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Forests

Trees, Forests and Human Health & Well-Being

Literature and Projects in Switzerland
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This study is a comprehensive review of scientific literature, projects and initiatives dealing with the topic of “Forests, Trees, Public Health and Well-Being”. The findings are commented and evaluated in the report’s concluding comments.

Die Studie liefert einen umfassenden Überblick über wissenschaftliche Literatur sowie Projekte und Initiativen rund um die Thematik „Wald, Bäume, Volksgesundheit und Wohlbefinden“. In einem Fazit werden die Resultate kritisch gewürdigt.

L’étude fournit une vue d’ensemble complète de la documentation scientifique relative au thème de la forêt, des arbres, de la santé publique et du bien-être, ainsi que des projets et des initiatives autour de ce thème. La conclusion livre une analyse critique des résultats.

Lo studio fornisce un’ampia panoramica della letteratura scientifica, dei progetti e delle iniziative concernenti la tematica “foresta, alberi, salute pubblica e benessere”. Detta panoramica è completata da una valutazione critica dei risultati ottenuti.
Everyone agrees that the forest is important for people’s well-being. It has a positive influence on the three health-promoting factors of movement, relaxation and nutrition. The forest offers space for a wide range of physical activities, it is a natural oasis of relaxation and it provides the purest drinking water. Overall, the forest makes an important contribution to public health by providing noise and visual protection and clean air.

The study “Trees, Forests and Human Health & Well-Being” presents the first overview of the status of research and ongoing projects on this topic in Switzerland. The importance of the forest and the specific services it provides in terms of physical, spiritual and social health are summarized. The study also demonstrates that gaps still exist with respect to the quantification of the effect of the forest on public health and the evaluation of the special services it provides.

Swiss Agency for the Environment, Forests and Landscape

Werner Schärer
Director, Swiss Forest Agency
1 Introduction

The aim of COST Action E39 is to increase our knowledge of the contribution of forests, trees and natural areas to human health and well-being. Based on this, the task of the research project was to provide an overview of Swiss literature, research activities, initiatives and projects in the area of forests and health, and to identify any gaps that may exist in the research. Both the immaterial values of the forest and its concrete material products were to be taken into account. For reasons of capacity, it was decided to concentrate on forests and trees and to disregard research and projects that deal with other natural areas and wildernesses in general.

All three functions of the forest (protection, use and well-being) concern human health to a certain extent:

- The protection forest safeguards human life in a very general way. As an Alpine country, Switzerland has carried out important research and gained important practical experience in this area. For resource reasons, and because the research and projects carried out in this area are adequately documented elsewhere, research on the protection forest was omitted from this study.
- The utilization function of the forest concerns its direct material use. Plant products and, for example, climatic effects have a direct influence on human health. These issues are dealt with in chapters 2.4 and 3.3. Timber utilization, which, of course, also has an indirect affect on human well-being, was omitted from the study.
- The focus of the study lies in the welfare function of the forest or, to be more precise, its social aspects. The welfare function makes a distinction between the topics of health and of well-being, and projects and practical initiatives are presented that make targeted use of the welfare function of the forest and promote human health in the broadest sense.

The World Health Organization (WHO) defines health as a “state of complete physical, mental and social well-being” and not merely freedom from illness. Thus, in this broad sense, human health also includes, for example, well-developed social and personal aptitudes. Hence, forest education projects, which frequently aim to contribute to the health of children, young people and adults by promoting social and personal aptitudes and welfare are relevant in terms of the focus of this research and have been included in the study. Conversely, projects with an express focus on nature study and environmental education, whose main aim is to convey knowledge about nature, have not been included.

The first part of the report provides a brief outline of Swiss research projects and scientific literature relating to the aforementioned topics. Based on an initial review of the material, the projects and literature were divided into four categories:

- The first category includes work of a cultural-scientific nature which deals with individual and cultural perceptions and understanding of the forest and trees.
- The second category involves studies, in the main from the social sciences, which examine the forest as a leisure and recreational area.

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1 Memorandum of Understanding for the implementation of a European Concerted Research Action designated as COST E41, Draft 20 August 2003
2 Ottawa Charta of 1976
The third category concerns the forest as an experiential and learning space, for example as an area that promotes social and personal aptitudes, psychomotor activity etc. The fields of education and psychology mainly deal with these topics.

Finally, the fourth category examines the forest and trees from a more scientific and medicinal perspective; its research object is both forest products (plants, fruit etc.) and physicochemical issues (e.g. forest climate). For reasons of time and competency, we did not place great emphasis on this category. Numerous research projects have probably been carried out in this area, particularly in the medical field, which would be impossible to examine individually.

The second part of the report presents information about different projects that have and are currently being carried out. The projects in question are in the areas of health promotion, preventive medicine and therapy in the broadest sense. While forests and trees play an explicit role in all of the presented projects, the prominence of this role varies significantly. While in some projects, the forest assumes a key role as a learning space; in others it merely appears to be a randomly selected and interchangeable natural space. The presentation of the projects is divided into three areas: “Sport and Exercise”; “Educational Projects and Institutions” (for different target groups); and “Therapeutic and Natural Healing Projects and Institutions”.

Due to the terms of reference of the research, i.e. its limitation to Swiss literature and projects, its framework was clearly defined from the outset. This limitation means, however, that the conclusions drawn are only valid for Switzerland and not for all German and French-speaking territories. It can be assumed that research projects exist in Germany and France which would be able to fill the gaps in the Swiss research.

The research projects and the scientific literature were mainly researched on the basis of library catalogues (IDS, réro, journal databases). Searches were mostly carried out using keywords and titles as most catalogues do not facilitate full text searches. This means, of course, that not all texts featuring the topics forest and health could be covered, but mainly those in which they feature centrally. The level of comprehensiveness of the survey is estimated as relatively high for such works, (with the exception of Chapter 2.4). In addition to the library catalogues, access was obtained to additional material using the bibliographies of existing works. Projects being implemented in the field were mainly researched using the internet. Direct enquiries were also addressed to key institutions in this area and individuals who have worked in these institutions for extended periods. In terms of comprehensiveness, it may be assumed that numerous small or badly documented projects and those outside the area of nature and forest education (youth groups, rehabilitation etc.) were not included.

