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ISWIMAN
**Integrated Sustainable
Wildlife Management**
Principles, Criteria and Indicators
for Hunting, Forestry, Agriculture, Recreation



Annex 4
PCI-Set for the Interface
LEISURE-/ RECREATION
MANAGEMENT
and Wild Animals / Wildlife
Habitats /Hunting

Full and Abbreviated Version

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Preliminary Remarks and Instructions for Use

The present Set of Principles, Criteria and Indicators (PCI) refers to the interfaces of sustainable leisure and recreation management and sustainable hunting (focused on the Wienerwald Biosphere Reserve as a case study). It addresses itself to people responsible for planning and managing leisure and recreational activities who in the following will usually be addressed as “leisure and recreation management.”

The Assessment Set is for self-evaluation by this target group and is designed to allow for an examination of sustainability of planning and management measures in the fields of leisure and recreational use activities with a view to the lasting conservation of wildlife species and their habitats as well as a sustainable practice of hunting. The purpose is not a general sustainability assessment of leisure and recreation management. The Assessment set is necessary because wild animals, the quality of their habitats and thus also the sustainability of hunting can be considerably influenced by leisure and recreational activities. With the help of leisure and recreation management, habitats of wild animals can be preserved and improved. Very often, however, individual users are unaware that leisure and recreational activities interfere with wild animals and their habitats and interact with other modes of land use. This frequently causes negative impacts upon wild animal populations and habitats as well as conflicts between the various users of lands.

The assessment within the scope of this Set of Indicators relates only to the options of leisure and recreation management for influencing the sustainability of hunting, together preserving wild animal populations and species-rich wildlife habitats in the long term. However, individual leisure and recreation seekers, whose influence depends on their individual behaviour, are not addressed.

For an assessment of the potential influence of other user groups (hunting, forest management and agriculture) on the sustainability of wild animal populations, wildlife habitats and hunting, separate Sets with their respective Principles, Criteria and Indicators have been developed.

For the Busy Reader

1. **Direct entry** with point scores accompanying the indicators (framed) for Ecology, Economy, and Socio-Cultural Aspects.
2. **Explanations** to be read only when needed.
3. **Simple Evaluation:** *Prepare an A4- format sheet of paper with three double columns (for ecological, economic and socio-cultural aspects). Read the maximum point scores of the indicators evaluated and enter them underneath each other on the left; on the right, enter the score you assign to your respective territory (scores should range from the maximum to the minimum given in the assessment framework). Finally, add the scores across the six columns and express the sum of the scores you assigned in terms of the percentage of the sum of the relevant maximum values (separately for ecological, economic and socio-cultural aspects). If you achieve 76-100 % of the sum of maximum point scores for an assessment aspect, your sustainability evaluation is “very good” for this aspect; in case of 51-75 % “good,” 25-50 % “intermediate,” 0-24 % “bad,” and in case of negative scores “very bad.”*
4. **Extensive User Information** for applying the PCI Framework as well as for a full evaluation of the self-assessment is given in the final report on the study.
5. **Short Version of Assessment:** A short version of the PCI Framework enables a limited assessment of sustainability. The numbers of the indicators foreseen for this purpose (most important indicators) are underlined and highlighted in grey (e.g. **Indicator 1**).

