban pollution).
- Strong and constant subordination to climatic events, resulting in significant rises in the level of the lake over the course of the year.

- Results

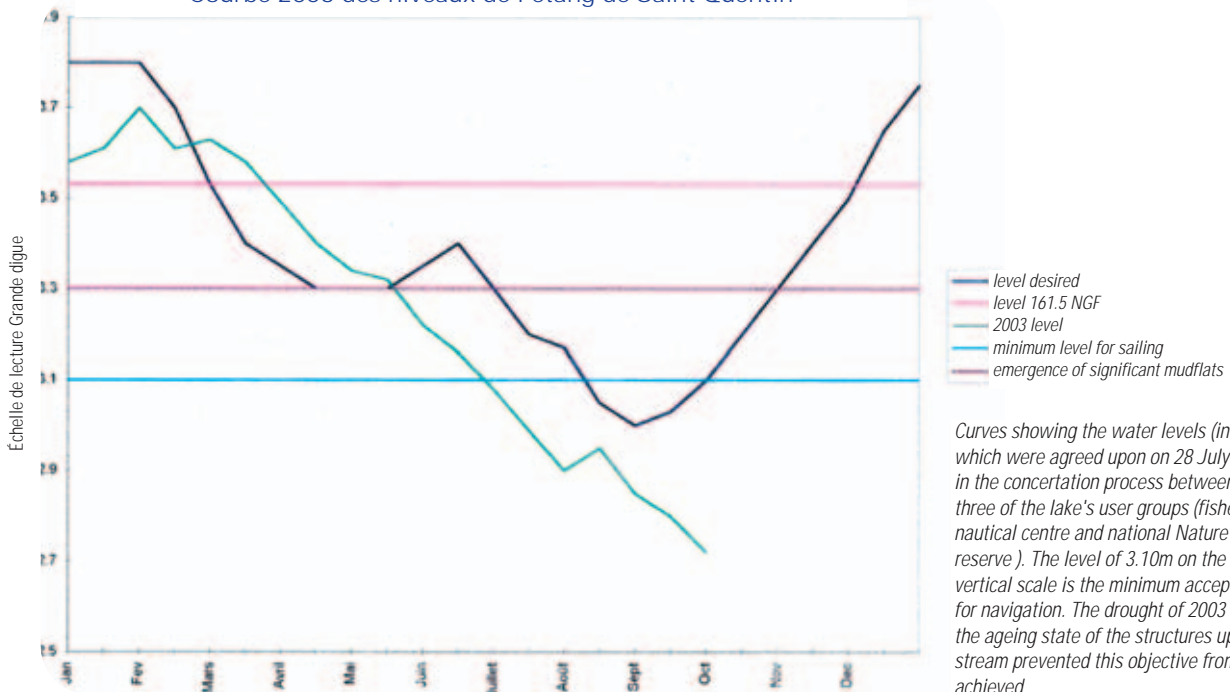
- The reduction, or even disappearance, of conflicts in use within the leisure area: users' compliance with boundary markers (buoys and signposting)
- Achievement of synergy in the organisation of sports activities, leisure activities and environmental education: (for example: Ecology with canoeing – Environment/sailing/nature programme – Boat festival - Plans for a fishing school,...)
- the achievement of synergy between management and scientific activities on questions of water management and the aquatic fauna and flora (an observatory monitoring the ecological and physico-chemical quality of the water, numerous meetings within the leisure area on the management of water levels, clean-up operations, improvements to the reproductive potential of the fish population, protection of species and habitat conservation (c.f. LIFE Blongios programme)

- raising of awareness with the local public and/or co-users on sustainable development and environmental issues
- (events such as the Science Festival, Ramsar Wetlands Days, the written press, films and documentaries,...)