Although the research basically concerned both German-speaking and French-speaking Switzerland, the majority of the publications and projects listed originate in German-speaking Switzerland. This probably reflects the fact that the driving forces in the areas of forest and health, both in research and practice, are located for the most part in German-speaking Switzerland (Chair of Forest Policy and Forest Economics, Swiss Federal Institute of Technology Zurich, Swiss Research Institute for Forest, Snow and Landscape (WSL), SILVIVA etc.).
2 Research and Scientific Literature

2.1 Individual and cultural perceptions and the significance of the forest and trees

Various cultural-scientific disciplines, such as cultural history, cultural sociology, cultural geography, folklore and the history of art and literature, deal with the question of how the forest and trees are perceived and interpreted from the perspective of individuals and society and of the cultural meaning associated with them. Psychology, and in particular psychoanalysis, also deals with such issues. Although the majority of the works in this category do not deal explicitly with health and well-being, they constitute an important basis for the understanding of the relationship between man and the forest. Thus, some of the texts and research projects relevant in terms of the contemporary significance of the forest and, hence, also in terms of human health, are described below.

The metastudy by SChmithüsen et al. (SChmithüsen, Kazemi, Seeland 1997) summarizes 63 scientific studies that were carried out on the attitudes to the forest of the population in German-speaking Switzerland between 1960 and 1995. It emerges from this study that during this period the forestry sciences in German-speaking Switzerland were increasingly confronted with social phenomena. The general public’s interest in the forest grew and the increasing number of forest visitors and their perceptions and attitudes were examined in various studies.

The forest and trees have had an important significance for mankind since time immemorial, and not only in a material sense. Their symbolic significance is explained in various texts. KOCH presents the so-called “tree test”, a test in which the drawing of trees was used as a psycho-diagnostic tool (KOCH 1972). The test was developed in the 1940s and is still used frequently today especially in psychological practice, school psychology, careers guidance, admission procedures and psychiatry. It is beyond the scope of this study to go into the tree test in detail, however the interpretations of the man-tree relationship, on which the tree test is based, are relevant to its concerns. In this context, the tree functions as a bearer of projections. The tree is given a deep symbolic significance in C.G. JUNG’s deep psychology. It is one of the primal things of humanity; the tree symbol is the first and last symbol used in the Holy Scriptures. The symbol of the holy tree, the world tree, the prophetic tree etc. also exists in other cultures. The tree is seen as a symbol of fertility and growth and as the location of the soul. Myths exist in which people come out of trees. JUNG included the forest in his maternal archetype (JUNG 1998). Based on JUNG’s ideas, KOCH explains that the forest represents a dark impenetrable place and is, therefore, an appropriate metaphor for the unconscious. The trees, in turn, represent the living content of the unconscious. They have individuality and are hence often interpreted as being synonymous with personality. The powerful old oak tree, for example, is seen as the king of the forest and stands for the strongest personality type. KOCH considers the forest as a typical expression of human life; decay, death and life unfold there just as they do in the context of the human life-cycle. He also notes analogies between man and the tree and human society and the forest. A brochure published by SILVIVA, the Swiss organization for environmental education and the forest, provides a summary of these different deep psychological
significances of the tree (CH-WALDWOCHEN 1990a). The wide-ranging symbolical associations of the forest can also be demonstrated particularly well using the example of fairy tales (CH-WALDWOCHEN 1990b).

Vescoli (VESCOLI 1995) also describes the symbolic significance that trees have embodied for mankind since time immemorial. In his book, Vescoli describes the Celtic tree calendar which divides time not into weeks or months, but into 40 long and short periods that correspond to the life and growth cycles of trees. According to Vescoli’s description, like the Zodiac star signs, the different trees in the tree cycle represent the specific personality and character traits of the people born on the days they represent. It is an undisputed fact that the Celts honoured the trees and believed that gods lived in them. However, according to recent information, the kind of tree horoscope described by Vescoli was not handed down by tradition, but commissioned in the early 1970s by the French women’s magazine marie claire and developed by the cultural journalist Paule Delsole.3

Literature provides another means of accessing the meaning of the forest and trees. MARSch notes that poets repeatedly refer to the man-tree analogy (MARSch 1993): man is like a tree, rooted in the soil, striving towards the light, fragile and decaying in old age and finally returning to the ground. However, the use of the concept of the forest as a poetic element in more recent literature is not without problems and often incorporates the idea of the forest under threat. STREMLOW und SIDLER’S book offers an insight into literary notions of the wilderness, which in central Europe largely refers to the forest. The authors explore the question as to how the wilderness or forest is interpreted in the contemporary German-Swiss novel and in the print media. They come to the conclusion that since the early 19th century, at the latest, the description of the wilderness is based on the three basic elements of the mythic, horrific and idyllic (STREMLOW, SIDLER 2002).

In his article, HENKING emphasises the fact that the forest and trees are not and have not always been positively interpreted (HENKING 1993). In legends, fairy tales and myths, the forest and trees are mysterious or wild and sometimes even dangerous because they provide shelter for rapacious animals (bears, wolves, lynxes etc.) and lawless individuals (outcasts, robbers, murderers). Man shies away from this “other world” or uninhabitable “human anti-world” (KEEL 1993), but at the same time feels drawn by its mystery. This ambivalent significance of the forest and trees can be found in different religions and philosophies all over the world. Based on representative examples, HENKING confirms the fascination of the forest and trees, including the religious interpretations (world tree, tree of enlightenment, spiritual tree, the forest of hidden knowledge). The mythological significance of the tree is also summarized by VOLLICHARD (VOLLICHARD 1992).

In their research project entitled “Formen umweltbezogenen Handelns in Situationen von Unsicherheit” (“Forms of environment-related action in situations of uncertainty”), REICHERT and ZIERHOFER also observe that the issue of the threatened forest gained in prominence during the period of the Waldsterben debate in the

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3 Cf, for example, http://www.euro-celts.com/arboireumbaumkreis.html
They examine, *inter alia*, the question surrounding the importance of the forests for the relevant persons. Those surveyed for the study often described the forest as something that is at risk, under threat and neglected. However, the positive connotations predominated and the authors come to the conclusion that, overall, the forest is mainly associated with positive experiences. The forest represents something valuable to the Swiss people; it is a place where they can not only feel safe and well, it even creates identity to a small extent. One goes into the forest to be on one’s own, to be oneself, to be finally alone with one’s thoughts, to see oneself as part of nature and become aware of other rhythms, to improve one’s physical fitness and condition; many people also associate their most cherished childhood memories and carefree feelings with the forest (REICHERT & ZIERHOFER 1993). LEIBUNDGUT relates this feeling of freedom to the fact that the forest lacks a defined temporal and spatial order (LEIBUNDGUT 1975).