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DEFINITION OF TERMS

- **Leisure and Recreation management** describes persons active in leisure time and recreational institutions, organisations, bodies, federations, associations, etc. representing the groups of people benefiting from the recreational use of the Wienerwald Biosphere Reserve. In their capacity as stakeholders, officials and decision-makers, these managers are responsible for the planning, regulation and control of leisure and recreational activities, have competencies for planning and implementation, or other ways to influence leisure and recreational activities. This group of actors includes in particular the Biosphere Reserve management, municipalities, regional managing bodies, tourism federations and associations, alpine associations, sports associations and other representatives of certain recreational user groups (horse riders, mountain bikers, hikers, etc.), land owners as well as representatives of relevant authorities.
- The term **game** refers to those wild animal species (furred game and feathered) which are subject to hunting laws, including species with no open season. Unless indicated otherwise, the terms **game** and **wild animals** are used in the same sense. Conversely, the term wild animal species refers to those wild animal species that are (or were) “hunnable” as “game,” or otherwise influenced by hunting (e.g. on account of hunting laws, regulations, and hunting practise).
- The term **threatened** refers to those wild animal species whose long-term survival within their natural range is endangered to varying degrees, or questioned. As a rule, these are species threatened with regional extinction, are declining continuously, are particularly rare, or have temporarily disappeared and are now returning, and are thus often classified as “protected species” under the nature conservation laws. The degree to which a species is threatened results, as a rule, from various risk factors that interact to varying degrees, and which, when combined, influence the conservation status of the species. If these factors occur, they are to be interpreted as warning signals suggesting that the respective species may be threatened. These risk factors are first and foremost: low population size; continuously declining populations (continuously decreasing number of populations and/or individuals of a species); small or decreasing range (contraction of distribution area); specialised habitat requirements of a species; habitat loss, habitat fragmentation, deterioration of habitat quality (low or decreasing availability of habitats); direct adverse human influence (e.g. on account of excessive hunting, excessive use, persecution, etc.) pressure by invasive, non-native species (e.g. Zulka et al., 2001; Primack, 1998). In varying combinations and with differing emphasis, most of the factors mentioned account for status of threatened species on red lists as well as their classification as protected species in accordance with nature conservation laws. The degree of endangerment that indicates, so to speak, the probability of survival or risk of extinction of a species in a certain area, is categorised through Red Listing processes. IUCN Red List categories include “extinct” and “extinct in the wild”, followed by categories of “critically endangered,” “endangered,” “vulnerable”, within which a species is considered threatened with extinction, and the pre-warning level of “near-threatened” (e.g. Zulka et al., 2001; IUCN, 1994, 1999). If a wild animal species is listed on a relevant red list – e.g. the Red List of Threatened Animals in Austria (Zulka, 2005) and Red Lists of the Federal Provinces – and classified into one of the above categories of endangerment, the respective species is to be considered a threatened species in the sense of this study¹. Equally, species protected

¹ http://www.umweltbundesamt.at/umweltschutz/naturschutz/artenschutz/oasis/oasis_abfrage gives access to an Internet databank compiled by the Federal Environment Agency – Austria that allows queries as to the endangerment classification of individual species on different red lists. With regard to species relevant in terms of hunting, regularly updated information relevant in terms of hunting laws (hunting and closed seasons) on the basis of the hunting laws of the Austrian Federal Provinces is made available.

by Austrian nature protection and conservation laws (species protection regulations), EU community laws (Bird Protection Directive, Flora-Fauna-Habitats Directive) and international species protection agreements (e.g. the Convention on the Conservation of European Wildlife and Natural Habitats – Bern Convention; Convention on the Conservation of Migratory Species of Wild Animals – Bonn Convention) are considered to be threatened species in this document.