- Cost:

- personnel, time, resources
- Nautical centre (7 full-time equivalents / 20 part-time and volunteers; several buildings (1000 m²); a fleet of ca. 130 small boats, catamarans, sailboards, canoes...)
- Fishing club (Club house 100 m²; 2 full-time equivalents; ca. 300 members)
- Nature reserve (Nature centre 200 m²; 5.5 posts)

Courbe 2003 des niveaux de l'étang de Saint-Quentin



Potential for duplication:

This type of operation is reproducible elsewhere, on condition that, from the beginning of the project, (a) efforts are made to bring together and reconcile structures and personnel competent in their domains but of different sensibilities and backgrounds, (b) precise specifications are established for clearly defined aims, taking into account the obligations and requirements of all the stakeholders, (c) the appropriate legal and programmatic resources are made available (regulatory provisions, environmental chart or protocol...).

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 Fax. 00 33 (0)1 30 62 91 72
 E-mail: bpal.stquentin@wanadoo.fr

Bibliographie

BOUCHY J-M., 2001. - Note sur la qualité des eaux et l'assainissement sur la base de loisirs de St-Quentin en Yvelines. 7p + Annexes.
 DONADIEU P., 1993. - Du désir de patrimoine aux territoires de projet. Ecole Nationale Supérieure du Paysage. 280 p.
 MORAND A. ET AL., 2001. - Plan de gestion 2002-2006 de la Réserve naturelle de Saint-Quentin en Yvelines. Final version. Working document approved by the consultative commission of 8 November 2001 and the Conseil National de Protection de la Nature on 16 October 2003. 89p + Appendices.

Public access to natural areas

Natural areas in the periurban environment are not easily accessible to the general public, particularly for those on foot or cycling. When it is possible it is not always pleasant, given the presence of motor vehicles for example. In such cases there is room for projects offering more agreeable and environmentally sensitive access facilities.

Example:

Collserola Park, Barcelona

- Partial pedestrianisation of the Alta de Roquetes road
- Partial pedestrianisation of the Rue Pau Vergòs
- Improvements to the Passeig de les Aigües
- Restoration of the old Montbau quarry

Description of the operation

The Collserola Park undertook a number of operations to facilitate access and improve the network of paths

• Aims

Improve public access to the Park

• Principle features

A number of landscaping projects

• Difficultés rencontrées

Lack of collaboration by the administrations
Slow progress, related to the complexity induced by the proximity of the town (supply of utilities: electricity...)

• Cost

- Partial pedestrianisation of the Route de Alta de Roquetes: 280 000 €
- Sale operation for the Rue Pau Vergòs: 160 000 €
- Improvements to the Passeig de les Aigües : 3 000 000 €
- Restoration of the old Montbau quarry 135 700 €



The Alta de Roquettes Road before and after pedestrianisation



Conversion of a quarry (left) into a visitors' centre

Potential for duplication:

This type of operation could be reproduced in a great many periurban areas.

Addresses

Consorci del Parc de Collserola
Crtra. de l'Església, 92
E-08017 Barcelona
Tel : +34 93 280 0672
Fax : +34 93 280 6074

Integrated management of services offered to the public

Periurban parks generally offer a wide range of services to their visitors: snack bars, restaurants, educational activities, bicycle hire... Such a range of services is rarely within the capabilities of park staff. At the same time the outsourcing of these activities to external providers is not always without problems: incoherence in the image of the park, poor coordination between actors... There is therefore a need for centralised organisation of these services.

Example:

Rome's RomaNatura Parks

Description of the operation

- **Objectif**

Provide a package of services for this town of 2.5 million: guided visits, environmental education activities, creation of a network of nature trails and information facilities for 14 protected areas.

- **Description**

Even when at full complement the RomaNatura park staff would not have the capacity to provide the range of services expected by the visiting public. A number of organisations were therefore selected by open tender (cooperatives, voluntary organisations, NGOs) from those already present within the protected area and interested in working with the parks authority on the organisation of facilities for the public. They are now allocated an annual budget for the provision of a variety of services in each reserve.

