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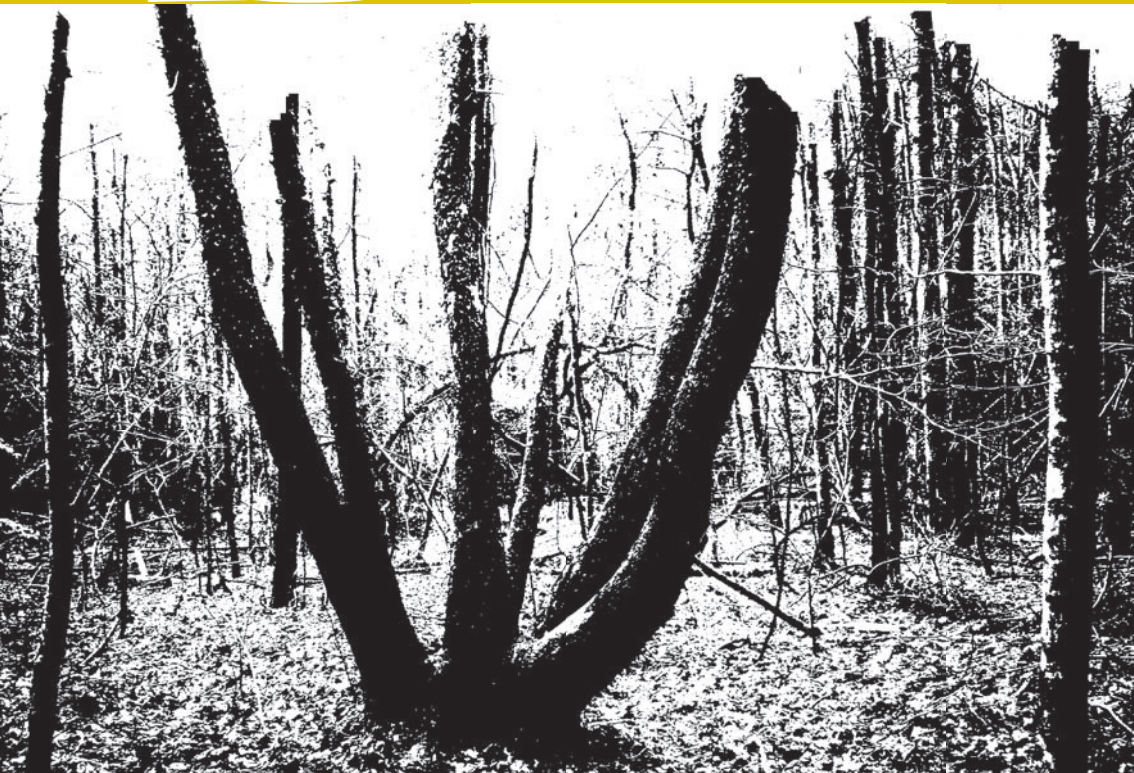
The Introduction of Historical and Cultural Values in the Sustainable Management of European Forests

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ocument produced for the Ministerial Conference on the Protection of Forest in Europe

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1. Introduction

The concept of sustainability in forest management, first formulated following the United Nation Conference on Environment and Development held in Rio de Janeiro in 1992, has stimulated the development of strategies, actions, criteria and indicators for the sustainable management of forestland in several continents. In Europe, this objective is being pursued by the Ministerial Conference on the Protection of Forest in Europe (MCPFE), a pan-European organization with about 40 members, including states and international institutions. The decisions of the MCPFE involve both the European Commission and member states, and also play an important role in the issuing of certifications of compliance with the criteria and indicators of Sustainable Forest Management (SFM) for individual forest areas. Establishing a set of criteria and indicators for SFM is of crucial political significance. It involves transferring from theory into practice the whole concept of sustainability and offering to single states, international bodies, and other stakeholders indications as to what is sustainable and what is not. These indications are today already included in the laws of many European countries. The existing set of criteria and indicators for sustainable forest management was developed following the Rio Conference on Environment and Development of 1992, after a long debate that extended through almost 10 years of meetings of the Ministerial Conference. It comprises six main criteria: 1) Maintenance and Appropriate Enhancement of Forest Resources and their Contribution to the Global Carbon Cycle; 2) Maintenance of Forest Ecosystem Health and Vitality; 3) Maintenance and Encouragement of Productive Functions of Forests (Wood and Non-Wood); 4) Maintenance, Conservation and Appropriate Enhancement of Biological Diversity in Forest Ecosystems; 5) Maintenance and Appropriate Enhancement of Protective Functions in Forest Management (notably Soil and Water); 6) Maintenance of Other