- The term **sensitive** refers to those wildlife animal species to which one or more of the above endangerment factors apply, even if the respective species has not (yet) been red-listed as “threatened” or “near threatened.” In particular those wildlife species are to be considered sensitive which, on account of specific (population-) biological features such as specialised habitat requirements (including size and quality of habitat), low reproduction potential, low dispersal capacity, are particularly sensitive vis-à-vis additional endangerment factors such as excessive hunting pressure, decreasing distribution, strongly increasing predation and competitive pressure from other species, or rapid changes of environmental conditions. In a hunting context, however, also native huntable game species are to be classified as sensitive if hunting them sustainably cannot be considered guaranteed in a certain area on account of their unfavourable conservation status or unfavourable trends in the respective species and/or its habitat. These species may often only be taken in small numbers or demand particular consideration on the part of hunters.
- The term **person permitted to hunt** or **owner of a hunt** refers, for the purpose of this study, to the owner or tenant(s) of hunting rights. Additionally there are those who hunt by permission of land owner/game tenant and owners of stalking districts.
- The term **person owning the right to hunt** refers in Austria to the land owner.
- The term **tenant** refers to the tenant of a proprietor’s or co-operative hunt (person permitted to hunt).
- The term **lessor** refers to the owner or representative of the owner of a proprietor’s or co-operative hunt.
- **Potential natural wildlife species inventory** is to be understood as the spectrum of wildlife species representing the currently achievable optimum circumstances in terms of biodiversity and near-natural conditions, taking into account the irreversible changes that have occurred in the course of the development of the cultural landscape as well as the existing economic and socio-cultural impacts on wildlife habitats that cannot be influenced by hunting. The “potential natural wildlife species inventory” is thus the range of wildlife species possible under the current habitat conditions, which pertain to the native spectrum of species (autochthonous, typical for the region) of the respective geographic region. „Native wildlife species“ are, in the sense of the potential natural wildlife species inventory:
 - those species that have outlasted the latest Ice Age or have immigrated thereafter and before and/or without human intervention²;
 - recolonising species that used to be native in a certain area whose populations temporarily ceased to exist and which now are returning to their original ranges, either without human intervention (immigration of species, e.g. elk/moose (*Alces alces*), brown bear (*Ursus arctos*), wolf (*Canis lupus*), otter (*Lutra lutra*)), or through re-introduction into their original habitats (e.g. Alpine ibex (*Capra ibex*) and Alpine marmot (*Marmota marmota*) within their original ranges of distribution);
 - native species that have disappeared on account of human influence (eradication, habitat changes).

² So-called primary native or indigenous species

As far as today's cultural landscape basically still has habitat potential for the species mentioned, these species are to be considered part of the potential natural wildlife species inventory.

This is not to be confused with “**new residents**” (**alien species, neobiota**), which have arrived at a certain territory (in this case, Austria) later than 1492 through direct or indirect human influence. With regard to Austria, these are, among huntable wildlife species, e.g. fallow deer, Sika deer, moufflon, wild rabbit, racoon dog, racoon, nutria and wild turkey. These species are *not* considered part of the potential natural wildlife species inventory. Those animal species that had become established under human influence in pre- and early history up to the end of the Middle Ages (1492) (such as, probably, the brown rat) are not relevant for hunting in Austria and thus need not to be considered for the purpose of this study.

- **Hunting management plan (hunting plan)** is to be understood as the planning ahead of any hunting-related activities, in particular in terms of time, area, and personnel. It comprises the goals and measures of hunting management for the respective hunting area and serves the purpose of providing long-term orientation for the hunting practice. Key components are e.g. to ensure that hunting accords with the needs of other land users, to take into account the optimum time and area for hunting the relevant game, and to give consideration to rare, non-hunted species. A hunting plan may exist in thought or in writing; with regard to sustainable hunting practice, however, a written hunting plan is preferable.
- **Hunting bag plan** (as a part of a hunting management plan) is a list of the numbers of each species (sex, age classes) planned to be shot or trapped (hunting bag planned before the hunting season starts).
- **Off-take list** (as a part of the hunting management plan) is a list of the numbers of each species (sex, age classes) really shot/trapped/killed by traffic accidents/ found dead by other reasons (hunting bag documented when the hunting season closes).
- **Culturally unacceptable game impact** is to be understood in this context primarily in terms of the ecologically unacceptable (harmful) influence of game on vegetation. The impact of game on vegetation comprises food intake (grazing, browsing, bark peeling) as well as rubbing to remove velvet from antlers and territorial tearing or gnawing. The concept of “culture” differs from economic considerations. Culture refers from an overall societal perspective to, in the case of forests, the functions beyond that of timber production, including shelter, leisure and recreation for people, but also to the provision of ecological value from other vegetation (e.g. orchid meadows rich in biodiversity). This is the fundamental view represented by the competent authorities on the basis of the respective (Austrian) legislation. The lack of some important natural enemies of our herbivorous wild animals as well as anthropogenic influences on our wildlife habitats (most of all land use) accounts for the fact that they are mostly not near-natural environments. This influences local densities and distribution patterns of wild animals, in particular ungulates, which damage vegetation beyond tolerable limits.
- **Wildlife habitat** is defined as the “living space” or “site” (the habitat) of wild species populations and/or individuals of a wild species. The habitat needs of the wild animals concerned define the area of wildlife habitat they require. The wildlife habitat must meet key habitat functions (food, cover and reproduction area). Environmental factors (such as noise, temperature, light, climate, soil, etc.) must neither exceed nor fall short of the species-specific limit of tolerance of the wild animals. The wildlife habitat may consist of several separate habitat sectors.
- **Migration and Dispersal** are movements of animals. Migration is the repeated movement of animal populations leading to seasonal changes of place and entails a change of range

