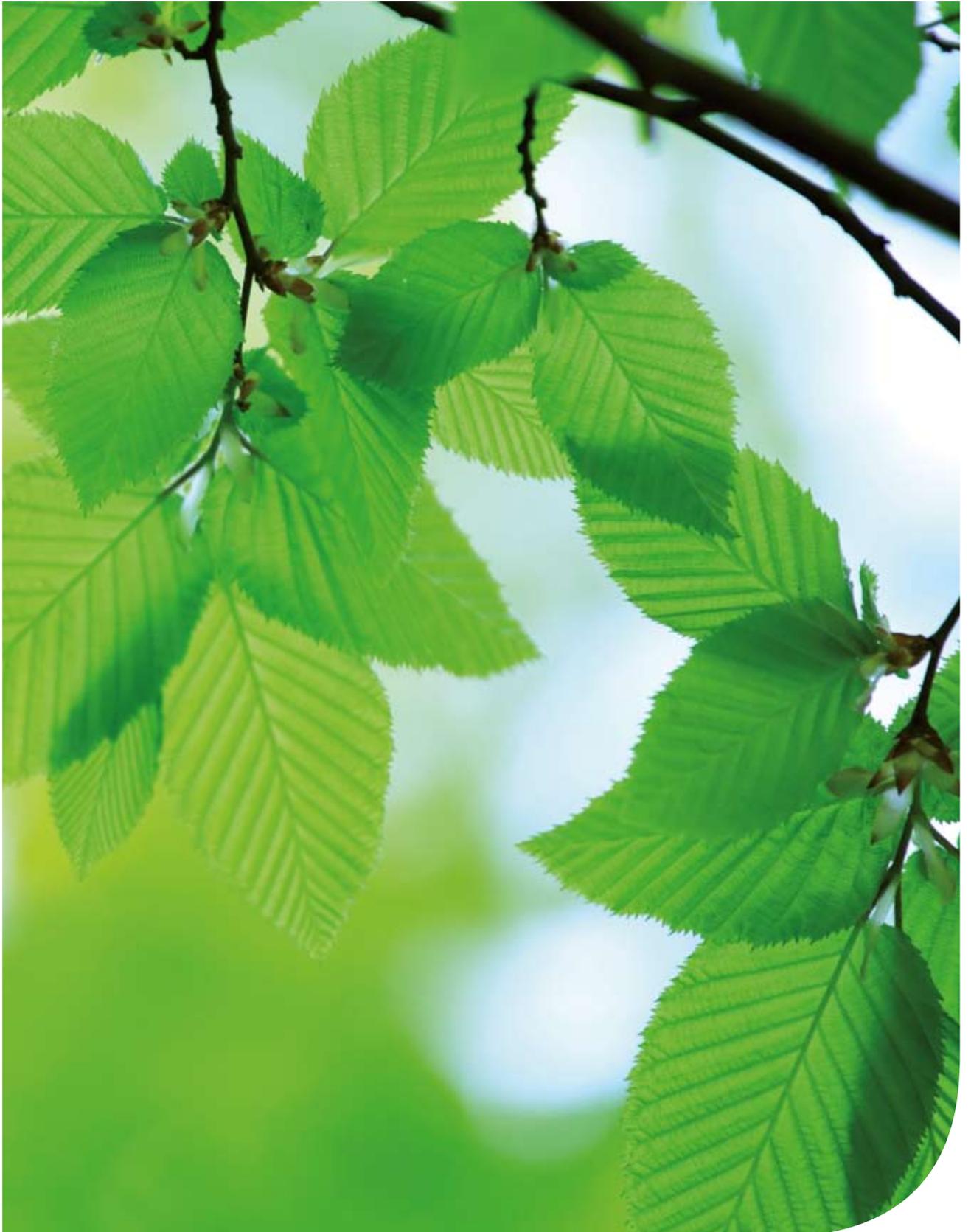


Environmental and Landscape Planning
The Ecological Foundation



Environmental and Landscape Planning

The Ecological Foundation



Sustainable land use and development require landscape and environmental planning methods to protect and maintain our natural resources.

Large infrastructure and building projects cause impacts on natural resources and require complex environmental planning efforts, environmental impact statements, special species protection

studies as well as environmental compensation plans in order to fulfill all environmental requirements. Conserving an environment worth living is part of the responsibilities of planners and engineers. Our team embraces this responsibility and ensures that ecological principles are integrated in our work as engineering professionals. In this way a significant contribution is made to the quality of our results and the satisfaction of our clients.

Prof. Schaller UmweltConsult GmbH

After twenty-five successful years, in the spring of 2009 the Planungsbüro Prof. Dr. Jörg Schaller changed its name to "Prof. Schaller UmweltConsult GmbH". Prof. Schaller continues to manage the company, as shareholder and director, together with the new partner SSF Ingenieure GmbH.

In addition to its head office in Munich, the company has two branch offices in Kranzberg and Freising (Bavaria).

By integrating all the consulting engineers' businesses into the new company, the future of the Planning Office has been secured, with improved and strengthened human resources and technical equipment. Furthermore, new integrated services covering civil engineering, landscape and environmental planning, as well as expert ecological reports and expertises on environmental matters can now be offered to the clients.

Thanks to the partners' many years of experience the new company with its experienced staff will continue to carry out projects in a highly qualified, professional, competent and efficient way.



Dr. Johannes Gnädinger
Director, Landscape Architect
Town Planner

Dipl. Ing. Helmut Wolf
Financial Director

Prof. Dr. Jörg Schaller
Shareholder and Director, Landscape Architect,
member of the BAK (German Architects Association),
sworn expert (for Landscape Ecology and
Nature Conservation).



Expert Ecological Statements

Every planning measure changes the environment. Determining the intensity and the consequences of these changes is one of the major services we provide. In the case of large projects, environmental expert reports are written and studies are carried out to support decisions on possible planning alternatives. Important basic information is prepared and made available to the project

executor and the authorities concerned. In the case of complex environmental consequences, as for example those concerning water ecology arising from the release of cooling water from a power plant, the project approval procedure is accompanied by environmental reports prepared by our experts, including officially authorized professionals.