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Socio-Economic Functions and Conditions. One will immediately notice that these headings mostly describe actions aimed at preserving the ecological functions of forests, allowing them to be used for economic purposes, but give scarce attention to cultural factors. The reason for this lies in the fact that the concept of sustainability, as it has been perceived and applied so far, has been strongly influenced by the theory of “degradationism”, emphasising the negative role of man in the environment as an agent depleting the ideal state of “naturalness” of the forest environment. That is why social and cultural factors have not been regarded to be of crucial importance to the definition of the concept of SFM. During the fourth Ministerial Conference on the Protection of Forests held in Vienna in 2003, a decisive step towards the inclusion of social and cultural values in SFM was taken, leading to the adoption of Vienna Resolution 3. The aim of this resolution is to further promote and raise awareness of the social and cultural dimensions of sustainable forest management as an important asset to education, recreation, environment, rural development, and the economy. Taking into account the decisions of the United Nations Forum for Forest (UNFF) and the Convention for Biological Diversity (CBD), and the work done by Unesco on this subject, the signatory States committed themselves to “Preserving and enhancing the social and cultural dimension of sustainable forest management in Europe”. After the Vienna Conference, research on this subject was carried on in scholarly meetings promoted by the Ministerial Conference together with several national and international institutions. An international seminar on “Forestry and our cultural heritage” was held in Sunne (Sweden) in June 2005. It was attended by participants from 13 countries. The seminar was organized as a joint effort of Sweden, the Fao Expert Network and the MCPFE Liaison Unit Warsaw. The 18 papers presented addressed issues of cultural heritage and values related to forests and forestry. In addition, a list of recommendations at the Pan-European and national-regional level were produced and included in the seminar report. The results of the seminar were presented at the MCPFE Expert Level Meeting (October, 2005) and stimulated further actions towards the implementation of the Vienna resolution. The following year, a

meeting entitled “Cultural heritage and sustainable forest management: The role of traditional knowledge” was held in Florence, Italy (11-15 June 2006). It was organized by the Research Unit “Forest and Woodland History” and the Task Force on Traditional Forest Knowledge of the International Union of Forest Research Organization (IUFRO), and supported by the University of Florence, the U.S. Forest Service, and the Liaison Unit of the MCPFE, in cooperation with the Italian Ministry of Agriculture, Food and Forest Policies, the Regional Government of Tuscany, Unesco, and the European Society for Environmental History. The Conference attracted 120 participants from 24 countries, including forest scientists, forest managers and planners, forest policy experts, and representatives of a variety of international organizations and forest policy bodies, including representatives of the UNFF, FAO, Unesco, the Council of Europe’s European Landscape Convention, and the MCPFE Liaison Unit. Two volumes containing 88 papers were published, as a contribution to the implementation of the MCPFE Work Programme towards Vienna Resolution 3. In addition, a special issue of the journal *Forest Ecology and Management* including a selection of papers from the Conference was published in September 2007. The Florence Conference stressed that cultural values related to forests and forestry are often based on long historical experience and deep insights into the dynamics of forest ecosystems. Therefore, they are inspired by the behaviour and characteristics of animal and plant species of special economic, social, cultural, and spiritual significance to local populations. The management and conservation of cultural heritage related to forestry and forested landscapes not only protects biodiversity that has been created by and is subject to human activity, but may also favour the economic growth of rural areas by promoting local products, encouraging tourism, and eventually contributing to improve the quality of life of local populations. Many of the world’s “primary forests” and biodiversity “hotspots” are located in regions with the highest diversity of indigenous populations, who manage their natural resources on the basis of their distinctive cultures and their traditional knowledge and wisdom. In other rural environments, a long history of integration of forestry and agricultural activities has also