Selection was based on the quality of the management plan proposed. They are responsible for managing all the environmental education activities proposed to the general public and schools. They have established nature trails to be used for these activities and manage the visitor centres and programme of activities on offer.

- **Cost**

The funding of this operation, amounting to 230 000 € per annum, is integrated in the park authority's annual budget.

Potential for duplication:

This experience could be reproduced in other large-scale periurban areas.

Addresses

RomaNatura – Villa Mazzanti - Via Gomenizza, 81
00195 Rome,
Italy
Tel: +39 0 635 403 436
Fax: +39 0 635 491 519

Bibliography, websites...
www.romanatura.roma.it

Casa del Parco Park visitor centres

All parks should have one or several park centres where visitors can familiarise themselves with the site and the facilities available.

Example:

The RomaNatura "Casa del parco"

Description of the operation

- **Objectif**

Provide every protected area with a public visitors centre, via the conversion of ruined farm or other buildings situated in abandoned periurban areas.

- **Description**

A project was drawn up with the aim of providing the main protected areas in the vicinity of Rome with visitors centres offering activities to increase public awareness of environmental and conservation issues. Since these areas are located within the urban area it was decided to enhance their attractivity by ensuring that each centre be given a specific focus based on the natural characteristics of its territory. Over the last five years, four sites have been converted and opened as visitors centres to the public; three others are in conversion.

The farm buildings used belong to the municipality of Rome. They are managed by the park authority responsible for the development and monitoring of the projects. The funding required is provided in part by the municipality of Rome and in part by the region of Lazio.

The visitor centres and the environmental education activities focus particularly on programmes for schools. These, and the activities for a broader public including permanent and temporary exhibitions, have transformed what were areas of rural abandon into recreational facilities corresponding in every way to sustainable development criteria.

The four visitor centres currently in operation are:

- The Riserva Naturale della Marcigliana – Agriculture centre
- The Riserva Naturale della Valle dell'Aniene – River centre
- The Parco Urbano di Aguzzano – Ecology centre
- The Riserva Naturale di Decima Malafede – the Tower of Perna



Potential for duplication:

This approach is generally applicable and has been reproduced in many other parks.

Addresses

Ente Regionale RomaNatura –
Villa Mazzanti - Via Gomenizza, 81 - 00195 Rome, Italy
Tel: +39 0 635 403 436
Fax: +39 0 635 491 519

Bibliography, websites...

www.romanatura.roma.it

Demonstration farms

Many periurban parks run demonstration farms which give young urban visitors a glimpse of life in the country. Some of these farms play an educational role only, whilst others are productive farms with an educational dimension.

Example:

The RomaNatura network of demonstration farms

Description of the operation

The RomaNatura network of demonstration farms was set up to support the development of environmental education activities in the farms operating in the protected areas managed by RomaNatura.

All the RomaNatura parks belong to the network. They form an invisible link between the farms in Rome's protected areas which have in any case long been involved in environmental education. With funding of 360 000 € by the municipality of Rome 6 farms belonging to the project have been equipped with teaching facilities for school use, allowing school-children to participate in many of the activities of the farm. The farms now offer a personalised guided circuit with information boards providing visitors an insight into the traditional crops and livestock that have shaped Rome's agricultural landscape. A risk-free initiation into the mysteries of bee-keeping is possible, using bee-hives designed for teaching purposes.

Part of the budget has been allocated to ensuring that the farms can offer their visitors modern standards of safety and hygiene. In addition, those farmers receiving students on their farms have received advance training on a 136-hour training and refresher course organised by RomaNatura.

Finally, every visiting class is provided with interactive learning sheets based on the latest teaching techniques.