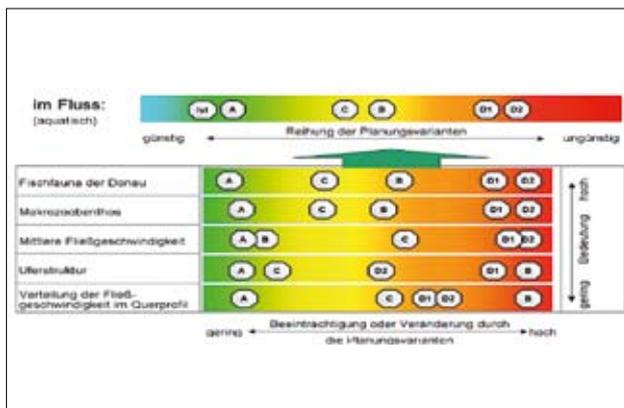
Feasibility study for river construction of the Danube on the section Straubing - Vilshofen

Aim: evaluation of the expected environmental consequences of five alternatives for river training of the Danube intended to improve the river's navigability.

Methods: the area of investigation was a 70 km section of the Danube, including floodplains and alluvial forests, in a total area of 250 km². The ecology of the floodplain and various aspects of the water ecosystem, its vegetation and wildlife were investigated considering the expected changes to groundwater levels and runoff speed.

Results: the environmental study was used as a guide in decision support for further planning.

Assessment of impact levels caused by the five alternatives (basis of comparison: status quo).



Client: Federal Republic of Germany represented by RMD AG, Munich



Figure: 3D GIS visualisation; status quo (above); alternative with a bypass channel (below)



Expert Ecological Statements

Consultancy services for the authorization process for planning and monitoring the Irsching gas and steam power plant, blocks 4 and 5

Aim: investigation of potential impacts of a new power plant in Irsching on the ecological system of the Danube River.

Methods: the decisive environmental factor of running a new gas and steam power plant is the rise in river temperature caused by the release of cooling water. A specific monitoring program continually measures the changes in temperature and oxygen content of the Danube and the effects of river warming and cooling due to the power plants' operating conditions.

Results: development of a cooling water management software to ensure that the authorized limits are not exceeded.

Twelve automated measurement instruments were installed at the official measurement locations for monitoring changes in temperature and oxygen content before and after the input of cooling water.

Client: E.ON Kraftwerke GmbH, Hannover



Installation of new measurement equipment (above);
E.ON power plant (below)



Ecological Expert Statement on water environment for the Environmental Impact Study of the Staudinger coal power plant, block 6

Aim: evaluation of possible consequences to the water ecosystem, taking into account the conditions for approval set by national environmental law and the requirements of the EU Water Framework Directive.

Methods: preparing an expert statement on the water environment concerning hazardous freight and biotic elements of the River Main.

Results: favourable conclusion of the regional planning procedure; opening the planning procedure for obtaining approval.



Fish population investigations and ecological structure mapping were carried out in the neighbourhood of the Staudinger power plant (right).



Client: E.ON Kraftwerke GmbH, Hannover

Expert Ecological Statements

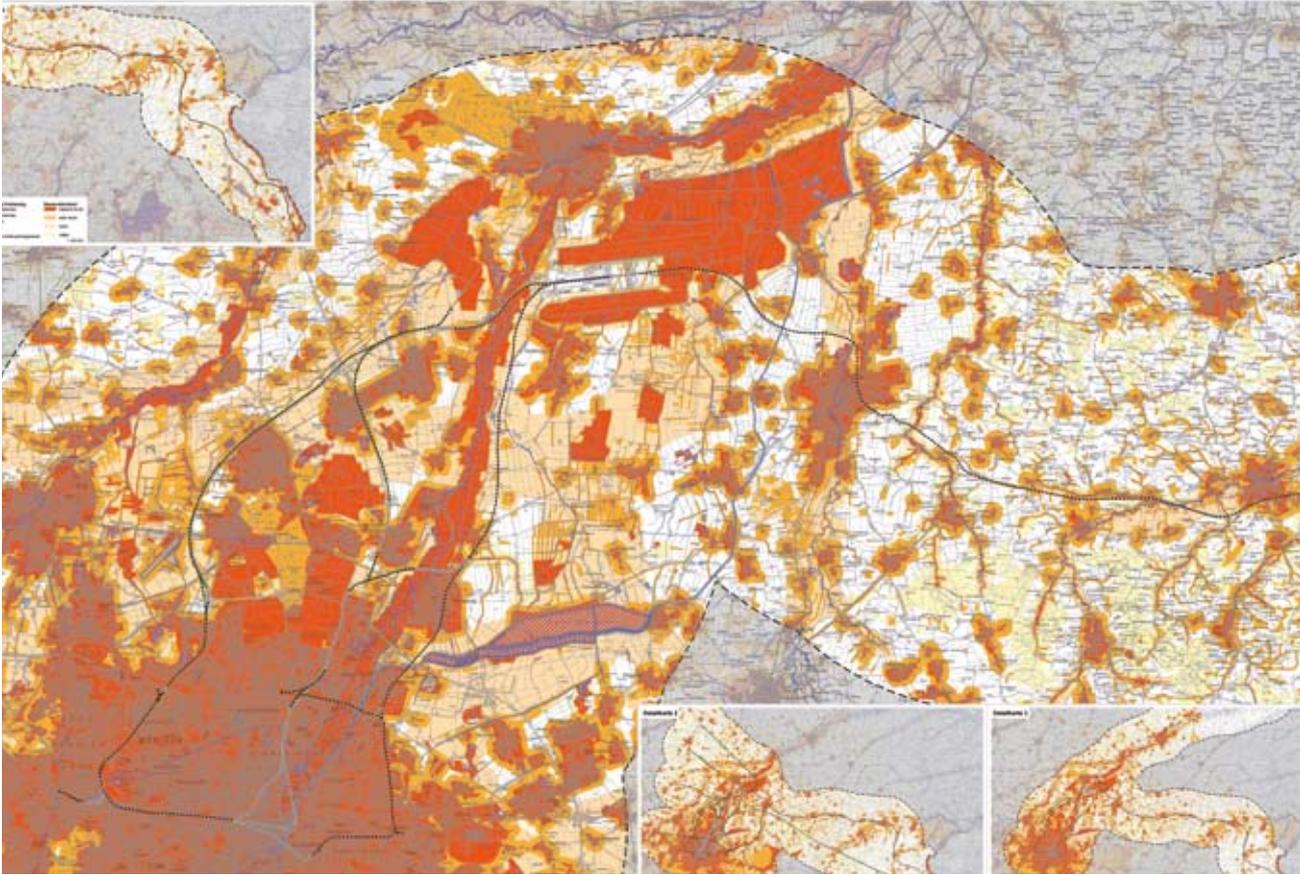
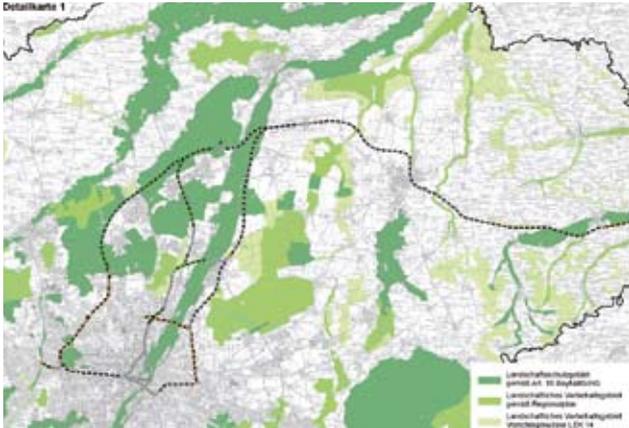
Expert Infrastructure Statement – Feasibility Study Rail connection to the Munich airport