created a biological diversity that is closely connected to complex landscape patterns. Cultural landscapes often show a high level of habitat diversity, tighten into a versatile mosaic produced by the application of different management forms, that came to meet specific economic, social and environmental functions. Considering the future scenarios looming ahead, as a result of environmental change and especially global warming, the conservation of traditional woodlands and forest management practices, as well as their associated landscape-level adaptations to difficult environmental conditions, should be given priority attention. Efficacy in coping with challenging environmental conditions depends on interactions between key factors that require careful consideration if we wish to understand their historical success. Many positive results have been achieved through internal experience and logic that has rarely been formalized into formal science. In traditional rural communities, different types of forestland, from scattered trees in fields to dense forest cover, provide a variety of products and environmental services. Marginal and apparently non-productive lands such as areas with low tree cover or shrublands have been traditionally exploited providing valuable resources to local populations, helping to reduce external energy inputs. Such landscapes are rapidly shrinking in Europe through lack of protection and appropriate management. For all these reasons, the V3 guidelines suggest that a focus on cultural landscapes would be an effective approach for the implementation of cultural values in forest policies, at the Pan-European, national, and regional levels, also taking into consideration the role played by the European Landscape Convention, an international treaty signed or ratified by more than 33 states in Europe, stressing the need to develop policies for the conservation and management of landscape resources, and suggesting that sustainability cannot be attained without a landscape-level approach. Actually, until recently international documents regarding sustainable development said little about cultural landscapes. The Stockholm declaration of 1972 and the Bruntland Report in 1987 did not refer to landscapes at all. Agenda 21 (1992) mentions the issue, but without clearly addressing it. In 2003, the Fao GIAHS project (Globally Important Ingenious Agricultural Heritage Systems) clearly

addressed the relationships between agricultural heritage systems and their landscape. However, the main specific tool available at world level for the conservation of cultural landscapes is surely the World Heritage Convention (WHC) of Unesco (1972), while at the European level the European Landscape Convention (ELC) is the most comprehensive proposal, although the Pan-European Biological and Landscape Diversity Strategy set up for the 1996-2016 period might have offered a more specific approach. It is very significant that cultural landscapes have only recently been introduced in the World Heritage Convention (1992). Previously, the convention had been mainly concerned with the protection of natural and cultural heritage, the latter mostly including monuments or historical buildings, with special regard to their aesthetic value. According to the WHC, cultural landscapes embody the “combined work of nature and man. They are illustrative of the evolution of human society and settlements over time, under the influence of the physical constraints and / or opportunities presented by their natural environment and of successive social, economic and cultural forces, both external and internal”. The fact that cultural values currently play a limited role in Sustainable Forest Management indicates a scant consideration of the role of culture and history in the overall evaluation of forests within the paradigm of sustainability developed in recent decades. Failure to effectively and consistently address culture and history may very well be an emerging weakness that needs to be reconciled, for the dual purpose of giving the public and local communities confidence in the protocols designed to recognize well-managed forests, and moving towards the goal of sustainable management.

After the Florence conference, the Ministerial Conference requested the International Union of Forest Research Organizations to consider taking part in the coordination of an international initiative to draw up scientific guidelines for the implementation of Vienna Resolution 3. The Ministerial Conference stressed the need to include additional pan-European indicators for social and cultural aspects in SFM. The present paper presents the result of the work of an international group of experts, coordinated by Mauro Agnoletti, who were appointed by the IUFRO and the Ministerial Confer-

ence to produce these guidelines. The importance of this work for environmental history and environmental historians is not only to bring the positive values of human history into the application of the concept of sustainability, but also to offer history the chance to take a seat alongside other disciplines at the “table” where scientific research is translated into action. Indeed, until recently only scholars in the biological sciences contributed to develop methodologies and political actions for the management of forestland in Europe; this was true, for example, for the European Forest Action Plan and the Habitat directive, which established the Nature 2000 network of protected areas.

2. The objectives of the guidelines

The guidelines drawn up by our group not only specify parameters for the preservation and enhancing of cultural values, but also indicate ways to include cultural values in sustainable development through actions and strategies that can be developed by the European Union, by individual countries, or by organizations dealing with sustainable development. Our document outlines strategies and actions to be implemented primarily by National Forest Programmes and Rural Development Plans. Strategies are essential to ensure integration and continuity of cultural values in policy making and planning for sustainable forest management (SFM), while specific actions are required for the appropriate application of these values in different environments. In general, strategies and actions are guided by the principle that the incorporation of cultural values into forest management is essential, as these can help to improve diversification and therefore competitiveness of often marginal rural economies, improve the ecological conditions and appearance of the countryside, and eventually help local communities to achieve a higher quality of life. In addition, the incorporation of such values in forest management also have positive effects at the national and global levels, as it helps to conserve cultural heritage and maintain the diversity of cultural landscapes for current and future generations. These guidelines seek to achieve three main objectives.