of a species. As well as seasonal habitat change (e.g. passing from summer to winter habitat in red deer) there may also be migration to breed. Dispersal is the lasting movement of individuals away from a natal area or subsequent point of settlement, and is often omnidirectional unless constrained in particular directions by topography. It plays a significant role in terms of the necessary gene flow within and among populations of a species, and thus in terms of the preservation of the species, its distribution, the colonisation or re-colonisation of habitats. In the absence of regular genetic exchange via such "gene flow corridors," the risk of species and populations becoming regionally extinct will increase.

- Landscape sectors in which migration or dispersal primarily happens are termed **migration axes (routes)**.
- **Wildlife corridors** are bottlenecks within a migration axis or the habitat of wildlife species caused by barriers or an unfavourable environment. A salient characteristic of a corridor is its favourable structure compared to the surrounding environment, allowing for a link between separate habitat sections.
- The term **constricted corridor** is used to describe a constriction of a wildlife corridor or wildlife route on account of natural or anthropogenic barriers to a minimum width without any possibility of bypassing it locally, i.e. wildlife species are forced to adhere to the corridor as a consequence of specific topographic conditions (forest corridors, steep slopes, canyons, water courses, etc.) or artificial obstacles (fences, road barriers, walls, settlements, etc.) which create local bottlenecks.
- **ÖPUL** is the "Austrian Agri-Environmental Programme." The initials refer to the promotion of agriculture that is appropriate to the environment, extensive and favourable for nature. The programme is supported through the European Agricultural Fund for Rural Development as well as the Rural Development Programme of Austria. Along with ÖPUL, there are other publicly subsidised **agri-environmental measures** pursuing similar goals (e.g. the Ecopoint Programme).
- **Farmer** refers to persons responsible for the planning and carrying out of agricultural measures on agricultural plots of land. As a rule, they are managers/cultivators or owners of agricultural land or managers of an agricultural enterprise.
- The term **forest manager** refers to a person responsible for the planning and carrying out of forestry-related measures. As a rule, the term includes the skilled personnel responsible for forest management (forester, head of a forest division), forest owner or manager of forest enterprises.
- **Use** is to be understood in the comprehensive sense of the IUCN Policy Statement on the Sustainable Use of Wild Living Resources (IUCN, 2000); it includes all forms of consumptive and non-consumptive use of natural resources. Sustainable hunting and/or sustainable hunting-related use includes hunting certain animal species without the animals that are killed having to be used in a consumptive way (e.g. red fox (*Vulpes vulpes*), if its population increases on account of anti-rabies vaccination and thus endangers the population of other species).