The students visit the farms and participate in the technical workshops organised (by reservation only). Workshop topics include:

- animal husbandry: looking after domestic animals, as an introduction to animal care
- biodiversity: species threatened with extinction
- waste and compost-making: compost-making demonstrations and recycling of waste
- cheese-making: the cycle from pasture to cheese
- honey: following the bees, from the flower to the honey
- olive oil: the production of olive oil, from the tree to the oil
- vegetables and vegetable gardening: the development from seed to plant, to the point where the vegetable arrives on the table
- bread: cereal production and transformation, from the seed to the loaf and other products
- from the egg to the hen: workshop on the life cycle of the hen.

Potential for duplication:

This approach can be extended to any areas with farms and farmers interested in the development of activities of this type.

Addresses

Ente Regionale RomaNatura

Bibliography, websites...

www.romanatura.roma.it

Temporary open-air exhibitions

An original way to make better use of periurban natural spaces consists in the organisation of open-air exhibitions covering aspects typical of the local environment. Such events attract the general public to areas close to home which were not necessarily known to them before.

Example:

Tours' Gloriette Plain, France

Description of the operation

The town of Tours organises exhibitions and public events every year on this periurban plain: vegetable garden exhibitions, art exhibitions, a pumpkin festival, a wind-energy event, woodland walks, waste recycling days, scarecrow competitions...

The site is thus becoming better known to the local residents and the development of the park progresses from year to year; at the same time the ecological rehabilitation of the site continues.



Potential for duplication:

This approach provides a particularly interesting model for the gradual and closely-monitored implementation of a conservation plan for a periurban space. It merits widespread generalisation.

Addresses

Services techniques de la ville de Tours
1-3, rue des Minimes - 37032 Tours - France
Tel.: 00 33 (0)2 47 21 60 80
E-mail: parcs-jardins@ville-tours.fr

Bibliography, websites...
www.tours.fr

Cultural and educational festivals

Festival-type events can be particularly valuable for the development of periurban natural spaces. They attract a broad cross-section of the public to the site; they familiarise the local population with its territory; they provide awareness-raising opportunities for a public less concerned by more traditional activities.

Example:

Le Mans' Forest festival of the Arche de la Nature, France

Description of the operation

The organisation Arche de la Nature of Le Mans organised its first forest festival in October 2003 in partnership with the French forestry authority the Office National des Forêts.

The festival focused on presentations of the forest flora and fauna, together with logging demonstrations.

• Aims

β - a presentation of various aspects of the timber industry (logging, milling, tree surgery ...).

β - discovery of the forest flora and fauna on the site;

β - organisation of a show about the wolf.

• Principle features

- an afternoon event (2 p.m. to 6 p.m.)

- participants followed a forest trail, along which the various events were organised.

• Difficulties encountered:

- contact with the various partners (professional and voluntary) involved in the event

- ensuring safety standards for the forestry-related activities.

• Results

- over 5 000 visitors over the afternoon.

• Cost

- 20 members of the Arche de la Nature team: 2 000 €

- wolf show and exhibitors: 3 000 €.



Forestry work demonstration

Potential for duplication:

This type of event can be reproduced elsewhere, as long as adequate safety precautions are taken and as long as the site available is sufficiently extensive to be able to accommodate all the forestry demonstrations.

Addresses

Arche de la Nature
Communauté Urbaine du Mans
Immeuble Condorcet
16, avenue F. Mitterrand
F-72039 Le Mans

Bibliography, websites...

www.arche-nature.org

Using organised events to raise public awareness

Organised events can be particularly useful as a means to publicise parks and improve relations between the various actors concerned.

Example:

The Turin Stretch of the Po River Park

Description of the operation

- Aims

Organised events can be particularly useful as a means to publicise parks and improve relations between the various actors concerned.

- Description

These are permanent promotional events

- the "National Regatta of the River Parks": the different teams responsible for managing the river parks get together for a competition with the rowing clubs of the protected area.
- Il Tempo del fiume: "River Time" - a mixed event aimed at encouraging cycling and horse-riding along the Pô, as well as promoting local specialities and the use of the river's attractions in general.

- Results

Nearly 3000 participants have been introduced to the river over 6 years as well as a number of activities organised in close collaboration with the rowing club.