1. *Management and Conservation*: actions for sustainable forest management, to identify, include, and maintain the significance of cultural values in national forest programmes and rural development plans, and to ensure the future preservation and protection of cultural values.

2. *Planning*: planning activities at the management level to ensure the incorporation of cultural values in forestry and rural development, harmonising, and guiding transformations in socioeconomic development.

3. *Valorisation*: activities aimed at maximising benefits from the sustainable management of forests and implementing cultural values at the economic, environmental, and social levels.

In order for the main objectives of these guidelines to be achieved, strategies for the inclusion of cultural values in SFM should be defined at National levels. These should define a series of actions that will be taken by Governments and their partners to make the incorporation of cultural values in SFM a fundamental consideration across the forest sector. As regards the strategies to be adopted in national forest programmes, each government should commit to a detailed plan that will facilitate the recognition, definition and implementation of cultural values in National Forest Programmes. These strategies should be tailored to the circumstances of each individual country. In general they should: 1. Set up rules defining the cultural value of forests and their associated management practices across the country ; 2. Recognize the cultural value of forests as an essential component of the diversity and richness of national cultural heritage, and promote action to conserve and valorise forest heritage; 3. Implement policies aimed at the protection and valorisation of cultural values related to environmental assets; 4. Identify the requirements and provide the legislation for the incorporation of cultural values into local plans for forest and woodland management; 5. Set up procedures for the participation of different stakeholders (forest owners, public, local and regional authorities etc.) in the implementation of policies concerning cultural values in forest ecosystems; 6. Include cultural values in forest planning and management; 7. Promote cultural values by including them in educa-

tional programmes and develop training courses on the protection and management of cultural values in forestry; 8. Promote research on forest history and forest-related cultural values; 9. Provide a conduit for the transmission of information to and from the national, regional and local levels; 10. Provide mechanisms for revision of relevant policies for the dynamic incorporation of cultural values and the maximization of their benefits (e.g. rural development plans).

National Forest programmes should envisage actions to promote the general strategies and guidelines mentioned above. These are: 1. Identify cultural values in the territory defining their significance, integrity, and vulnerability. 2. Managing data collection and collation. 3. Monitoring the process of transformation. 4. Managing the process of transformation. 5. Ensure research development in order to increase knowledge and gather evidence so that to limit actual and potential negative impacts on cultural heritage. 6. Defining planning tools and management techniques.

National forest programmes should include indications for the planning and management of cultural heritage. More specifically:

1. Forest management planning should incorporate historical investigation as a standard methodology to understand the origins and features of forest territory, as well as develop appropriate management strategies for cultural, environmental, and social factors.

2. Cultural values should be classified, mapped and listed in inventories and systematically assessed by current monitoring processes of forest resources, both as regards material elements (e.g. landscape patterns, buildings, wood structures etc.) and immaterial ones (traditions, religious ceremonies, etc.)

3. There should be periodic evaluation of forest management in relation to cultural values.

4. Forest management plans should always minimize the risk of degradation and damage of cultural values, not only at the site level, where they may have special importance, but also at the landscape level.

5. Forest management plans should periodically assess the significance, integrity, and vulnerability of cultural values.

3. Rural development plans

As suggested by the Pan-European Operational Level Guidelines for Sustainable Forest Management and Vienna Resolution 3, National Rural Development Plans provide an important opportunity to promote SFM and particularly the conservation of cultural values. Many European countries have no National Forest Plan, but do have a rural development plan funded by the Common Agricultural Policy. Therefore, in some cases policies concerning forest areas are promoted through rural development rather than national forest policies. There is a lot of potential in rural development policies, because governments and regions implementing them are not placing limitations on private activities, but rather using systems of economic incentives to promote processes in which the advantages of conservation outweigh the benefits associated with degradation. This is especially true of the EU Common Agricultural Policy, which implements agri-environment and forest-environment measures, and provides compensation to farmers for constraints imposed upon them by the Natura 2000 network of protected areas. The strategies and actions proposed in the present section can be used in the development of national environmental, forestry, and agricultural policies, and are an essential means to translate national targets in the protection and implementation of cultural values into effective actions at the local level. These strategies are aimed at making sure that the implementation, preservation and enhancement of cultural values is promoted, understood and rooted in policies and decisions at the local level. In general, strategies and actions help to: 1. Identify targets that are relevant to specific areas as they better reflect the values of local people; 2. Stimulate effective local partnerships to ensure programmes for the conservation of cultural values are developed and maintained in the long term; 3. Raise awareness of the need for implementation, preservation and enhancement of cultural values at the local level; 4. Provide a basis for monitoring and evaluating local activities, both at the national and the local level. There is also a significant scope for connected action at local levels of (self-)government, notably through operational planning by private land managers (at corporate and individual levels) in compliance with