**The forest as the epitome of nature**

FRANZEN AND ZIMMERMANN’S study (BUWAL 1999) confirmed that the forest is perceived to a great extent as the epitome of tranquillity, freedom, beauty and life and that the forest is, therefore, very important in terms of the population’s psychological well-being. Unlike the built-up environment or the landscape, the forest appears to be perceived as the epitome of nature, in other words as the opposite of the city (WILD-ECK 2001). In several surveys, the forest tops the list as a producer of oxygen, as a “green lung” (HERTIG 1979; WILD-ECK 2002). According to LEIBUNDGUT the recreational effect of the forest is based on the “perception of the natural”. The light conditions play a role here, for example – the muted, changing and sleep-inducing forest light triggers a feeling of safety (LEIBUNDGUT 1975).

**The forest as a fearful space**

As already mentioned, various authors also refer to the negative connotations of the forest. For many people, the forest can be a fearful place. Women, in particular, are often afraid to walk alone in the forest (WILD-ECK 2001). However, in his study on the quality of life in the city of Zurich, WILD-ECK comes to the conclusion that the forest is basically associated with positive feelings – the forest itself is not associated with fear, it is certain human behaviours that make people fearful in the forest (WILD-ECK 2002).

**Case study: the role and significance of trees in the city of Geneva**

SILVA deals in his research with the question of the significance of trees for the city of Geneva and its inhabitants (SILVA 1997). He establishes that the tree is an urban element and, depending on its location, can represent an optical support, a reference point, a link, a noise protection feature etc. Silva describes different locations in the city where trees exist and customs that involve trees. His survey revealed that the participants valued the trees in the city highly and appreciated the effort made by the city to maintain them. It also revealed that two symbolic meanings are mainly ascribed to the city’s trees, i.e. they are a symbol of nature and the regenerative cycle. The main finding of this study is that trees acquire a considerable multidimensional significance over the centuries. However, according to the author, the results of the survey cannot be generalized automatically as the number of people interviewed was small. Thus, he notes that additional and more extensive studies on this topic would be desirable.
2.2 The forest as a leisure and recreational space

The work carried out in this area involves – for the most part empirical – scientific research on the actual and potential use of the forest as a leisure and recreational space.

SCHELBERT and MAGGI were commissioned by Zürich Kantonalbank (cantonal bank) to examine the link between the environment and the economy. The authors explored this link, *inter alia*, on the basis of recreational activities in the Zürichberg/Adlisberg forests (SCHELBERT & MAGGI 1988). The study contains information about how, how often and by whom parts of the forest are used, and how great is the willingness to pay of the survey participants. In this way the authors could monetize the recreational value or the non-use value of the forest. The authors created a typology of the forest visitors on the basis of their empirical findings: the “forest idealists” were characterized by their youth and high level of social and environmental commitment. In this group, a high regard for the forest in the sense of an existence value was accompanied with a high level of willingness to pay. The “forest instrumentalists” visited the forest almost exclusively for the purpose of physical exercise or training and perceived it as an “outdoor gym”. The “forest traditionalists” display the characteristics typical of those who live near forests. They use the forest for walking – with or without dogs – and feel that they are the “household heads” of the forest. The “forest conventionalists”, for the most part elderly women, approach their visits to the forest with extreme discipline and a certain degree of anxiety. They use the forest almost exclusively for walks. The purpose of another study, carried out in the late 1980s, was also to monetize the recreational value of the forest (BUWAL 1991; NIELSEN 1992). This study presented findings on the number of visitors to the forest, the average duration of visits, willingness to pay and experiential benefit etc. An ongoing WSL project which is part of the “Landschaft im Ballungsraum” (“Landscape in the Agglomeration”) programme is also focusing the recreational value of the Zurich forest and its monetization.4

As part of a 1997 study commissioned by SAEFL (BUWAL 1999), 2000 people were surveyed on their attitudes to the environment, nature and forest. The findings revealed that the population primarily perceives the forest as a natural and recreational area and sees its protection and the economic aspects as secondary. “Good fresh air” was the most common spontaneous association with the forest and “the production of air and oxygen” was identified as the most important function of the Swiss forest. 58% of the population visits the forest at least once a week in summer and 38% in winter. The most common motives for visiting the forest are walking (selected by 40.1% of those surveyed), recreation (19.1%) and hiking/sport/health (18.2%). To summarise, the authors established that the forest is extremely important as a recreational space. Conflicts between the different leisure-seekers (cyclists, walkers etc.) were only mentioned by a small minority of the survey’s participants.

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BAUR ET AL.’s study examined, inter alia, leisure and recreational activities in the Allschwil forest, a typical local recreational area in the agglomeration of Basle (BAUR, GILGEN 1999). Different parts of the forest are used for walking, hiking, nature watching, reading, playing, picnics, cycling and jogging. The motives for visiting the forest include closeness to nature, the varied habitat and the pleasant climate, but it is also sought out as a space for sporting activity and for its tranquility. The possibility of social contact (e.g. meeting other people with dogs) was also identified as an important motive for visiting the forest. However, in contrast to the 1997 SAEFL study (BUWAL 1999), in this study, 49% of forest visitors stated that they were disturbed by other people in the forest.

The Vita-Parcours outdoor fitness trails are one of the best known uses of the forest in the area of leisure and recreation. A study of their use and assessment was recently carried out on behalf of the Federal Office for Sport (LAMPRECHT & STAMM 2002). The study comes to the conclusion that the Vita-Parcours enjoy a very good reputation. They are valued by the vast majority of the population as being located in beautiful and near-natural settings, as being valuable in terms of health and as offering good opportunities for training and relaxation. They are currently being used by a good fifth of the Swiss population.

One of the Swiss Research Institute for Forest, Snow and Landscape’s (WSL) ongoing projects concerns the attitudes and motives of people who pursue leisure activities in natural settings and the question as to how environmentally-responsible behaviour/action can be promoted among them.5

In his doctoral thesis, WILD-ECK (WILD-ECK 2001) examined the role of the forest in the context of the quality of life enjoyed by Zurich’s urban population. The individuals surveyed allocated significant personal importance to natural areas (lake, forest) and to the quality of life in the city of Zurich. However, they only did this when asked specifically about natural areas. The participants rarely mentioned the forest spontaneously and the social aspects of life in the city tended to predominate in their answers. The activity-related questions revealed, however, that the forest is used very extensively.