Assessment Set for Integrated, Sustainable Wildlife Management

Part: LEISURE AND RECREATION MANAGEMENT

Principles, Criteria and Indicator scoring

The following table gives an overview of the most important Indicators for the Interactive Field of Leisure and Recreation Management – Wild Animals/Wildlife Habitats/Hunting:

Ecology	Economy	Socio-cultural Aspects
Existence of guidelines for harmonising leisure and recreational activities with the habitat needs of wild animals and of hunting (<i>Indicator 2</i>)	Leisure and recreation management gives consideration to the scope for hunting game (<i>Indicator 17</i>)	Existence of efficient communication channels within groups engaging in leisure and recreation activities (<i>Indicator 25</i>)
Checking whether the guidelines for recreation seekers are being observed (<i>Indicator 3</i>)	Co-operation of leisure and recreation management with hunters regarding plans and projects that change wildlife habitats (<i>Indicator 21</i>)	Existence of institutionalised communication structures between leisure and recreation management and hunting interests (<i>Indicator 26</i>)
Existence of biosphere reserve-wide leisure and recreation strategies co-ordinated between different recreational activities (<i>Indicator 14</i>)	Measures on the part of leisure and recreation management to preserve the market value of a hunting operation (<i>Indicator 16</i>)	Active and public information on rules of conduct for recreation seekers (<i>Indicator 31</i>)
		Improvement of knowledge about wildlife-ecological and hunting-related impacts of leisure and recreational activities (<i>Indicator 34</i>)

1 ECOLOGY

Explanation: From an ecological perspective, Principles, Criteria and Indicators assess the scope for leisure and recreational activities to influence the preservation of wildlife habitats and the diversity of wild animal species. Leisure and recreational activities have little or no direct impact upon the genetic diversity of wildlife, so this aspect is not assessed here.

1.1 Principle: The management of leisure and recreational activities gives consideration to the preservation and improvement of wildlife habitats

Explanation: Wildlife habitats are influenced, changed and – deliberately or unwittingly – actively shaped by humans. Even leisure and recreational activities have the potential to preserve and improve wildlife habitats.

Those planning and steering leisure and recreation activities should consider temporal or spatial influences on wildlife habitats from recreational activities and the need to preserve wildlife habitats for hunting. In particular they should guide and inform the people seeking recreation, which creates an obligation for leisure and recreation management to seek information on regional wildlife habitats and wildlife ecological interrelationships. This includes knowing about current unacceptable wildlife impacts, with insights also into the preservation and development of linking biotopes and habitats in the interest of wild animals. A general knowledge of wildlife habitats, their structure, components and status is required. A strategy for guiding visitors, developed in co-operation with various different interest and land user groups, is a key instrument of leisure and recreational activities which are adequate in terms of wildlife-ecological and sustainable in every regard.

1.1.1 Criterion: Leisure and recreational use relates to wild animals, their habitats, and to hunting

Explanation: The following examples of spatial and temporal guidance which minimises the negative impacts of disturbance of wild animals demonstrate how leisure and recreation management can support species conservation and hunting requirements:

- Adapting the siting of trails and their density to wildlife ecology: reducing use in wildlife rest zones, grazing areas, cover and other key habitats; avoiding habitat protection zones, core habitats and habitats valuable for sensitive species; leaving undisturbed areas of sufficient size between leisure and recreation routes.
- Preserving and increasing the attractiveness of marked paths and trails to give positive incentives to remain on the trails.
- Times of use harmonised with wildlife ecology and hunting operations, including flexible timing in critical periods for wildlife ecology and hunting (especially reproductive periods, winter rest periods for game and regulatory hunting).
- Informing recreation seekers about available trails, times of use and modes of conduct (refraining from leaving trails, leashing dogs, avoiding noise, avoiding walking into cover, etc.) to encourage appropriate outdoor behaviour.
- Checking on observance of rules.

- Visitor monitoring (e.g. observing, questioning, counting visitors)
- Harmonising measures with hunting and species protection.

1.1.1.1 Indicator 1: Support for meeting hunting requirements for wildlife species that need to be reduced

Explanation: The planning of hunting is potentially one of the most effective control instruments of game management. When done correctly, drawing up a hunting bag plan provides an opportunity to respond flexibly to changes in game populations, and to results of forest observation systems, by increasing or decreasing the number of animals bagged. Hunting bag plans are, so to speak, the link hunting establishes between the status of vegetation, the regulation of game populations, and aspects of nature protection and conservation. They serve both the preservation of game populations at levels usable for hunting in a sustainable way and the avoidance of game damage unacceptable in terms of regional culture.