Aim: development and evaluation of alternatives to improve the rail connection to the Munich airport, and development of plans for the various alternatives.

Methods: evaluation of the environmental sensitivity of the region by determining ecological constraints based on the sensitivity of natural resources and other land use requirements, in accordance with the German environmental assessment law.

Results: comparison of the compatibility of each planned route with the region's natural resources and quality of live.

Example: basic data of protected landscape areas (right)
Environmental sensitivity map of the Munich Region (section, below)



Client: Bavarian State Ministry for the Economy, Traffic, Infrastructure and Technology. Contractor: SSF Ingenieure GmbH, Ingenieurbüro H. Vössing GmbH, GRE-Gauff Rail Engineering GmbH & Co. KG. Environmental aspects: Prof. Schaller UmweltConsult GmbH on behalf of SSF Ingenieure GmbH.

Geographic Information Systems (GIS)

All engineering and environmental plans are related to space; hence geographic information systems are indispensable tools for carrying out environmental planning. By using GIS, not only plans or drawings are recorded electronically, as is the case of CAD, but the complete attributes of the technical planning and the environmental information are stored and maintained in a fully accessible spatial database. Consequently this technology enables compre-

hensive regional analyses and model applications, as for example related to air or noise pollution, changes in groundwater level, etc. Within the scope of our project and research work in over thirty-five years we have dealt with the use and application of GIS for environmental and landscape planning issues. When doing so we always use the latest ESRI GIS technology, often developing our own processing methods and models to go with it.

Pilot project: high water simulation of the Danube barrage in Donauwörth

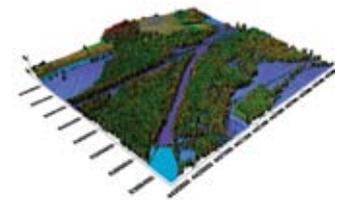
Aim: data collection from digital terrain models (DTM), hydraulic model calculations (flooding simulation; base data: highly precise laser scanning data).

Methods: using a multi-step GIS-based application and a thinning out procedure, a manageable data volume of around 100,000 laser data points was extracted from a total of 3.5 million points without losing precision. Break lines were generated with the help of the DTM.

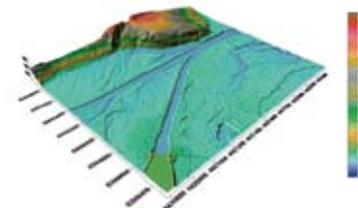
Results: when using an acceptable volume of data, the laser data processed in this way reveals higher accuracy than with conventionally generated photogrammetric data.

Client: Bavarian Board for Water Supply and Distribution, Munich.
© Bavarian Board for Water Supply and Distribution

Digital surface model (DSM)



Digital terrain model (DTM)



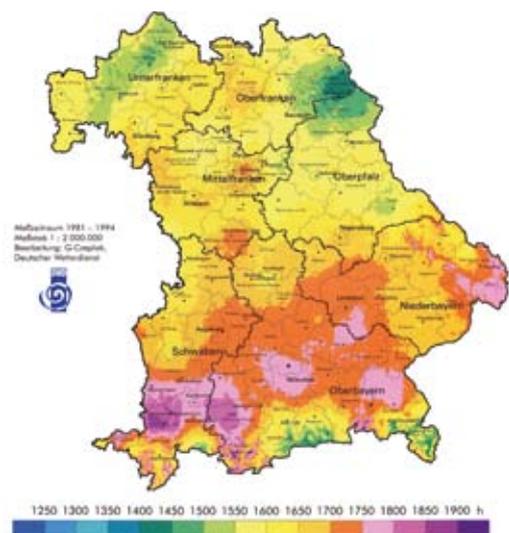
GIS cartography Bavarian solar and wind atlas

Aim: new edition of the solar and wind atlas, with 32 thematic maps published by the Bavarian State Ministry for the Economy, Traffic and Technology.

Methods: for this new edition of the atlas, the maps used as key information were revised by the Planungsbüro Prof. Schaller. The basic data supplied by the German Weather Service were converted using ESRI GIS technology and then cartographically processed for the themes global radiation, hours of sunshine in given periods, and wind speeds.



Client: UET GmbH on behalf of the Bavarian State Ministry for the Economy, Traffic and Technology



Hours of sunshine in Bavaria – mean annual number of hours of sunshine

Geographic Information Systems (GIS)

Site analysis for photovoltaic plants in the community of Moosinning (Bavaria)

Aim: determining the most favourable sites for free standing photovoltaic systems using GIS technology and taking into account the aspects of landscape and effective urban planning.

Methods: this involved the following 3 steps:

1. Analysis of environmental and human constraints (environmental sensitivity analysis)
2. Determining areas with the lowest constraints due to environment; determining and evaluating the most suitable sites and their dimensions
3. Selection and detailed investigation of the most appropriate locations; final selection together with the stakeholders



Results of the environmental sensitivity analysis



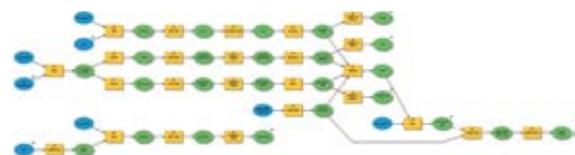
Client: the community of Moosinning

Regional concept for using wind energy

Aim: decision support for the regional allocation of sites most suitable for wind energy plants.