A research project being carried out at the Swiss Federal Institute of Technology Zurich as part of COST Action E12 is examining the extent to which urban green areas (forests and parks) act not only as leisure areas, but also fulfil a social-integration function (SEELAND 2003). The aim of this project is to improve basic knowledge with respect to the cultural and social aspects of trees, parks and forests in Swiss urban agglomerations. The services of green areas in the city and in the urban environment are to be evaluated in terms of current and future requirements. The study is examining the contribution of forests, trees and parks to urban quality of life, in particular with respect to their social-integration effects (between different age groups, members of different nations and cultures and between the disabled and non-disabled). Initial results show that the immigrant population and young

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5 http://www.wsl.ch/land/society/F-attitudes-en.ehtml
people tend to express a desire for other forms of use, e.g. in the form of entertainment or cultural events to be staged in the green areas. Furthermore, differences can be observed in the wishes expressed by respondents in the different linguistic areas studied: while the residents of Lugano (Italian-speaking) would like more cleanliness, safety and social events, the residents of Geneva (French-speaking) would like greater consideration of the needs of children and the residents of Zurich (German-speaking) requested more natural and quiet green areas.

Several graduate diploma theses were also compiled at the Swiss Federal Institute of Technology Zurich as part of the COST Action E12 on sub-areas of the main topic. PFISTER examined the importance of green areas close to urban centres for people of pensionable age, how they use them and what their needs are in relation to these areas (PFISTER 2003). The results of the study show that natural areas play an important role in the lives of elderly people – a finding that is also supported by other studies. If they could chose, the majority of those surveyed would prefer a forest to a park, fields, meadows or a garden etc. The study did not provide any information about the activities for which the senior citizens use the forest or green areas. Another graduate diploma thesis dealt with the different user profiles of members of different nationalities and cultures with respect to the use of urban forests in the Geneva region (BALLESTROS 2002). The results show that contact between Swiss and non-Swiss citizens is easily and frequently established in urban parks and forests. The graduate diploma thesis by DÜBENDORFER (DÜBENDORFER 2001) also dealt with the integration potential of green areas. This study examined the importance and use of urban forests and parks by children and young people and focused in particular on children of foreign origin. The author comes to the conclusion that forests and parks are important “social contact areas” which enable the children and young people to come into contact with their peers and to establish a close circle of friends.

2.3 The forest as an experiential and educational space

This category includes studies that do not merely conceive and examine the forest as a leisure and recreational space, but see it as an experiential and educational space for children and young people, in particular, and also for people with wide-ranging psycho-social and physical problems.

BALTHASAR LOHMEYER, a consultant psychiatrist from Zurich, describes why the forest has a special significance as an experiential and educational space: “The formal variety of nature, its smells, colours, light effects and lack of mechanical regularity may stimulate our tactile, visual, acoustic and olfactory senses in a way that excites and calms them and prompts them to develop and blossom”. (WIPFLI 1993). MIRCO SCHERER examined the significance of the forest in terms of sensory perception (SCHERER 2003). As part of his graduate diploma thesis, he studied the aims and forms of different learning, sensory and spiritual paths and surveyed forest visitors on their motives and attitudes to the forest. For example, the study revealed
that 31 of the 38 surveyed visitors to the *Seelensteg* (“spiritual path”) in Heiligkreuz are of the opinion that the senses are stimulated in the forest.

In her article QUANTE (QUANTE 1999) stresses the importance of nature as an experiential space for psychomotor learning processes. According to the author, in today’s consumer-oriented, mobility-starved and socially-isolated society, many children lack opportunities for independent and active encounters with the natural environment. Nature and, in particular, the forest offer an unquantifiable variety of forms, colours and ways of life which children can experience through such active encounters. This supports the overall development of the child’s personality. Psychomotor activity is less concerned with the setting of environmental educational objectives than the healthy development of children. Based on this objective, the author proposes various playful activities with children.

As part of her graduate diploma thesis at the Swiss Federal Institute of Technology Zurich, EVELYN KAMBER carried out a study on the emotional, physical and knowledge-related effects of “forest days” on school children (KAMBER 1999). The teachers surveyed observed an increase in the children’s motor confidence. Furthermore, their independence and interaction in the course of the “forest day” was classified as greater or as more co-operative than previously. However, the effect did not last. Similarly, most parents did not observe any long-term effects of the school’s visit to the forest on the behaviour of the children. They still believed, however, the forest school to be a useful facility that is worthy of support. The meaningfulness of the findings is limited in that the study lacked a longitudinal design and the children whose parents and teachers were surveyed had merely spent one or two days in the forest.

The organization CH-WALDWOCHEN (now SILVIVA) evaluated the “Thing-Platz” project (i.e. meeting place) on completion of the pilot phase. The “Thing-Platz” is a place in the forest designed by the pupils where a school class meets about once a week for a class meeting. Using the meeting as part of the learning activity, the aim is to improve the social climate in the class, to prevent conflict and to examine visions for the future. The evaluation came to the conclusion that the meeting promotes the acquisition of social competence and favours positive experiences of nature. There were also indications that a better class spirit was fostered (KAISER 1995). BRUPPACHER and PETER also dealt with the CH-Waldwochen “Thing-Platz” project in their degree thesis project at the University of Berne (BRUPPACHER & PETER 1997). Their findings support the assumption that social competence increases as a result of participation in the meeting. Positive effects were also observed in the area of conflict capacity and discussion culture.

Various studies deal with the Waldkindergärten (“forest kindergartens”), whose objectives are also associated with health in the broadest sense of the word (e.g. promotion of autonomous activity, movement, community maintenance etc.). LETTIERI evaluated Switzerland’s first public forest kindergarten in Brütten in the

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The emotional development of the children (self-confidence, self-sufficiency) had to be omitted from the evaluation for financial and methodical reason. Statistically significant differences were observed, however, in the area of psychomotor development and particularly in the area of general motor activity: children who had attended forest kindergartens performed significantly better in this area than children who had attended other types of kindergarten. 

Kiener’s psychology degree thesis (Kiener 2003) deals with the effects of forest kindergartens in relation to general and specific motor activity and creativity. The author’s empirical study (motor activity tests, creativity test, and parent questionnaire) demonstrated that at the end of a year, children attending the forest kindergarten had better general motor skills than they did at the beginning of the year, and also performed better in this area than children attending normal kindergartens. No relevant differences emerged in the area of specific motor activity (hand and finger movement). The children attending the forest kindergarten also performed better in the creativity tests. Another comparative study (normal kindergartens and kindergartens with 2–3 integrated forest days per week) is currently being carried out by the Feuervogel association for nature education. In her article, Gugleri-Dolder (Gugleri-Dolder 2004) comes to the conclusion that the forest should be made available to all kindergarten children as a learning space as often as possible, with a minimum of once a week. However, the forest can only be a suitable and varied learning space for the promotion of perception and movement if the kindergarten teachers can lead and accompany the children in an optimal way. Furthermore, the link with the home environment should also be maintained so that the children in the forest kindergarten do not become isolated from other kindergarten children. Thus, the shared journey to the kindergarten by children from the same neighbourhood is important. Regular days spent inside are also important for the development of specific motor activity.