Along with the general hunting bag plans prescribed by the authorities, it is reasonable for the land owner to oblige hunting tenants and other long-term hunting clients to meet additional hunting requirements for wildlife species for which there are no official hunting bag plans. Establishing a minimum bag for wildlife species with a (local and temporary) need of reduction may help regulate wildlife populations in the interest of regional culture. In the Wienerwald region, it is mainly wild boar which need to be reduced in this way. Contractual hunting obligations may, however, also make sense for various alien species.

Most recreational activities in wildlife habitats may entail disturbance of wild animals, which may cause changes in their diurnal patterns of activity (e.g. grazing rhythm) as well as in the spatial and seasonal distribution of game. The forcing game to withdraw to cover or become more nocturnal hinders the meeting of hunting requirements. Inefficient hunting and thus regulation of game may have negative impacts on wildlife habitat and needs of land managers, and in particular cause an increase game impacts that are unacceptable in terms of regional culture. In this context, the extent of disturbance caused on trails which are planned for wildlife needs and marked out is – as species become habituated – much lower than in case of „unguided“ use, e.g. when visitors frequently leave trails and paths. Especially during periods chosen for the bulk of regulatory hunting, increased disturbance by recreational users can have a particularly strong negative effect upon meeting hunting requirements. The brunt of regulatory hunting falls, for most cloven-hoofed species, in autumn; in the Wienerwald region, it takes place approximately between early August and September. Due to leaf-fall, wild boar are most efficiently hunted from November onwards. It also has to be borne in mind that strong disturbance through intensive and/or unguided recreational use may also heighten the susceptibility of wildlife species to disturbance from hunting (and vice versa). Lower hunting efficiency demands more time-intensive hunting which, in turn, increases the hunting pressure and thus causes further disturbance of wildlife – game becomes shyer.

Leisure and recreation management can support meeting hunting requirements, for wildlife species which need to be reduced, by way of spatial and temporal guiding measures that minimise the disturbance of wild animals.

Indication and score:	<p>3 Efficient hunting of wild animal species that need to be reduced is optimally supported by considering wildlife ecology and hunting requirements in the planning and management of leisure and recreational activities.</p> <p>–1 Efficient hunting of wild animal species that need to be reduced is only occasionally supported by considering wildlife ecology and hunting requirements in the planning and management of leisure and recreational activities.</p> <p>–3 Efficient hunting of wild animal species that need to be reduced is rendered more difficult because wildlife ecology and hunting requirements are not considered in planning and management of leisure and recreational activities.</p>
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1.1.1.2 **Indicator 2: Existence of guidelines for harmonising leisure and recreational activities with the habitat needs of wild animals and hunting**

Explanation: Temporal and spatial guidelines for recreation seekers are central to harmonising leisure and recreational activities with the habitat needs of wild animals, the quality of their habitats and the requirements of sustainable hunting. Guidelines should be sure to include criteria such as habitat quality, game damage, scope for hunting, and respect for rest zones and key habitats. The extent of disturbance by recreation seekers mainly depends upon when and where these people are present and move about. The influence of human disturbance on wild animals may be greater in some locations than in others at particular times of the day or year. Spatial and temporal aspects of recreational use should always be considered in combination. An important prerequisite for guidelines that are efficient and ecologically meaningful is co-ordination between the various different recreational activities (hiking, jogging, horse riding, mountain biking, etc.) as well as taking into account and integrating all groups visiting wildlife habitats, if possible. Biosphere park zoning, in particular core zones, needs special attention in this context. It also makes sense for temporal and spatial guidelines to be co-ordinated both in terms of content and formally between the Wienerwald Biosphere Reserve and other surrounding leisure and recreation areas in order to provide recreation seekers with unified supra-regional guidelines.