- Difficulties

Funding problems.

- Cost

Almost 40 000 € per year.

Potential for duplication:

These events can be reproduced elsewhere; there is a similar approach on the Tevere.

Addresses

Office of the Po River protected areas – Parco Fluviale del Po - Tratto turinese
Cascina Le Vallere 98,
10024 Moncalieri (TO),
Italy
Tel +39 011642831
Fax +39 011643218
E-mail: parcopoto@inrete.it

Bibliography, websites...

www.parks.it/parco.po.to

Parks as centres of information on sustainable development

Periurban parks can operate as very effective centres of research and information on sustainable development issues.

Example:

The Ecosustainability laboratories in the RomaNatura Parks (Pa.Ro.L.E. project)

Description of the operation

This project was presented by Italy's regional RomaNatura organisation under the local Agenda 21 Programme it was funded by the Sustainable Development service of the Ministry for the Environment and by Lazio Region. The aim is to raise public awareness and improve the level of information available on nature conservation issues, the protection and conservation of the area's biodiversity and natural resources; the focus is essentially on the selection, orientation and promotion of "eco-compatible" services.

The project involves two different programmes, each designed for a specific clientele:

- Activity 1: a programme aimed at operators within the protected areas, managers of services, and those seeking to acquire specific skills; the main objective is to promote eco-compatible initiatives and facilitate the exchange of ideas amongst the operators themselves. This part of the project involves the organisation of a series of technical information seminars as well as web pages within the RomaNatura website providing information on Agenda 21 (www.romanatura.roma.it). It also includes an inventory of eco-compatible businesses and activities. The RomaNatura Mappa dei Servizi (list of services) brings to public attention over 100 establishments whose activity can be said to contribute to the sustainable development of the areas under protection.
- Activity 2: aimed (although not exclusively) at schools, this programme is designed to provide information and the promotion of good practices in the use of natural resources, and of water in particular. Over 3000 children have been able to participate, thanks to the opening of a centre providing didactic facilities for visits to the Aniene valley reserve, a programme of environmental education activities, and the distribution of a games CD.

Potential for duplication:

To generalise this type of programme a close study of local conditions is essential.

Addresses

RomaNatura – Villa Mazzanti - Via Gomenizza, 81 - 00195 Rome, Italy
Tel: +39 0 635 403 436
Fax: +39 0 635 491 519

Bibliography, websites...

www.romanatura.roma.it

Ecological monitoring programmes

Ecological monitoring programmes (habitats, flora and fauna) can be particularly valuable management tools. They can sound warnings as to the degradation of an environment, provide assessments of activity outcomes, or simply reflect a general image of the territory.

Example:

Ecological monitoring in Barcelona's network of nature parks

Description of the operation

The introduction of general ecological monitoring programmes for the network of nature parks under Barcelona Council management. The programme includes a number of sub-programmes for monitoring the physical environment (geology, hydrology, meteorology), the natural environment (flora, fauna, habitats, ecosystem) and the socio-economic context.

- Aims

Improve the protected area knowledge base, the detection of changes and trends over time, and evaluate and improve planning and management

- Principle features

underway since 1992

- Results

All the parks now work with a coordinated monitoring programme providing global reports on the state of the natural systems and allowing staff to evaluate the degree of coherence achieved in the planning and management process.

- Cost

Annual budget of 400 000 €

Potential for duplication:

This type of programme can and should be generalised across all suitable sites on the metropolitan outskirts.

Addresses

Carles Castell
Diputacion de Barcelona
Comte d'Urgell, 187
08036 Barcelona
Spain
Tel: +34 93 402 2896
Fax: +34 93 402 2897

Monitoring and evaluation

Periurban parks should be given constant monitoring and evaluation, using carefully chosen indicators. The examples below illustrate the various possibilities.