Together with forest-related activities in schools and kindergartens, projects in the area of experiential education and experiential therapy have also been attracting the attention of researchers. However, there is still little literature on this topic in Switzerland. Crain describes the TREK project which was carried out among young people with behavioural difficulties in the 1980s and ‘90s and was scientifically monitored (Crain 1998). The core of the programme constituted a stay of several months in the wilderness of the Canadian forest. The author is critical of the project’s success: TREK may have proven successful during the period spent in the wild, however, this success was not sustained in the post-wilderness period. In many cases, the participants’ delinquent careers continued where they had been left off and their professional and social integration failed. Those responsible for the project underestimated the difficulties with which the youths were faced after their time in Canada. Also, too little attention was paid to the close relationship that developed between the young people and the adult carers during their stay in the forest. The insights gained were taken in and acted upon in the subsequent follow-up project BigTrail, whose aim was to offer various learning and development options to young people who had come off drugs (Crain, 1996; Flückiger Schöepp 1998). The programme lasted longer (a total of 15 months, of which four
were spent in Canadian forests) and far more time was allowed for the development and for the break-up of the relationships formed in the forest and for the participants’ re-integration into everyday life, i.e. there was a follow-up project lasting several months.

The accompanying study and various surveys carried out at the end of the project showed a far more positive outcome than was the case with the TREK project. Despite the success, however, CRAIN notes that there has been a decline in the area of long-term experiential education projects, which he explains mainly in terms of the high costs involved (CRAIN 1998).

In his study, SIEGRIST describes the situation and problems encountered by the forest school on the Pfeffingen estate (SIEGRIST 1968). This “forest school” was opened in 1921 for children who were anaemic and at risk of tuberculosis. During the 1950s, it was converted into a five-day boarding school for children with behavioural problems. The school’s geographical location in the middle of the forest and the resulting daily contact with nature was positively evaluated both by the parents and by the author. To our knowledge, there are no more recent studies on forest schools and their relationship with the forest.

Similarly, little literature exists in the area of remedial education. In their study, NICOLÈ and SEELAND (NICOLÈ & SEELAND 1999) examined the question as to whether designed natural areas, such as parks and forests, have positive effects on the integration of the disabled. They explored the issue on the basis of the island of Mainau and the Pancheiron Project which involved encounters and experiences with nature for people with physical disabilities and learning difficulties. The study comes to the conclusion that forests and parks can indeed play an integrative role in this area. The variety of the forest and nature is mentioned as a factor for success in the implementation of activities with the disabled; the variety enables disabled people to make independent choices and thus reinforces their ability to act. Disabled people often have difficulties coping in a highly organized and symbolically structured environment but they can actively experience the small-scale but highly varied forest with all of their senses.

WIPFLI assumes that in addition to time for practice, a child with psychomotor difficulties needs a lot of time, peace and leisure for the processing of impressions (WIPFLI 1993). This requires an environment which provides generous scope for the child’s imagination, creativity and autonomous activity. According to the author, the forest provides such an ideal “motor environment”.

Remedial education


2.4 **Forest projects that promote health and physical-chemical factors**

Scientific literature dealing with the effects of forest products and the aspects of the forest that can be understood in physical-chemical terms are presented in this chapter.

In terms of human health, natural medicinal plants are an important product of nature. Extensive literature from Switzerland is available on this topic (FLÜCK & JASPERSEN-SCHIB, 2002; HOSTETTMANN, 1997; INAUEN & IRNIGER, 1995; KÜNZLE 1945). However, it was not possible to find a work that dealt specifically with forest plants; all of the literature dealt with medicinal plants in general. These include plants found in the forest, e.g. arum, Icelandic moss, male fern, hawthorn and deadly nightshade, as well as trees such as willow, walnut and beech. Numerous research projects are also being carried out in the area of phytotherapy.7

Other authors deal with wild plants used in cooking (BOTTA DIENER, 2003; COUPLAN 1997). These include some forest plants (e.g. woodruff, rampion, elderberry). Wild plants are generally very healthy as they are very nutritious and contain many vitamins and minerals (the rose hip, for example, contains thirty times more Vitamin C than the lemon) and its leaves are very rich in calcium and iron.

ALFTER carried out a general quantification and monetization of non-timber forest products (ALFTER 1996). He observed a decline in the significance of plant medicines, nonetheless producers and consumers of such medicines and herbs still exist. He estimates that 35 tonnes of herbs, ferns, fruit and flowers are collected each year in the Swiss forest, for pharmaceutical use in particular.

Along with these directly effective products of the forest, other forest influences with physical effects are frequently mentioned in the literature. LEIBUNDGUT (LEIBUNDGUT 1975) mentions, *inter alia*, the special light conditions, the pleasant climate (low variations in temperature, little wind) and the presence of traces of essential oils. Moreover, forest air is far less contaminated with solids and fluids than the air outside the forest as the surfaces of the leaves and needle mass, the branches, twigs and trunks have a strong filter effect. According to LEIBUNDGUT, these forest effects are perceived as particularly beneficial to small children, elderly people, asthmatics and those convalescing from respiratory illnesses. According to the publication "Wald und Gesundheit" ("Forest and Health") (GESUNDHEITSFÖRDERUNG & SILVIVA 2001) clean air and drinking water, the pleasant microclimate, the relaxing atmosphere, pleasant smells, light effects etc. have both a preventive and therapeutic effect on the human body and soul. However, there are no known studies in Switzerland that examine these positive effects empirically. According to RAUCH-SCHWEGLER (RAUCH-SCHWEGLER 2001), the influence of ions, which are particularly numerous in the forest, would be particularly worth studying. She assumes that lung performance is promoted by the particular composition of forest ions.