the High Conservation Value (HCV) concept. This concept was originally developed in the context of forest certification, but has now been extended into a flexible toolkit to be applied to all kinds of ecosystems and habitats for a variety of uses, including land-use planning, conservation advocacy, and the designing of responsible purchasing and investment policies. The concept takes into consideration “areas critical to local communities’ traditional cultural identity”, more specifically, “areas of cultural, ecological, economic or religious significance identified in cooperation with these local communities”.

3.1 A strategy to diversify local economy and improve competitiveness

It is widely believed that traditional management practices based on cultural values can add value to the resources and services derived from the particular landscapes that these practices are applied to. This is especially important for less productive areas where environmental and market conditions do not allow fully mechanised timber production. In such areas, measures should be taken to preserve and use cultural heritage for the maximisation of the economic capacity of forest and woodland resources. It is widely accepted that the market value of wood and non-wood forest products, as well as other non-market benefits such as tourism, recreation and sport activities, can be increased by the added value that is associated with the cultural landscape from which they are derived. This is a crucial factor for increasing the competitiveness of traditional local products at the national and international level. Landscape resources are a unique factor of competitiveness for countries and regions, as they cannot be reproduced by a competitor in another country or region. The market value of timber or non-timber commodities produced in a specific cultural landscape can be increased if the producer appears to care for the conservation of the cultural identity of that landscape. Furthermore, forestry and its food sector have great potential to further develop high quality and value-added products that meet the diverse and growing demand of European consumers and world markets. There is also the hope to promote new jobs and open new

sectors for foresters, developing the management and conservation of cultural landscapes, as well as services and activities related to the promotion of historical and cultural heritage.

Any development initiative should take account of the cultural identity of the places it affects. This is in order to prevent any possible harmful effects of actions. Moreover, any new legislation should be made relevant to the cultural context where it is going to be applied in order to mitigate negative effects of past and present policies applied in EU countries. Policies should pursue the preservation of cultural values where they still exist and promote their restoration wherever possible as a way of supporting the economic prospects of marginal rural areas. Local-level actions undertaken as a part of this strategy should aim at successfully demonstrating the connection between the competitiveness of local economy and cultural values associated with forests and forestry, and provide measures that will improve traditional production. These measures should:

1. Support the role of forest-related cultural values in boosting the competitiveness of forestland and use marketing techniques to highlight the link between traditional local products and tourism.

2. Establish advisory services supporting owners and informing them about effective conservation and cultural valorisation.

3. Promote “good practice” for the conservation of cultural values and cultural landscapes.

4. Support entrepreneurial activities promoting the conservation of cultural forestry or agro-sylvo-pastoral production systems.

5. Support cooperation between primary and secondary producers by applying measures that encourage secondary producers to use traditional products and traditional knowledge in their economic activities.

6. Subsidise the restoration and conservation of infrastructure having historical importance that is related to traditional management and production in forest and agriculture (buildings, machinery, tools, and other material evidence), which is suitable for inclusion into present forestry and farming economic activities.

7. Support the use of traditional wood and non-wood products

in agriculture and other industries, wherever possible, by compensating any additional cost derived from the use of these products instead of other modern technologies.