General framework

Evaluation is becoming an ever more essential procedure in the exercise of public policy; it provides not only a means of administrative and financial control, but also, and primarily, a tool for improving performance and outcomes.

The policy evaluation process can be structured in four distinct but interlinked levels.

- Studies

Studies can be said to encompass exercises aimed at improving the knowledge base; they are carried out at a specific point in time (distinguishing them from monitoring exercises).

- Monitoring

Monitoring is performed to identify trends in a policy/activity/practice/natural heritage...

- Evaluation

Evaluation involves interpretation of the data supplied by a monitoring exercise; it results in an appraisal of the pertinence, coherence, efficiency and yield of the aims and activities pursued, in the light of the results obtained.

- Controls

The final level of policy evaluation concerns the control procedures applied by the funding bodies to verify compliance with procedures or the proper use of funds.

Studies

It is essential, when establishing a park, to perform a number of studies based on existing data and covering all aspects of the project area. The results of these studies should be clearly organised (geographical information system, databases, ...) and presented to the different actors concerned (e.g. production of a park atlas).

This phase should be followed by regular studies aimed at improving and updating the knowledge base. The studies must be management-focussed and properly justified, with the possibility of sanctions by the funders.

Monitoring

Every park should establish its own territorial monitoring programme. The programme should be well-structured in order to avoid the risk of performing resource-demanding studies with little practical application.

Monitoring should cover a diversity of factors:

- the overall state of the site: land use, frequentation, biodiversity...
- the state of certain management parameters. A warning indicator (water level, for example) might be set to trigger a specific action (opening of a valve...).
- the state of progress of the activities underway. It is important to trace the progress of management operations and rehabilitation activities carried out in the park.

- the outcomes of activities: monitoring of indicators selected to evaluate the degree of success achieved
- the monitoring of the state of progress of activities

Successful monitoring depends on:

- the reliability of the indicators (see below)
- strict protocols capable of application from one year to the next.

Evaluation

Evaluation involves interpretation of the data. Several levels of evaluation can be distinguished:

- Appraisal of the area itself – in a park creation phase for example: what are the natural qualities and functions of the resource base?
- The park's activities should be evaluated at various levels:
 - pertinence - of the aims pursued
 - coherence - of these aims, both internally and with respect to the external policy environment
 - efficacy - of the activities undertaken: success or failure
 - efficiency - the relation between the efficacy of the activities and their cost.

Indicators

The entire monitoring and evaluation process should be based on the use of indicators. An indicator is "a conventional and symbolic representation, often numerical in form, of the state of the environment, of the pressures it is subjected to, or of the responses made to limit these pressures".

The indicators to be used must satisfy different criteria:

- Validity: a faithful and succinct representation of the object in view,
- Measurability: ready accessibility of the information, taking into account the time and cost factors,
- Clarity: simple to interpret, non-ambiguous,
- Coherence: both spatial and over time,
- Reproducibility: precise protocols are required to be able to make valid comparisons over time and space.

Several types of indicator exist, covering a variety of factors (see table below).

Thèmes	Types d'indicateurs	Exemples
State of conservation of a natural habitat	State indicator	Number of individuals of a species ... Surface area of the habitat ...
Conditions for survival of a habitat	Pressure indicators	Number of visitors/year to site Cultivated surface
Project management, administration and leadership	Implementation indicators	Number of meetings Time spent
Termination of activities	Termination indicators (financial, physical)	% of budget spent Surface area under contract
Success of activities	Response indicators	Diversity of flora (control plot/managed plot comparison)

It would not be appropriate here to draw up a list of the indicators to be applied to PNAs, given that indicator selection depends on the specificities of each site. It is possible, however, to present a small

sample suitable for monitoring their management and the extent to which they are fulfilling their functions.