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7 Cf., for example, http://www.pharma.unibas.ch/bio/, http://www.smgp.ch/
3 Projects and Practical Initiatives

3.1 Sport and exercise

Projects in the forest involving sport and exercise make an important contribution to health promotion for the entire population. The selection of listed projects was restricted to those that explicitly involve the forest or natural experience in the forest and also have the express purpose of promoting health. Of course, there are numerous other initiatives to promote exercise and movement in nature or in the forest, however this intention does not prominently feature in their descriptions. Thus they could not be included in the list. Numerous other activities exist that are not organized in the form of projects or programmes (for example going for walks, cycling) and cannot, therefore, be included in the list. Information about the nature and frequency of such leisure activities is provided by various research projects (cf. 2.2).

<table>
<thead>
<tr>
<th>Project/Programme/Institution</th>
<th>Description/Health Link</th>
<th>Sources</th>
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<tbody>
<tr>
<td>Vita-Parcours (outdoor fitness trails)</td>
<td>Health promotion through popular sport, mainly in the forest</td>
<td><a href="http://www.vitaparcours.ch">http://www.vitaparcours.ch</a></td>
</tr>
<tr>
<td>Walking (e.g. the “Allez-hop” programme and “Swiss Walking-Event”)</td>
<td>Health promotion through popular sport, frequently in the forest</td>
<td><a href="http://www.allezhop.ch">www.allezhop.ch</a></td>
</tr>
<tr>
<td>Orienteering</td>
<td>Popular sport in the forest, sport experience in and with nature</td>
<td><a href="http://www.solv.ch">www.solv.ch</a></td>
</tr>
<tr>
<td>“Erleben Sie den Wald auf versch. Arten” (“Experience the forest in different ways”) (Pro Senectute Schaffhausen)</td>
<td>Promotion of exercise for senior citizens in the forest: walking, hiking, folk dancing, and games involving all the senses</td>
<td><a href="http://www.healthproject.ch">www.healthproject.ch</a></td>
</tr>
<tr>
<td>“Ich ging im Walde so für mich hin und nichts zu suchen war mein Sinn” (“I walked in the forest with nothing in mind, nothing to do and nothing to find”, Pro Senectute Bern)</td>
<td>Exercise and relaxation in natural settings for senior citizens</td>
<td><a href="http://www.healthproject.ch">www.healthproject.ch</a></td>
</tr>
<tr>
<td>SILVIVA family forest days (part of the Swiss health promotion campaign “FeelYourPower”)</td>
<td>Exercise, recreation, nourishment and social activity in the forest</td>
<td><a href="http://www.silviva.ch">www.silviva.ch</a></td>
</tr>
<tr>
<td>Organized hikes (Volkssportverband Schweiz Liechtenstein)</td>
<td>Aim: motivating people to exercise in natural settings and to contribute to the preservation of their own good health.</td>
<td><a href="http://www.volkssport-vsl.ch">www.volkssport-vsl.ch</a></td>
</tr>
</tbody>
</table>

3.2 Educational projects and institutions

Educational projects and activities are offered for different social groups: adults and families, children and young people, people with disabilities. The following list includes projects from all areas, but does not claim to be complete. Small-scope projects are particularly difficult to track down. Since 1993, the number of organizations and providers of nature-related environmental education has increased exponentially. According to SILVIVA’s directory of services, in 1999 there were 28
forest and nature-based educational institutions in Switzerland. An overview of providers and products in the area of nature-related forest environmental education in Switzerland is provided in the article by ELMER et al. (ELMER, SCHWYTER, & NIPKOW 2002). The following table contains not only projects and institutions from the “inner circle” of nature and forest education, but, where possible, it also includes projects and institutions that are not directly located in this circle but which strongly integrate the forest as a natural area into their activities.

### 3.2.1 Target group: families and adults

<table>
<thead>
<tr>
<th>Project/Programme/Institution</th>
<th>Description/Health Link</th>
<th>Sources</th>
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</thead>
<tbody>
<tr>
<td>Heiligkreuz Seelensteg (Heiligkreuz Spiritual Path)</td>
<td>Woodland ways or paths that invite people to experience the forest sensorily or even meditatively</td>
<td><a href="http://www.biosphaere.ch">www.biosphaere.ch</a></td>
</tr>
<tr>
<td>Sihlwald Walderlebnispfad (Sihlwald Forest Experience Path)</td>
<td>Man should discover his own being and experience the proximity of the Creator</td>
<td><a href="http://www.sihlwald.ch">www.sihlwald.ch</a></td>
</tr>
<tr>
<td>Arnisäge Nachhaltigkeitsweg (Arnisäge Sustainability Path)</td>
<td></td>
<td>&quot;Seelensteg&quot; and &quot;Nachhaltigkeitsweg&quot; brochures (SCHERER 2003)</td>
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<thead>
<tr>
<th>Project/Programme/Institution</th>
<th>Description/Health Link</th>
<th>Sources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Family forest days/family outings to the forest, forest days for adult groups</td>
<td>Relaxation, recreation and experience of nature in the forest</td>
<td><a href="http://www.silviva.ch">www.silviva.ch</a></td>
</tr>
<tr>
<td></td>
<td>Learning about medicinal plants and wild herbs</td>
<td><a href="http://www.waldschulebasel.ch">www.waldschulebasel.ch</a></td>
</tr>
<tr>
<td></td>
<td>Nature-related adult education: discovering one’s own capabilities</td>
<td><a href="http://www.rucksackschule.ch">www.rucksackschule.ch</a></td>
</tr>
<tr>
<td>Workplace outings to the forest</td>
<td>Team building through team experience</td>
<td><a href="http://www.waldschulebasel.ch">www.waldschulebasel.ch</a></td>
</tr>
<tr>
<td></td>
<td>Promotion of a comfortable and relaxed atmosphere</td>
<td><a href="http://www.rucksackschule.ch">www.rucksackschule.ch</a></td>
</tr>
</tbody>
</table>

### 3.2.2 Target group: children and young people

The largest range of forest educational projects undoubtedly exists for children and young people. The following sections make a distinction between projects in the pre-school and school sectors, in the area of leisure and in the area of children’s homes and special schools. Projects from the context of environmental education which do not have the explicit objective of promoting the health and well-being of children, and are primarily aimed at conveying knowledge about nature, were omitted.