3.2 Strategies to improve the landscape and the countryside

The long-lasting relationship between humans and nature has produced landscapes that are distinctive in their biological diversity and ecological functions, but also in their aesthetic qualities. The distinctiveness of these landscapes is the result of the cultural differentiation of societies. The positive role of these societies in shaping the forest environment and improving the quality of their landscapes should be acknowledged, and strategies should be implemented to promote the conservation of different cultural landscape patterns reflecting the identity of the different European forest regions, their different historical management practices, and their biodiversity. The focus should be on traditional forest management practices, the traditional uses of plants and trees, as well as timber and non-timber products. At the local level, strategies should evaluate the benefits of the cultural landscape and give priority for conservation to the distinctive landscape features from which these benefits are derived. Such strategies will help to preserve and enhance not only the qualities of forested and wooded landscapes, but also the aesthetic and spiritual values often informing their structural diversity. Strategies should try to counter-balance not only the high rate of abandonment of traditional practices, but also the consequences of inappropriate actions favouring abandonment, the disappearance of traditional knowledge, and the globalisation of landscapes. Local-level initiative should be based on the awareness that different and distinctive landscape patterns sustain biological diversity and function in different ways, therefore providing different benefits. Policy recommendation should be site-specific in order to avoid any negative impact on these benefits as a result of inappropriate management. Moreover, actions should be adapted to the distinctive character of the landscape in order to mitigate any negative effects of past policies. Policies should protect cultural values that enhance forests and

woodlands ecosystem diversity as it is this diversity that contributes to higher aesthetic, spiritual and cultural values of these landscapes.

Comprehensive research should be carried out to assess the economic, social and environmental benefits of different forest and woodland landscape patterns. Measures should be taken to protect the specific character of forest and woodland landscapes and the aesthetic, spiritual and cultural values it is connected to. Possible actions need to be evaluated in the context of local history and culture taking into account that the protection and management of cultural landscapes and cultural values may or may not overlap with other objectives, such as nature, soil, or wildlife conservation. Actions to be taken should include the following:

1. Promotion of interdisciplinary studies to identify, inventory and document local cultural heritage related to forestry and woodland landscapes in order to develop local 'state of knowledge' reports on local landscapes and their cultural resources.

2. Restoration and management of traditional forest and woodland landscape patterns, as well as their extension, density, structure and species composition, with specific attention to those threatened by the abandonment of traditional management practices.

3. Restoration and management of sites having specific historical, cultural, or spiritual significance .

4. Conservation of disappearing traditional forest management practices at woodland level (e.g. selective coppice, coppice with standards, wooded pastures, pastured woods, shrublands etc.).

5. Restoration of practices at single tree level in order to protect and maintain the shapes and ecology of individual trees that have been created by the application of traditional knowledge (pollarding, shredding, etc.).

6. Restoration and conservation of artefacts having historical importance (e.g. not only tools or machinery, but even systems and structures for logging, transportation, historical watershed management systems, charcoal making techniques, tar production, etc).

7. Protection of veteran trees (especially "working trees", i.e., those transformed through interaction with human beings) both in the forests and the countryside.

8. Maintenance and planting of trees outside the forest, e.g., in mixed cultivations or along field margins in the form of hedges, tree rows, etc.

9. Restoration and management of old agro-sylvo-pastoral systems such as wood pastures, or pastured woods, and the traditional practices through which they are maintained.

3.3 Improving quality of life in rural areas

The conservation and development of cultural values should play an important role in enhancing the attractiveness of forest and woodland landscapes for both visitors and local populations. The appreciation of rural areas is related not just to intrinsic environmental qualities (e.g. air, soil, vegetation etc.) but also to perceptions about the identity of a place given by the quality of its landscape. The sense of identity of a place is created by economic, social and cultural aspects, through time and space and it is made up by meanings often assigned on specific landscapes features. The preservation of such features contributes towards higher quality of life for local populations through material and immaterial means. These features improve people's lives and make them happy by fulfilling their recreational, emotional, and spiritual needs, as well as their sense of identity, while they contribute to the local economy by enhancing the aesthetic and spiritual qualities of the area and thus attracting visitors. Therefore, strategies should be developed that will promote activities to link the conservation and promotion of cultural values to forest and woodland features that are important for the well-being of the local population and visitors alike. In this respect, the recovery and conservation of traditional knowledge can play an important role in the valorisation of cultural forest heritage. Local-level strategies should support research aimed at uncovering such knowledge, wherever this is possible. This is an important objective, as traditional knowledge has rarely been formalized into the official language of forestry and is therefore often lost. Strategies should be developed to put in place regulations at the local level aimed at valorising cultural values and discouraging activities alien to the cultural identity of a given area. It is important to develop integrated strategies that will engage the public, forest and woodland

owners, and local administrations in the recovery, preservation and maintenance of those landscape elements that contribute towards improving quality of life in rural areas. These strategies should include educational programmes in order to ensure the continuation of traditions in future generations. Local-level actions in the framework of strategy 3 should aim at supporting local traditions associated with forest and woodland landscapes and disseminate them within wider environments. Also, they should promote regulations that will ensure the vitality, good management, and continuation of these traditions. They should include:

1. Development of information centres promoting local cultural forest heritage.

2. Support for land and forest owners to promote products and services from their private woods and forestland linked to cultural values that are important for the population and/or visitors to the area.