Indicators for monitoring the functions fulfilled by periurban natural spaces	
Function	Possible indicator
• Environmental functions	
Flood control	Flow reduction for a hundred-year flood (difference between flow at entry and flow at exit) Surface area of the flood plain for a given set of flood levels
Pollution or soil nutrient control	Nitrate levels in water Other types of pollutant or nutrient could be monitored, but this often involves costly analyses.
Carbon fixation in soil or biomass	This function is difficult to evaluate and monitor at PNA scale. More global approaches are preferable (based on the surface area of the site, for example).
Oxygen production	See above
Stabilisation of the micro-climate	Temperature and rainfall averages Number of days of frost
Erosion control	Monitoring of land use in erosion-prone sectors
Noise abatement	Noise levels
Biodiversity	The number of species present (principally higher plant and vertebrate species) is a good indicator for characterising an environment. The quality of an area can also be assessed on the basis of the number of species and remarkable habitats it contains (those cited, for example, in European Directive appendices). The regularity of site monitoring depends on the choice of more easily obtainable indicators: standardised inventories of the flora, bird species, aquatic invertebrates Various indices can be used to describe the diversity or originality of a population.
• Social functions	
Recreation	Annual number of visitors. Maximum number of visitors. These figures can be obtained in a number of ways: automatic counters on pathways or vehicle counts at car parks, followed by extrapolation...
Sport	Number of club members Counting operations for open-air sports
Leisure fishing	Number of members of fishing clubs Counting operations
Hunting	Number of members in clubs Number of hunt days. Hunting crops (number of animals killed in the season)
Nature observation	Number of visitors at observation points
Educational activities:	Number of people benefiting from the programme
Contribution to urban equilibrium	Difficult to quantify (surveys)
Effect of a green belt across the urban landscape	Index of the extent of the belt(s), calculated using aerial photos
Impact on citizen's sense of identity	Visitors' views on natural areas (survey)
Impact of the environment on health	This is a factor to be investigated at metropolitan level and not on a park scale (epidemiology)
Landscape	Very difficult to quantify
Cultural and historical heritage	Number and state of the examples on the site
Scientific research	Number of scientific articles published

• Economic activities

Production and storage of drinking water	Volume of water harvested on the site. Number of persons supplied
Agriculture	Area under agriculture. Number of farms. Annual production
Sylviculture	Surface under woodland. Volume of timber harvested.
Professional fishing	Number of fishermen. Annual production
Tourism	Number of visitor nights. Number of visitors to tourist sites. Turnover of tourist businesses
Quarries, mines	Volume extracted. Surface area involved.
Energy production	Annual electricity production
Enhancement of the image of urban areas or their businesses	Survey of regional businesses and local politicians

• Receiving environments

Discharge and deposits	Number and volume of discharges
Transport corridors	Transport system length. Average number of vehicles/day
Transport of energy and fluids	System maps of power lines and pipelines
Telecommunications	Number of antennae
Strategic and military activities	Surface area involved

Park management indicators (examples)

Object	Possible indicator
Health of the park	Average water levels. State of the vegetation cover
Population pressure	Annual number of site visitors per hectare
Law-breaking activities	Number of offences observed
Level of development of the park	Ratio between surface areas of developed and non-developed area
Naturalness of the plant populations	Ratio between total exotic species and total plant species
Public awareness of the park	% of the local residents aware of the existence of the park. Number of e-mails received by the park per year. Number of scientific articles published about the park.
Commercial activities	Turnover, annual profits
User satisfaction	Rate of satisfaction of visitors as to facilities available at the park. Fidelity index for paying users
Reactivity of the park	Average response time for park to respond to questions posed by users
Organised events	Number of events organised in one year and number of participants
Ecological management of the different areas	Comparison between the vegetation in managed zones and that in control zones. Surface area managed. Number of trees planted

Addresses

Milan's Parco Nord is working with a significant array of indicators.
Tomaso Columbo
Parco Nord Milano
Via Clerici 150 Sesto San Giovanni
20099 Sesto San Giovanni
Tel : +39 0 2241 0161
Fax: +39 0 2241 016220
Milan, Italy

Bibliographie, sites web...