Even minor influences of leisure and recreation may have profound effects on wildlife habitats when combined with impacts by other forms of use (especially hunting, agriculture and forestry, road construction, housing and settlement). In order to consider the cumulative effect of the influences of all land users, information interchange between the various land user groups is fundamental. We assess the existence and practical implementation of one of the within in a guiding system for the Biosphere Reserve, as described above.

Indication and score:	<ul style="list-style-type: none">4 Spatial and temporal guidelines for relevant leisure and recreation seekers address wildlife ecology and hunting criteria for the entire Biosphere Reserve and are applied; the guidelines are harmonised across recreational interests, hunting representatives, landowners and the Biosphere Park management.2 Spatial and temporal guidelines for relevant leisure and recreation seekers address wildlife ecology and hunting criteria for the entire Biosphere Reserve and are applied.1 Spatial and temporal guidelines for the relevant leisure and recreational user group which address wildlife ecology and hunting criteria in parts of the Biosphere Reserve, and/or for individual regulatory areas, are only partly applied.-3 There are no spatial and temporal guidelines addressing wildlife ecology and hunting criteria for the relevant leisure and recreation seekers and/or they are not being applied.
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1.1.1.3 **Indicator 3: Checking whether the guidelines for recreation seekers are being observed**

Explanation: The efficiency of guidelines for leisure and recreation seekers that addresses wildlife ecology and hunting-related issues depends on whether individuals observe them. Ideally, guidelines should include all relevant recreational interests across the entire Biosphere Reserve. Rules that vary across the Biosphere Reserve, as well as uncoordinated planning activities by individual municipalities, land owners, etc., should be avoided.

The effectiveness of codes of conduct and guidelines can only be correctly assessed in terms of wildlife ecology and hunting if there is sound information on compliance. An effective method of checking whether guidelines are being observed is state of the art visitor monitoring (e.g. observing, questioning, counting visitors), with comparable monitoring of other land users. Findings from the monitoring of visitor behaviour should lead to improvements to the guidelines.

Indication and score:	<p>4 The observance of guidelines by the relevant leisure and recreation seekers is regularly and systematically checked e.g. by observing, questioning, counting visitors).</p> <p>2 The observance of guidelines by the relevant leisure and recreation seekers is checked irregularly and unsystematically; there is no sound monitoring of visitors.</p> <p>–4 There is no checking of whether guidelines are observed by relevant leisure and recreation seekers.</p> <p>x Not applicable, no score (there are no guidelines for leisure and recreation seekers).</p>
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1.1.2 Criterion: Giving consideration to the influence of game on vegetation

Explanation: This Criterion and its Indicators are meant to assess whether planning by the management of leisure and recreational activities has taken into account the possible aggravation of negative impacts of wildlife on forests and other forms of vegetation.

Disturbance of game – in particular by unguided and off-trail leisure and recreational activities– may cause and aggravate game damage. Leisure and recreational activities may aggravate game damage if:

- The movements of game change (game remains in areas providing cover),
- There are shifts in species-specific grazing periods (e.g. increased nocturnal activity),
- There is increased energy requirement due to frequent disturbance and escape behaviour, and
- Hunting and meeting hunting requirements are rendered more difficult.

The last point often requires increased hunting pressure; in areas with increased hunting pressure as a consequence of the need to regulate populations, recreational activities may have a stronger effect upon the animals' behaviour than in areas not subject to hunting or areas of low hunting pressure, as animals reflect increased sensitivity to disturbance (Reimoser, 2005; Herbold, 1992; Kalchreuther & Guthörl, 1997).

Guidelines may be used to alleviate game damage. If recreational operations follow relevant guidelines in areas particularly sensitive to damage, wild animals may respond by changing their movements which, again, may contribute to avoiding game damage (Reimoser, 2005).