3. Support for the marketing of cultural heritage.

4. Support to recreational and cultural initiatives aimed at informing about local cultural heritage (e.g. museums, events, tours).

5. Restoration and maintenance of sites, infrastructure and services essential to the enhancement of the cultural identity and quality of life of local population.

6. Creation and maintenance of training courses for foresters, administrators and the public on the conservation and management of cultural heritage.

4. Additional pan-european indicators

Our group of experts has drawn up possible guidelines for policies dealing with the social and cultural aspects. Our aim is to introduce tools to assess conditions and trends related to the conservation of cultural heritage. As noted by several scientists attending a debate on the implementation of the Vienna resolution during the Florence Conference in 2006, it is evident that the issue of cultural heritage is significant enough to deserve the creation of a completely new criterion. However, as a first step in the implementation of cultural factors in SFM, we propose here a series of indicators falling within

three main categories often used in the conservation of cultural and natural heritage:

- 1 *Significance*
- 2 *Integrity*
- 3 *Vulnerability*

The indicators listed in each category are interlinked and can be used in combination. The same indicator (e.g. individual land uses) can be described or measured in terms of its significance, integrity, or vulnerability.

4.1 Significance

This term is applied to sites or landscapes carrying important values that can be described by several indicators. It can apply, for example, to a testimony of a living or lost cultural tradition or civilization, such as a type of building, an architectural or technological ensemble, a landscape, or an example of a traditional human settlement. It can be directly or indirectly associated with events or living traditions, with ideas or beliefs, or with artistic or literary works representative of a culture (or cultures), especially when this culture is under threat.

1. *Landscape patterns.* Cultural landscapes are highly significant for local and national cultural heritage. They are characterised by specific features of their matrix, in terms of vertical and spatial diversity, ranging from dense forest cover to pastures or fields with trees. Changes induced in the historical structure of the matrix may degrade these landscapes' significance. This indicator is also particularly important because it addresses biodiversity at the landscape level; a feature rarely monitored but highly vulnerable in the context of the current rapid changes in rural areas.

2. *Individual historical land uses.* Individual forms of land use based on historical traditional practices (e.g. charcoal burning, pasturage, acorn production etc.) can be considerably important for local history. Individual land uses may still survive even where entire

landscape patterns no longer exist, due to changes in the socioeconomic or natural conditions of a region.

3. *Material evidence.* Significant buildings or structures associated with forestry or forest operations (e.g. utilisation, transportation, woodworking etc.)

4. *Documentary evidence.* Historical written or printed documents related to forests and forestry.

5. *Bio-cultural evidence.* Veteran trees and culturally modified trees for the production of acorns, fodder (e.g. pollard trees), tar, resins, or other products, as well as hedges, tree avenues, etc., that are of significance for local history.

6. *Cultural traditions.* Immaterial factors, such as events, ceremonies, place names, representative of ethnic groups or local communities.

7. *Traditional knowledge.* Traditional knowledge about trees, herbs, woods, nuts, saps; forest utilization practices, hunting techniques, management practices, etc.

8. *Social perception.* The perception of historical, aesthetic and spiritual qualities arising from the interaction of economic, social and cultural processes through time and space is an essential aspect of the cultural identity of a place.

9. *Aesthetic qualities.* Aesthetic qualities are often what people notice first. They are often influenced by cultural factors affecting both the observer and the local landscape and are also important for certain economic activities, notably tourism and recreation.

4.2 Integrity

Integrity measures the state of protection and management of a cultural landscape, a monument, or a tradition. A landscape still showing all its functionalities, at the historical, environmental and social levels, satisfies integrity requirements. In order to maintain integrity it is necessary to maintain landscape elements carrying significance, and to monitor and assess factors negatively affecting significance. The concept of integrity can be applied to material aspects, such as architectural elements or landscapes, as well as immaterial ones, such as ceremonies or traditions.

1. *Extension of cultural landscapes.* The integrity of a landscape is also related to the conservation of a sufficiently vast area to support landscape elements invested with significance.