Methods: development of GIS-based models to select suitable sites by applying common selection criteria, which are also applicable to other regions. "ModelBuilder", a component of the "ArcGIS 9" software, was used. Criteria for excluding particular areas were, for example, their minimum distances to built-up areas, traffic routes, airports, above-ground cables and radio relay links, areas with a particular protective function, e.g. against flooding, protective forests, biotopes, nature reserves, waters, water protection areas, areas reserved for the exploitation of raw materials, etc. A 65% efficiency factor related to wind strength was also chosen as a criterion.

Results: after applying the exclusion and restriction criteria to the full extent of the region, a potential area for efficient wind energy plant of approximately 0.3% of the total regional area was determined.

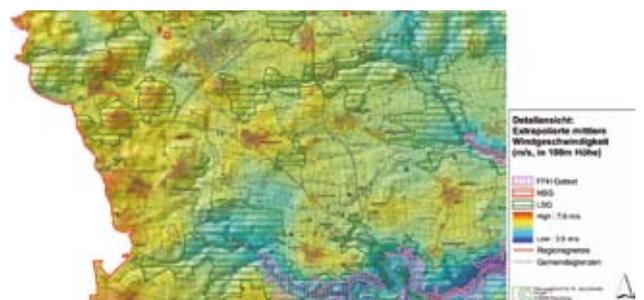


ESRI ModelBuilder diagram (GIS processing model for site analysis)



Methodology and approach used

Client: Danube / Iller Regional Planning Authority



Calculated wind speeds at a height of 100m above ground level from data provided by the German Weather Service

Regional Landscape Planning, Public Relations

Many local planning projects must observe regional requirements like those concerning traffic routes, green belts, large areas for which particular types of use have priority, such as drinking water protection or nature reserves. Hence regional planning for several municipalities yields concepts for a whole region and establishes areas for which particular types of use have priority or are the only ones allowed. The requirements of nature and environment and the sustainable use of the available resources have to be in-

tegrated in the overall regional planning. Consequently regional landscape development concepts are prepared as a foundation for regional planning decisions. An important aspect in this case is the extensive public relations work, i.e. the planning results must be discussed in the councils and committees of the communities, with the regional planning authority and with the general public, and then be accepted as obligatory by the communities of the region.

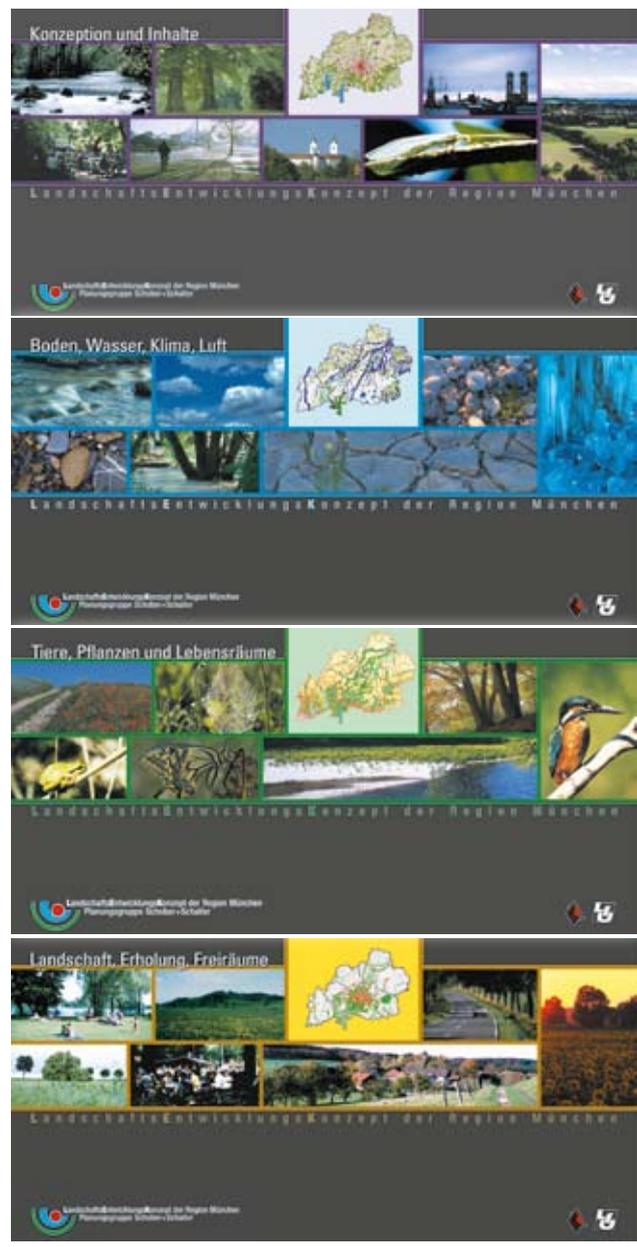
Landscape development concept in the Munich region

Aim: landscape development concept as a comprehensive concept of nature and resource conservation for an environmentally sustainable development of the region.

Methods: generating and analysing an uniform geo-database with all available data regarding nature and landscape of the region with the help of a geographic information system (GIS); use of new GIS technologies (ArcGIS ModelBuilder).

Results: landscape development concept for the Munich region, expert statement with 580 pages, 27 thematic maps concerning natural resources, land use, conflicts in usage, recommendations and packages of measures with photographic documentation.

In collaboration with Dr. Schober Gesellschaft für Landschaftsarchitektur mbH, Freising. Contractor: Planungsgemeinschaft Schober - Schaller. Client: Government of Upper Bavaria



Public relations as an important component of the successful implementation of the landscape development concept: informative and illustrative series of postcards



Environmental Impact Studies and Statements

In accordance with the German environmental impact assessment legislation, the potential consequences of a project to the environment have to be determined by an environmental impact assessment, and also described and evaluated in good time and comprehensively before the decision is made on the permissibility of the project.

The environmental impact assessment is based on an environmental impact study and other project documents.

Projects of a particular extent, as for example building airports, traffic routes or industrial plants, are required to carry out an environmental impact assessment within the planning procedure. A

list of the legally protected environmental goods (people, animals, plants, soil, water, air, climate and landscape, cultural assets and material goods, as well as their interactions) are drawn up based on the results of special expert statements and generally available information/data.

Within the environmental impact study the effects of the planned project on the entire environment and the subjects of environmental protection are determined, described and evaluated. Moreover the interactions between all of these aspects are investigated and possible measures for avoiding, reducing and compensating are developed.