RESPECT 2000. Environmental performance references for European local authorities. User manual.
RESPECT 2000 is the result of a LIFE project run by various European towns. It presents a variety of indicators for the urban environment context.

Sharing management experience of periurban natural spaces

The management of periurban natural spaces requires a very specific approach, which is complex and often lies outside the daily experience of managers of city parks or more natural landscapes. It is particularly important therefore for managers of periurban areas to meet and exchange experiences.

Example:

FEDENATUR

Description of the operation

FEDENATUR is the European Federation of Metropolitan and Periurban Natural and Rural Areas. Its principal objective is to further the exchange of technical knowledge between managers and technicians of periurban natural spaces.

• Aims

Further the exchange of technical knowledge between managers and technicians of PNAs.

• Activités

- Twice a year a technical workshop is held in one of the member parks with a different topic on the agenda for each occasion. Each park contributes with its own particular experience and viewpoint.
- Fedenatur has also organised a number of international conferences aimed at a broader audience than the member parks.
- Publications and technical studies have been produced.
- Field visits and exchanges between technicians, giving practical insights into the activities run by the different parks of the federation.
- Documentation on Fedenatur's activities, and publication of a website.

• Difficulties

- The need for simultaneous interpretation, adding significantly to the costs.
- It is not always possible for those concerned to participate in the workshops, for financial reasons.
- The countries of central and northern Europe are currently under-represented in the federation.

• Results

Several publications have resulted from these meetings:

- Three European Symposiums on the theme of Metropolitan Natural Areas

- II Symposium international de Barcelone¹, October 1995.
- Colloque des entretiens Jacques Cartier², Lyons, December 1999.



- III Symposium international de Barcelone³, March 2003.
- **Special topic days at the Fedenatur meetings:**

- ENP : instruments de sensibilisation à l'Environnement, Aix en Provence, mai 1998⁴
- Les projets d'usage public dans les ENP, Vitoria, mai 1999⁵
- La Fréquentation et la Communication dans les ENP, Strasbourg, avril 2000⁶
- Les Équipements d'accueil du Public et la participation des Citadins, Mataró, octobre 2000 - The conception and management of public fostering equipment⁷
- La Frontière entre la Ville et la Campagne, Milan, avril 2001 - The margin between the city and the country⁸
- Les Espaces Naturels Périurbains, dans les politiques urbaines et métropolitaines, Barcelone, octobre 2001⁹
- La sécurité dans les espaces naturels périurbains, Lisbonne, 2002¹⁰
- L'éducation à l'environnement, un enjeu primordial pour les parcs naturels périurbains, Le Mans, 2003¹¹



Visit to Milan's Parco Sud

• Annual costs

2001 : 69.387,79 €
2002 : 38.575,26 €

These costs cover the following:

- Technical secretariat
- Simultaneous interpreting
- Travel and accommodation
- Reports: translation, editing, publication
- Website

1 Second International Barcelona Symposium

2 The Jacques Cartier discussions Colloquium

3 Third International Barcelona Symposium

4 PNAs: instruments for raising environmental awareness, Aix en Provence, May 1998

5 Projects for the development of public facilities in PNA, Vitoria, May 1999

6 Public use and Communication in the PNA, Strasbourg, April 2000

7 Laisser l'anglais ou le français? (D'ailleurs "public fostering equipment" est très étrange en anglais.)

8 ibid

9 Periurban natural spaces in urban and metropolitan policy, Barcelona, October 2001

10 Security issues in periurban natural spaces, Lisbon, 2002

11 Environmental education, a major issue for periurban parks, Le Mans, 2003

Potential for duplication:

The network aims to cover the whole of Europe.

Addresses

FEDENATUR - Crtra. de l'Església, 92
E-08017 Barcelona, Spain.
Tel: +34 93 280 0672
Fax: +34 932 806 074
fedenatur@amb.es

Bibliography, websites...

www.fedenatur.org