2. *Integrity of landscape patterns.* The integrity of a landscape is related to the conservation of the historical features of its matrix. This matrix may be characterized by very fragmented patterns, as observable in many landscapes shaped by traditional agro-forestry systems, or dense, homogeneous forest covers. Mixed conditions also occur.

3. *Integrity of individual historical land uses.* The integrity of individual historical land uses is linked to the degree of conservation of each of their features (e.g. number, species, and health of trees in a forest).

4. *Integrity of material evidence.* State of conservation of buildings or structures associated with forestry or forest operations (e.g. utilisation, transportation, woodworking etc.).

5. *Integrity of documentary evidence.* State of conservation of historical archives, collections or individual printed and/or written documents.

6. *Integrity of bio-cultural evidence.* State of conservation and vitality of veteran trees, culturally modified trees, hedges and tree avenues.

7. *Integrity of cultural traditions.* State of conservation of immaterial factors such as traditional events, ceremonies, place names etc.

8. *Traditional knowledge.* State of conservation of traditional knowledge about trees, herbs, woods, nuts, saps, forest utilization practices, hunting techniques, management practices etc.

9. *Social perception.* Degree of conservation of the perception of historical, aesthetic and spiritual qualities arising from the interaction of economic, social and cultural processes through time and space.

10. *Aesthetic qualities.* The integrity of aesthetic qualities is important for the quality of life and the economic role of a landscape.

4.3 Vulnerability

Vulnerability represents the fragility of cultural factors due to the features of processes affecting significance and integrity. Vulnerability also measures resistance to change. Some landscapes are very vulnerable to abandonment, their features degrading in a relatively

short time (e.g.. young coppice, shrublands, chestnut orchards etc.), whilst others are less affected by the suspension of traditional practices and more resistant to change (e.g. high stands of beech or fir). In the same way, immaterial factors such as traditions, ceremonies or local knowledge can be affected to varying degrees by changing socioeconomic conditions. It is therefore important to assess the different degree of vulnerability of each individual item endowed with significance, as well as potential dangers.

A. Vulnerability of elements endowed with significance

1. *Vulnerability of landscape patterns.* Landscape patterns show fragilities and different degrees of potential degradation, according to their features and the nature of the threats they are exposed to - abandonment, climate change, socioeconomic development etc.

2. *Vulnerability of individual historical land uses.* Fragility and potential degradation of individual land uses depending on their characteristics and the nature of the threats they are exposed to.

3. *Vulnerability of material elements.* Fragility of buildings or structures associated with forestry or forest operations (e.g. utilization, transportation, woodworking etc.), trends towards loss of knowledge of the existence of testimonies of the past (i.e.: ownership of woodlands, historic statutes regulating forest management etc.)

4. *Vulnerability of documentary evidence.* Fragility of collections, archives or individual written documents.

5. *Vulnerability of bio-cultural evidences.* Fragility of veteran trees, culturally modified trees, hedges, tree rows etc.

6. *Vulnerability of cultural traditions.* Intrinsic fragility of immaterial factors such as events, ceremonies, place names etc.

7. *Vulnerability of aesthetic values.* Fragility of aesthetic values due to different types of degradation affecting a whole landscape or a portion thereof.

B. Factors affecting vulnerability

1. *Forest activities.* Forest activities posing a potential or direct

threat to cultural factors (e.g. afforestation, inappropriate silvicultural methods, forest utilisation etc.).

2. *Agricultural activities*. Farming activities posing a real or potential threat to cultural values (e.g. the extension of industrial cultivation onto forestland).

3. *Industrial activities*. Risk due to industrial activities directly or indirectly affecting cultural values (e.g. industries polluting forest areas, or modifying the features of the forest according to market demands, as in the case of the spread of conifers for construction timber).

4. *Urban development*. Risk due to factors and processes directly linked to the expansion of urban areas or infrastructure, as well as planning activities negatively affecting the historical features of forest landscapes, aesthetic values, architectural elements (single houses, villages), sites etc.

5. *Demography*. Demographic factors posing an actual or potential threat to cultural values (e.g. to landscapes that are especially sensitive to abandonment).

6. *Climate changes*. Climate changes negatively affecting cultural factors.

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Italian Society for Silviculture and Forest Ecology (www.sisef.it)

Research Group, History of Forest Landscape

The World Bank, (www.worldbank.org).

Unesco, World Heritage Centre, (whc.unesco.org).

United Nations Forum on Forest Secretariat, (www.un.org).

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