Environmental impact study with integrated risk assessment for the European Habitats Directive (Flora / Fauna Habitats Directive) River construction of the Danube between Straubing and Vilshofen: regional planning procedure

Aim: three separate environmental impact studies for various river construction alternatives, as well as for implementing comprehensive flood protection for residential areas and important infrastructure to cover the worst flooding conditions which could occur over a period of one hundred years.

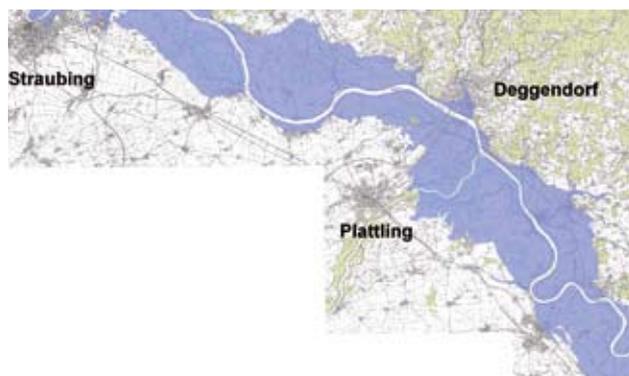
Methods: balancing the pros and cons of following land flooding protection measures: raising the elevation of existing dams or construction of new dams on certain sections set back from the river and as near as possible to protected areas.

Risk assessments related to the European Habitats Directive (FFH) and the European NATURA 2000 Bird Protection Directive.

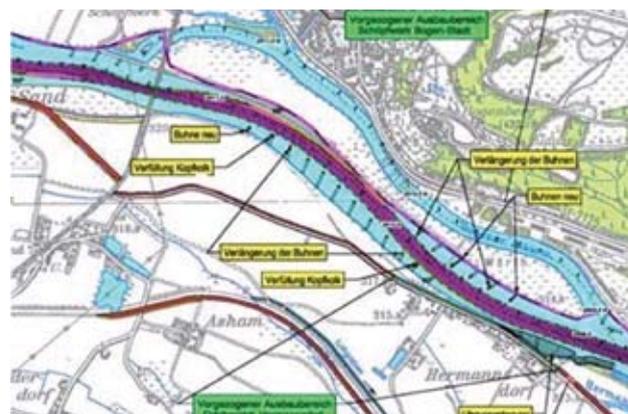
Results: proposal of limitation and mitigation measures and any other measure needed to ensure coherence between the various flora/fauna habitats.

Client: the Federal Republic of Germany represented by RMD AG, Munich

Example of planned construction measures (river dam extensions) as part of the river-related construction operations (below; in the photo above schematically extended)



Currently endangered areas exposed to a 100-year-flood



Environmental Impact Studies and Statements

Ecological evaluation of the route options for the new A94 motorway

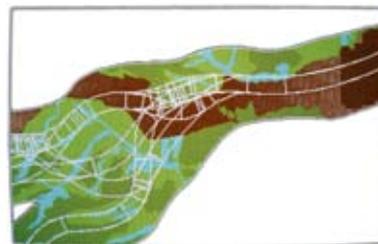
Aim: ecological evaluation and assessment of the route options for the section of the new A94 motorway between Forstinning and Ampfing.

Methods: collection of the relevant abiotic, biotic and current land use data, and entry of this data into a GIS. Development of an area-related and GIS-supported evaluation methodology, which considers the natural features of the investigated area, the sensitivity of the natural resources, and the extent of the area required.

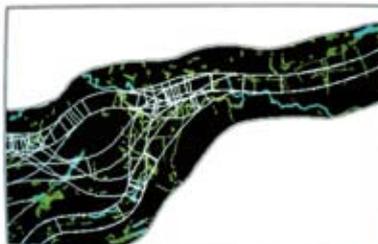
Results: the findings of the relevant expert statement and the comparison of various options served as basis for the decision on the final route of the federal motorway.

Client: Motorway Authority of South Bavaria

Ecological site sensitivity



Evaluation of the affected vegetation



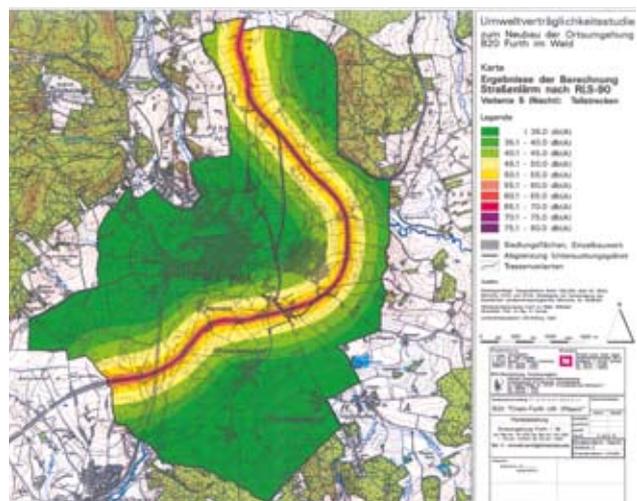
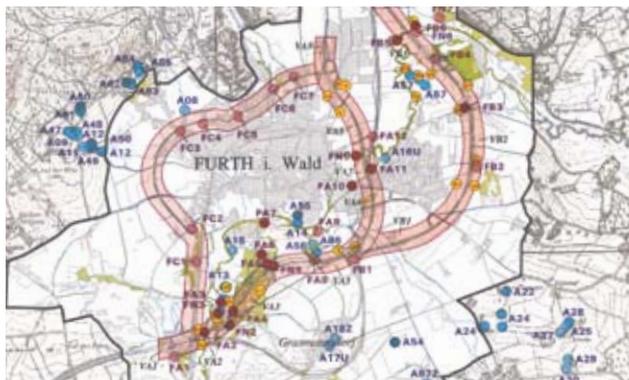
As early as 1984 environmental impact studies were carried out with the support of geographic information systems.

Environmental impact study and supplementary landscape management plan for the B20 bypass around Furth im Wald

Aim: construction of the new highway bypass around Furth im Wald – environmental impact study for seven road routes.

Methods: during a scoping meeting the effects of the individual planning options for the selected route were reviewed in terms of environmental protection, in accordance with the environmental impacts law.

Results: in the supplementary landscape management plan, measures for compensation and mitigation of impacts on the landscape were devised, in accordance with the [German] conservation law.



Calculation of noise levels for one option (above), comparative evaluation of flora and fauna (detail, left).