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<table>
<thead>
<tr>
<th>Project/Programme/Institution</th>
<th>Description/Health Link</th>
<th>Sources</th>
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</table>
| Forest play groups           | • Playgroups in the forest: 32 employees and approximately 220 children.  
  • Nature is considered to be an optimum framework for the physical and spiritual development of the children | www.feuvogel.ch (dusse vorusse)  
  www.spelgruppe.ch  
  www.erlebinschule.ch  
  www.waldkinder-sg.ch  
  (TUMA 2003) |
| Forest kindergartens         | • Kindergartens located in the forest.  
  • Based on the educational mandate of the public kindergartens. There are currently eight such kindergartens in Switzerland, six of which are public. In addition, numerous normal kindergartens have regular integrated “forest days”.  
  • "The aim is to inspire the children to act autonomously and to present them with an alternative to consumer behaviour which can be described as addiction prevention." | www.waldkinder-sg.ch  
  www.waldkindergarten.ch |
| Forest schools               | • Private associations which offer activities for school classes  
  • The aim, inter alia, is the reinforcement of personal well-being and autonomous activity | www.waldschule-winterthur.ch  
  www.rucksackschule.ch  
  www.erlebinschule.ch  
  www.umwelt-olten.ch |
| Bildungswerkstatt Bergwald   | • Week-long projects for senior school students and groups of apprentices in mountain forests; ecological and social learning  
  • Promotion of personality development and social competence, prevention | www.silviva.ch/bildungswerkstatt  
  (LEUTHOLD 2003) |
| Suche – Sucht – Sehnsucht    | • Forest days for school students with the aim of preventing addiction and promoting health  
  • Basic principle: reinforcement of individual strengths and the accompaniment of group processes | (PÜNCHERA CONGO & KRUG 2003) |

### Leisure

<table>
<thead>
<tr>
<th>Project/Programme/Institution</th>
<th>Description/Health Link</th>
<th>Sources</th>
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</thead>
<tbody>
<tr>
<td>Forest days or weeks</td>
<td>• Relaxation, recreation, experience of nature in the forest</td>
<td><a href="http://www.silviva.ch">www.silviva.ch</a></td>
</tr>
<tr>
<td></td>
<td>• For youth groups, children’s’ birthdays etc.</td>
<td><a href="http://www.waldschule-winterthur.ch">www.waldschule-winterthur.ch</a></td>
</tr>
<tr>
<td></td>
<td></td>
<td><a href="http://www.rucksackschule.ch">www.rucksackschule.ch</a></td>
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<tr>
<td></td>
<td></td>
<td><a href="http://www.erlebnisschule.ch">www.erlebnisschule.ch</a></td>
</tr>
<tr>
<td>WaldläuferInnen-Camps</td>
<td>• Experiential education wilderness courses</td>
<td><a href="http://www.wakonda.ch">www.wakonda.ch</a></td>
</tr>
<tr>
<td>(wilderness survival camps)</td>
<td>• The aim, <em>inter alia</em>, is to demonstrate life in the wilderness as a healthy leisure pursuit.</td>
<td></td>
</tr>
<tr>
<td>Voilà</td>
<td>• Health promotion and addiction prevention programme of the Schweizerischen Jugendverbände (SAJV) (Swiss Youth Associations)</td>
<td><a href="http://www.voila.ch">www.voila.ch</a></td>
</tr>
<tr>
<td></td>
<td>• “Living in and experiencing nature conveys zest for life and fosters confidence.”</td>
<td><a href="http://www.oase.voila.ch/pdf/kurzspiel.pdf">www.oase.voila.ch/pdf/kurzspiel.pdf</a></td>
</tr>
<tr>
<td>Pro Juventute (holiday pass)</td>
<td>• Various leisure activities for children and young people</td>
<td><a href="http://www.projuventute.ch">www.projuventute.ch</a></td>
</tr>
<tr>
<td></td>
<td>• According to Pro Juventute, activities in nature are particularly suitable for the effective organization of leisure time</td>
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### Childrens’ homes and special schools

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<tr>
<th>Project/Programme/Institution</th>
<th>Description/Health Link</th>
<th>Sources</th>
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</thead>
<tbody>
<tr>
<td>TREK, TREKKING (Erlenhof home for young people)</td>
<td>Wilderness trekking in Canada as a complement to institutional care</td>
<td>(INSTITUT FÜR ERLEBNISPÄDAGOGIK 1996)</td>
</tr>
<tr>
<td>Project currently adjourned</td>
<td>(for young people with behavioural difficulties)</td>
<td><a href="http://www.erlenhof-jugendheim.ch">www.erlenhof-jugendheim.ch</a></td>
</tr>
<tr>
<td></td>
<td>• The forest is a suitable experiential and living space for long-term wilderness projects, as sufficient wood is available, it offers protection, varied experiences etc.</td>
<td></td>
</tr>
<tr>
<td>Wildnis-Wochen (&quot;Wilderness Weeks&quot;) (Schillingsrain educational institution)</td>
<td>Experiential education project for children and young people with behavioural difficulties</td>
<td>(INSTITUT FÜR ERLEBNISPÄDAGOGIK 1998)</td>
</tr>
<tr>
<td>Horbach Forest School</td>
<td>Special school/boarding school for children with behavioural difficulties located in the middle of a forest-rich environment</td>
<td><a href="http://www.ggz.ch/horbachv">www.ggz.ch/horbachv</a></td>
</tr>
</tbody>
</table>
3.2.3  Target group: the disabled

<table>
<thead>
<tr>
<th>Project/Programme/Institution</th>
<th>Description/Health Link</th>
<th>Sources</th>
</tr>
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</table>
| Pfadi trotz allem (PTA) (“Scouting for all”) | • Guides and Scouts for the physically disabled and people with learning difficulties  
• Makes it possible for participants to experience nature | www2.pbs.ch/de/ > Fact Sheets |
| Pancheiron Project  
Project currently adjourned | • Encounters with nature for the physically and sensorily disabled and for people with learning difficulties organized by “Natur-im-Puls”  
• Aims: to extend the action competencies of the participants, to promote well-being, independence and perception | (NICOLE & SIELAND 1999)  
Project evaluation |

3.2.4  More detailed practice-related literature

Numerous publications exist in the area of forest education in Switzerland which contain concrete instructions for activities in the forest, present ideas for play etc. The following list contains a selection of such publications:

SILVIVA: Naturerlebnis Wald. Birmensdorf: SILVIVA.
### 3.3 Therapeutic and natural-healing projects and institutions

Therapeutic projects must be dealt with separately from the educational projects, even if the boundary between them is not always clearly identifiable, in particular in the areas of natural-healing and social education. The forest and nature undoubtedly play a certain role in different forms of therapy and institutions, but in many cases this role is not a central one. For example, rehabilitation clinics are generally located in natural forest-rich locations and it is to be assumed that forest walks are among the patients’ most popular leisure activities. However, this proximity to nature or the forest and its role in the therapeutic process is not highlighted by Swiss rehabilitation institutions, hence they are not included in the table.

<table>
<thead>
<tr>
<th>Project/Programme/Institution</th>
<th>Description/Health Link</th>
<th>Sources</th>
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</table>
| BigTrail                     | • Educational-therapeutic project for young people with serious life crises, usually following drug withdrawal.  
                               • Wilderness-trekking in the forests of Canada (carried out in 1994 and 1996) | (INSTITUT FÜR ERLEBNISPÄDAGOGIK 1998)  
                               (FLÜCKIGER SCHÜERP 1998)  
                               (CRAIN 1996) |
| Nature-art therapy, quest for vision in nature | • Service provided in the area of psychotherapy  
                                            • Finding oneself in nature, gaining clarity and setting one’s own goals | www.natur-kunst-therapie.ch/naturtage.htm |
| Tree medicine                | • Healing by means of the living essence of the tree (individual products of the tree are not processed to produce medicines)  
                               • Sensual experience of the healing power of trees | (STRASSMANN 2003) |
| Therapy based on the wood-polarity system | • Form of therapy involving natural healing from the energetic zone  
                                           • Use of the healing power of the forest or its woods | (HERTNER 1994) |
| Phytotherapy (plant medicine) | • Numerous services and products: natural doctors, therapists, pharmacists | http://www.naturheilkunde.ch  
                                           http://www.smgp.ch/  
                                           http://www.heilpraxis-online.ch/ |
4 Concluding Comments and Findings

The numerous research studies already carried out in Switzerland on the topic of forest and health highlight the significance awarded to the forest as a place of recreation, experience and learning. The symbolic attributions also demonstrate the particular status that the forest and trees have enjoyed in our society down through the centuries. People like to spend time in this natural space, which they perceive as the epitome of the natural, and they use it and its products for relaxation and recreation, education, rehabilitation and therapy.

Against this background, it comes as no surprise that numerous and wide-ranging projects and initiatives exist which contribute to health and well-being in a general sense and involve the forest or trees. Nature and forest education projects have experienced an upsurge in popularity in recent years. Forest schools, forest kindergartens and forest play groups have all come into being. While, previously, organized activities in the forest were mainly the preserve of youth groups, professionally managed and specialized providers are now also involved. Research projects and evaluations already exist dealing with the latter, while the forest-related activities and initiatives of the youth groups remain largely ignored by science and research. Forest educational projects sometimes have very ambitious aims: they make mention of the prevention of violence and addiction, the promotion of autonomy and social competence etc. To what extent such aims can be achieved in the forest and the exact role played by the forest in such processes remains, however, for the most part to be evaluated. The project Evaluation Sucht- und Gewaltpräventionsaktivitäten (Evaluation of Addiction and Violence Prevention Activities) which is planned in the context of the COST Action E39 could go some way towards closing this gap.

While forest-education projects appear to be in considerable demand in normal schools and in the leisure sector, they tend to be rare in the area of social and remedial education. Of course, the experience of nature is part of the leisure programme in many children’s homes and special schools; however there are very few targeted projects in which the forest and nature play a key role for the participants. For various reasons (lack of money and lack of time on the part of the project leader9), the Pancheiron Project for the disabled had to be abandoned half way through its planned schedule. The Erlenhof home for young people also had to temporarily adjourn its TREK project due to a lack of demand. According to the project leader,10 most experiential education projects in such homes are facing a similar fate at present. The long-term project in the Canadian forest was carried out for the last time in the year 2000. The demand for such programmes no longer exists; they are too demanding for the young people, who are increasingly less inclined to become involved in programmes that require them to give up so much of their familiar lives and environments.

Natural experiences and work activities in nature are frequently made available as complementary activities in the area of addiction therapy;11 however current experi-

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9 Oral information from Stefan Jost
10 Oral information from Peter Fieser
11 Cf., for example, http://www.aebihus.ch; http://www.terra-vecchia.ch/
http://www.suchtrehabilitation.ch/ (Fuente Alamo)
ence-therapy projects, in which the experience of nature plays a central role, have become less common. According to FitzGerald Crain, a lecturer at the Institute for Special Education and Psychology at the University of Basel, there was a boom in projects like BigTrail in the early 1990s and this boom has clearly ended. The few projects that are still running are not located in the forest, but on sailing ships. Crain identifies as a particular problem associated with this approach. the way in which long-term experiential education projects generally expose young people or adults to very intensive experiences that they are often unable to cope with. While the experience phase is often successful, the transfer of what has been learned and experienced into everyday life outside the wilderness is difficult and must be very well supervised. Moreover, such projects are very complex, are dependent on the people involved and are very expensive; numerous projects have had to be adjourned for financial reasons.

The forest does not play a key role in the wider therapeutic area either. While some projects and therapeutic approaches exist that work with the forest or trees, their distribution is marginal. Traditional plant medicine, in which forest plants undoubtedly play a role, is the only therapeutic forest-related area that reaches a broader public. Rehabilitation clinics are often located in forest-rich environments; however they do not make any targeted use of these wide-ranging natural areas. The concept of “Kur- und Therapiewälder” (“Curative and Therapeutic Forests”) was developed for this reason (Gesundheitsförderung, SILVIVA 2001; Rauch-Schwegler 2001). These forests are intended to be characterized by special aesthetic attractions (variety of form and colour), stimulating zones for scent and hearing and special experiential zones (e.g. tree-top walks, calming meditation paths etc.). In this way they could increase awareness of the forest as a therapeutic area.

The question as to the extent to which different types of forests have different effects on human well-being and recreation has not yet been widely researched. The proposed WSL project “Vergleich der Wirkungen von wilden und gepflegten peri-urbanen Wäldern auf Wohlbefinden und Erholung” (“Comparison of the Effects of Wild and of Maintained Peri-Urban Forests on Well-Being and Recreation”) could fill this gap, at least in part.

The role of the forest in the projects presented here is wide-ranging. Some projects describe why the forest is important, but many do not. Many questions are still waiting to be answered. For example: to what extent is the forest particularly suitable for different activities in the areas of sport, education and therapy? What can it offer different target groups, in particular people with disabilities or with behavioural difficulties, and what effect does it have on them? What can we learn from it and in it? What distinguishes it from other natural areas? Answers to these and similar questions would provide information as to why the forest and trees make such a unique contribution to human health and well-being.

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12 Oral information from Fitzgerald Crain


GESUNDHEITSFÖRDERUNG, SCHWEIZERISCHE STIFTUNG FÜR, SILVIVA (Hrsg.) 2001: Wald und Gesundheit. Lausanne [etc.]: SILVIVA.


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