In collaboration with Michael Luska and Frank Karrer, landscape architects in Dachau, and GISCON, Schweitenkirchen. Client: Highway Construction Authority, Regensburg

Landscape Management and Compensation Plan

The Landscape Management and Compensation Plan is required as a specialized contribution to the planning procedure, as one of the planning documents required for approval of the construction project. The purpose of the plan is to deal with the regulations applying to the effects of impacts on nature. The plan relates to the

various natural resources (animals, plants, soil, water, climate, air) and the overall landscape. Considerable and lasting impairments of the balance of nature and the landscape are determined. Possibilities of avoiding these impairments are reviewed and any required compensatory measures are determined.

Magnetic levitation train (Maglev) between the city of Munich and the Munich airport

Aim: two landscape management plans were produced for two sections of segment 3 (Isar crossing and Munich airport) based on standard nature protection and railway laws and regulations

Methods: development and presentation of suitable measures for avoidance and mitigation of impacts on the natural environment and the landscape; determining compensation and substitution measures for unavoidable and irreducible impacts according to the German Conservation Law.

Results: landscape management plan as a document for obtaining the planning permission.

Client: Bavarian Maglev preparation company (later on: DB Magnetbahn GmbH)



Subjects for environmental protection: animals and plants – conflict analysis (detail, above)

Compensation and substitution measures for the landscape management plan (left)

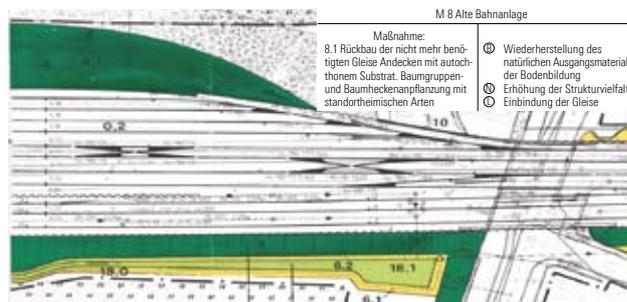
ICE route between Nuremberg and Munich

Aim: landscape management plans for different sections of the new fast train line between Ingolstadt and Munich.

Methods: a concept for the landscape was initially developed along with guidelines designed by the planning engineers. Measures for conflict reduction and compensation of the impacts were discussed and agreed with the responsible authorities, with a comparison being made of the determined impacts and the corresponding compensatory measures.

Results: within the framework of the planning approval procedure various specialist opinions were processed and the supplementary plans for conservation measures were presented and discussed in various hearings.

Client: DB Projektbau GmbH, Niederlassung Süd, Southern Branch Office



Supplementary compensation and design measures along the railway lines (example)

European Flora Fauna Habitat (FFH) Impact Studies

Whenever European nature reserves (NATURA 2000 sites) could be affected by planned construction measures, environmental impact studies with respect to the habitats of flora and fauna (FFH or Flora Fauna Habitat impact study) must be carried out during

the planning process. Special habitats and species of European reserves determine the goals or the conservation and ecological functions of the area. Special studies are required to identify and evaluate possible effects on the types of habitat.

Maglev link between the city of Munich and the Munich airport ICE route between Nuremberg and Munich (Paar crossing)

Aim: during the investigation concerning a Maglev link between the Munich airport and the city of Munich, and an upgrade of the Ingolstadt to Munich ICE section, it was established that nature reserves would be crossed. In face of possible impairments of the European NATURA 2000 sites, special impact studies were carried out according to the European Habitats Directive, including the determination of the initial situation and evaluations in accordance with the relevant guidelines and standard maps.

Methods: the Flora Fauna Habitat (FFH) impact study was carried out according to the "environmental guidelines for planning and planning approval in accordance with railway law". The official guidelines for FFH impact studies for federal roads were applied.

Results: in the surrounding area of the Isar crossing (of the planned Maglev route), considerable potential impairments to the habitat of characteristic animal species (bats) in two types of river woodland habitats were identified, although direct impairment of the habitats softwood riparian forest and hardwood floodplain forests was low. By planning suitable and effective damage limitation measures—taking account of the current state of scientific knowledge—the potential damage was minimized.

For the ICE route section, the FFH impact study identified no potential significant effects arising from the project.

Client: DB Magnetbahn GmbH, DB Projektbau GmbH, Southern office (ICE).



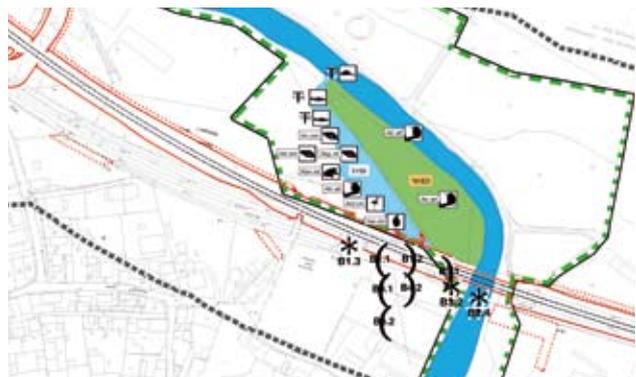
The planned Maglev would have crossed among other places the European FFH protected site "Isar floodplain from Unterföhring to Landshut".



"Natural" damage caused by beavers in the nature reserve



FFH sensitivity review conflict map (section, Isar floodplain)



FFH sensitivity review conflict map (section, Paar river floodplain)

Expert Reports concerning the Conservation of Species Act

An expert report concerning legally protected species determines whether a project or the plan for a project is compliant or not with the provisions of this law.

This type of expert report reviews, for all species protected by European law as well as other nationally protected species, whether contraventions would take place according to the Federal Nature Conservation Law within the scope of a planned project (e.g. injury or mortality of protected animal species, damage or destruction

of their mating sites or other habitats, including their ecological function within their habitat, disturbance of particular species at particular times, as well as damage or destruction of protected plants species).

For this type of expert report genuine biological and ecological expertise is necessary. If the state of conservation of a species protected by European law would deteriorate as a result of a project in spite of compensatory measures, the project is impermissible.

Maglev link between the city of Munich and the Munich airport

Aim: establishing expert reports concerning species protection law within the framework of the supplementary plan for two planning steps in section 3 (area of the Isar crossing and the airport grounds).

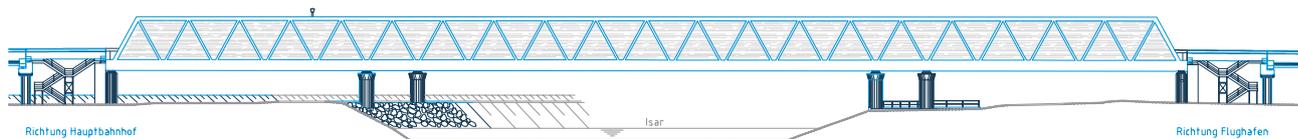
Results: the two expert reports carried out revealed considerable impacts on an investigated bat species that would arise as a result of the planned project. Consequently, measures for damage reduction were developed.

Client: DB Magnetbahn GmbH

Greater mouse-eared bat (*Myotis myotis*) (right)



New conception of the bridge construction for the Isar crossing with integrated protection wall against bird and bat strike (below)



ICE route section from Ingolstadt to Munich (Appendix: Supplementary plan for the conservation of the countryside)

Aim: for the section PA 31 M2 (Pfaffenhofen) that has already been completed, an expert report concerning the Conservation of Species Act was carried out as appendix to the plan.

Results: as one of the protected species – the sand lizard – could be significantly affected by the project, all of the sand lizards in the concerned area were relocated for their protection into newly reconstructed gabion (meshed baskets filled with gravel) walls before building commenced.

Client: DB Projektbau GmbH, Southern branch office



Example of a meshed basket retaining wall as a secondary habitat for sand lizards.



Urban Master Planning

Urban master planning is the central planning instrument for urban development considering also environmental aspects. The two planning steps are regulated by the Federal Building Code (master plan) and the nature protection laws (landscape plan and urban green space plan).

Informal planning reports such as urban land use reports can either provide information for general development planning reports or be specific on the implementation.

The landscape plan, as the central instrument of environmental precautions, is integrated into the master plan. The landscape plan formulates the goals and measures of nature and resource protection, as well as recreation and relaxation.

Particularly important nowadays is the long-term conservation and development of ecosystem functions, and also the conservation of the cultural landscape as well as the use of renewable energies throughout an urban and the surrounding rural areas.

Structuring concept/expert report on structure Municipality of Feldkirchen (District of Munich)

Aim: structuring concept for the active and sustainable development of the municipality.

Methods: Feldkirchen is a highly attractive residential and commercial location (easily accessible by road and rail, close to Munich and the Alps), but with restricted opportunities for recreation, besides impaired quality of the overall appearance of the landscape, and high traffic congestion. Together with the local council, detailed guidelines for new housing areas with an economic use of space were developed. In addition, limits were set for the growth of both new housing and population with respect to area and number of people.

Results: structuring concept for the further development of the municipality's urban master plan.

Current project carried out in collaboration with the planning alliance of the outer economic region of Munich; Client: the municipality of Feldkirchen



Landscape plan for the municipality of Moosinning

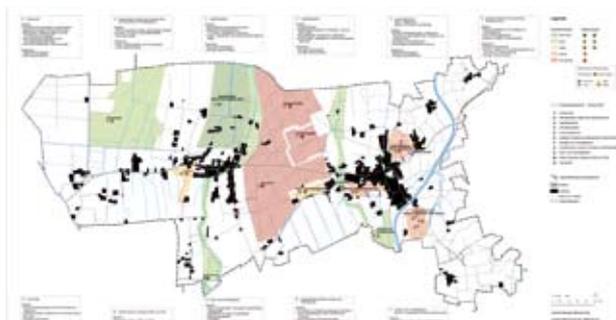
Structuring concept report – map of the overall landscape development within the community

Aim: an overall concept for the future of the municipality was developed together with the inhabitants.

Methods: determining and analysing the initial situation as well as devising improvement measures were carried out with the support of GIS and visualization in maps.

Results: besides the moderate growth (population, building activity, volume of tax raised), promoting public spirit and the overall development of the landscape/townscape are among the main concerns of the workgroups.

Landscape analysis of the aspects recreation and nature conservation



In collaboration with the planning association of the outer economic region of Munich.

Landscape plan Moosinning, initial situation



Urban Master Planning

Urban green space plan with integrated environmental impact study Munich-Lochhausen

Aim: creation of a residential district of 500 - 600 dwellings including infrastructure in an area of 13 hectares.

Requirements: innovative buildings and non-built-up areas together with a high building density, conserving valuable parts of the landscape; ecological city planning, connection to neighbouring residential districts, strengthening the central function of the town centre.

Collaboration partners: Haase & Söhmisch, owner Rüdiger Haase; Client: Dept. of town planning and building regulations of the city of Munich.

Methods: environmental impact study, according to the extremely complex ground water situation (geo-hydrology) and current pollution levels (contamination of the soil, railway noise, electro-smog, vibrations).

Results: sensitive and critical areas and the high number of conservation requirements meant that an iterative process along with a close interchange between environmental planning and urban and green-space planning was necessary, which had a favourable effect on the overall result.



Urban master plan (left), aesthetic spaces in the townscape (right)

Urban Master Plan for the island on the River Regnitz and the ERBA factory, Bamberg

Aim: the area of the ERBA factory, a historical cotton mill in Bamberg, is to be converted to a residential area with two-storey townhouses and generous garden spaces, maintenance of listed buildings, new buildings in an attractive position on the Regnitz, and the conversion of large areas of fallow land to a natural park (central area of the Bavarian Garden Show to be held in 2012).

Results: after a detailed survey and evaluation of the conservation aspects of the area, the principles related to landscape planning and landscape architecture were determined and aims were set in cooperation with the responsible authority for the environment, town planning and construction. An urban development plan with an integrated green space plan and environmental report was then prepared.



Urban building concept for the residential park on the Regnitz Island

In collaboration with P4 Stadtplaner and Locodrom landscape architects.
Client: European Property Investment, Limerick, Ireland.

Landscape Architecture

Landscapes – or townscapes – whether they be in rural, suburban or urban areas are not only usable space or habitation for plants and animals, but also living and recreation spaces for people. A particular aesthetic and artistic task is consequently the design of public and private open spaces, parks and squares. In contrast to landscape and environmental planning, the roots of landscape architecture are not to be found in the ecological mo-

vement and environmental politics, but in the history of mankind’s interaction with all the many facets of the countryside. Even today the garden design traditions of the Renaissance, the Baroque and the English style have a large influence. In spite of that there is a demand for new and contemporary design principles, with societal and ecological requirements playing a more and more important role.

Urban planning for the municipality of Kirchweidach

Aim: creating an artificial lake with the main functions of floodwater retention, cleaning run-off water from roads, and recreation.

Design: vegetation on the banks similar to that occurring naturally, meadows with a large variety of plants, path around the lake, water play area with platform.

Function: using primary and secondary sedimentation tanks and a gravel embankment, kept in place with boulders as a cleaning filter, high or very high quality water can be attained, so that the lake can be also used for swimming.

Sponsor: Prefecture of Upper Bavaria: SG 34.2, Dept. for Urban Development and Building Regulations;
Collaboration: Planwerkstatt Karlstetter, Marklkofen
Client: municipality of Kirchweidach



Remodelling the lake bank installations Town of Diessen on lake Ammersee (second prize in a new ideas competition)

Aim: development of approach and ideas for upgrading the lake bank installations.

Initial situation: partly over utilised, partly out of use; little sense of it being part of the town and the potential of its situation at the water’s bank only partially realised.

Design and remodelling: maintaining unique character of the lake bank installations of Diessen; strengthening the linkage between the lake side and the town itself.

In collaboration with Christian Sölva, landscape architect, Bozen; Böhm, Glaab, Sandler, Mittertrainer, architecture and town planning, Munich
Client: Markt Diessen on lake Ammersee



Design and Object Planning

Design and object plans are necessary to establish the structure of all open spaces as well as their subsequent usage.

Design plans for open spaces are submitted along with the building application in order to show that the requirements regarding nature conservation and design aspects have been considered. The design planning ensures that the plans for landscaped areas

are integrated into the overall urban plan with minimum impacts. In object plans for recultivation various aspects are determined, including for example the subsequent usage in accordance with exploitation requirements. Exploited areas are predominantly converted to nature reserves by planning a number of multi-faceted locations highly suitable for this purpose, or attractive landscaped areas are created which can be used for recreational purposes.

Recultivation planning Exploitation of gravel and sand

Aim: preparation of documents for mining permits as well as carrying out recultivation and renaturation plans.

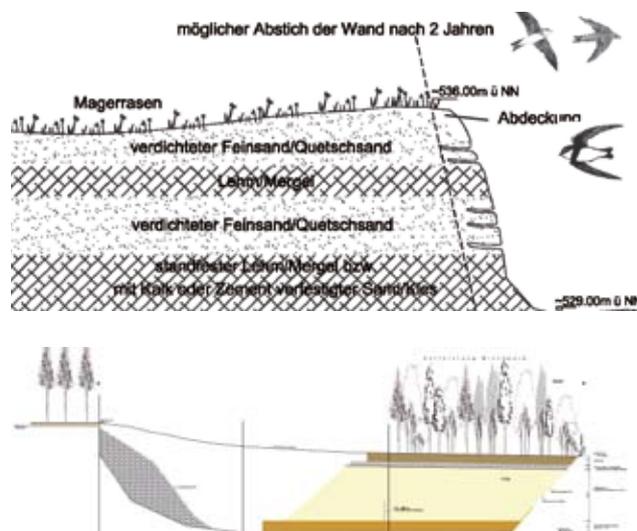
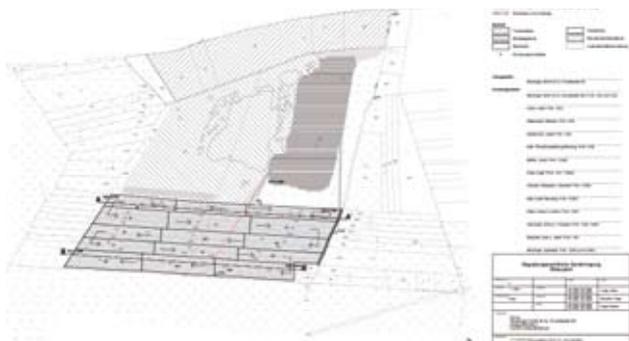
Methods: on behalf of various sand and gravel exploitation companies, based on the initial abiotic and biotic situation and considering the specific planning requirements, the necessary application documents for approval for an orderly extraction of gravel and a purposeful planning for recultivation and renaturation were prepared.

Results: planning of exploitation zones along with design and recultivation planning (biotope development, recreational use) were presented as text and maps, including cross-sections of the ground and also height modelling. The expected effects of the project on nature and the landscape were determined, and measures for avoiding, mitigating and compensating impacts were developed. The recultivation strategy – whether biotope development, recreational use, or the restoration of forestry or agricultural use – was devised based on an analysis of the most significant aspects and in consultation with the client and the responsible authorities.

Clients: Company Schwarz (Pucher See); Stockinger GmbH & Co Grundbesitz KG (Fürstenfeldbruck)



Exploitation area Pucher Lake with subsequent recreational use (above); schematic diagram of a wall for sand martins (below)



Exploitation plan (above) and cross-section for the approval in accordance with the excavation law (below right)

Research and Development Projects

In addition to our current planning contracts we also carry out research and development (R&D) projects with a practical orientation together with universities, government offices, research institutes and partner companies.

The focal points of our R&D activities are ecological systems research, the application of geographic information systems for environmental planning, and also the development and documentation of decision support and environmental information systems.

The newest techniques of data collection using remote sensing methods such as laser scanning, radar data, thermal data, and data of other sensors are tested and evaluated with respect to their practicability in pilot studies.

Our research activities are a guarantee that our know-how and methods are „state-of-the-art“ at all times and that we can continue their development.

Sustainable landscape and resource management in rural areas Visualisation of agricultural land use scenarios

Aim: recording, evaluating and computer simulation of changes in land use enables various forms of land use to be visualized.

Methods: in selected areas the terrain data at a given time were recorded with the help of a geographic information system and then processed digitally. Based on this data foundation, land use scenarios for typical rural areas in Bavaria

were formulated, which were based on the current agro-economic subsidising conditions, or the consequences of possible agro-political decisions on farmers subsidies were visualized.

Results: the project results can be used as a basis for decision making connected with political subsidies for agriculture and forestry in various regions of Bavaria.

In collaboration with the Technical University of Munich, Dept. for Economics of Agriculture and Forestry, in Weihenstephan, and the Dept. for Re-Organisation of Land Holdings and Rural Development, in Munich.



Status quo of an area on the south-western perimeter of the Bavarian Forest. Small structured land use: meadows and milk cows feeding.



Scenario 1: Conversion of land use to wide area grazing - fallow of small parcels: Scrub encroachment



Scenario 2: Abandoning agricultural use: natural or manmade reforestation

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