Taking into account negative game impacts on vegetation requires a view beyond the confines of the individual planning and management territory, as wild animals do not observe anthropogenic limits and borders; thus, for example, leisure and recreational activities may have a significant impact on the impact of game on vegetation of an adjoining planning and management area.

1.1.2.1 Indicator 4: Giving consideration to the shelter-providing function of forests

Explanation: Among the functions of forests (including provision of timber, shelter, health and recreation), it is the shelter-providing role that needs to be considered by leisure and recreation management. Apart from shelter for particular sites ("site protection forests"), forests give shelter to humans and buildings. According to the AUSTRIAN FOREST ACT of

1975 as amended in 2002 (Federal Legal Gazette No. I 59/2002), “forests providing protection for humans and technological objects” are forests that shelter humans, human settlements or installations or cultivated land, in particular against elementary hazards or harmful environmental influence, and whose preservation requires specific treatment (§ 27 of the quoted legislation). According to the current forest development plans, the Wienerwald Biosphere Reserve accounts for comparatively small areas of shelter-providing forest; nevertheless, for those areas the shelter effect of the forest is particularly important.

The self-maintenance and self-regeneration properties of forests that provide shelter for humans and constructions may be damaged by game (browsing, barking). Vegetation, in terms of species composition, structure and texture, is harmed especially by (locally) excessive game densities.

If guidelines are to inform visitors about the shelter-providing role of woodland, the situation and status of appropriate forest stands needs to be known. The responsibility to seek relevant information lies with the leisure and recreation management. To identify forests whose major function is provision of shelter, the following documents provide a basis in Austria: the Forest Development Plan (for areas with shelter as the priority function), the “areas with a shelter function” as defined by Torrent and Avalanche Control as well as the Provincial Protection Forest Concepts. The competent Forest Authority may also be involved.

Leisure and recreation management should vary its consideration for the shelter function of the forest in accordance with the specific local situation (e.g. forest type, forest status, scope for browsing damage, level of game populations and wildlife species composition, forest management strategies, hunting strategies). Meaningful guidelines might include both discouraging visits to shelter-providing forest and, conversely, directing recreational activities towards protective forests with a need of regeneration (in order to keep these areas largely free of game and browsing). The approach most useful in terms of sustainability should be determined in close co-operation with the forest authority, forest owner and hunters.

The way the shelter-providing function is taken into account should be an element of a visitor guiding strategy. This Indicator can also be applied if the applicant’s own planning and management area does not include forests which provide shelter for humans and constructions, if such forests occur in adjoining areas (see Explanation in Section 2.1.1.2).

Indication and score:	2	Measures for guiding visitors are harmonised with hunters and forest managers and applied to prevent damage by game to the shelter-providing function of forest habitats.
	1	Forest habitats with a shelter-providing function are known to the leisure and recreation management and given consideration in terms of managing recreational activities.
	-2	The shelter-providing function of forest habitats is not taken into account by leisure and recreation managers
	x	Not applicable, no score (no shelter-providing forest within or near the unit of assessment).

1.1.2.2 **Indicator 5: Giving consideration in leisure and recreation management to game impacts which are unacceptable in terms of regional culture**

Explanation: Regional culture is here defined as comprising nature conservation in general and thus also conservation of native animal species; it also includes the continuation of hunting and fishing, agriculture, Alpine farming and forestry, as well as the right of access to

farmland and forests for leisure and recreation. We speak of game impacts unacceptable in terms of regional culture in particular if important functions of the forest (shelter, health, recreation, provisioning, habitat for animal and plant species) are jeopardised. As a rule, damage to the forest ecosystem has a negative impact on these functions, which is particularly serious if the shelter function is affected. In core zones of the Wienerwald Biosphere Reserve, we speak of game impact relevant in terms of regional culture if this impact conflicts with management objectives for an undisturbed development of near-natural forest eco-systems. Damage such as wild boar may cause by extensive grubbing-up of ecologically valuable meadows may also be relevant in terms of regional culture.

The spatial and temporal patterns of recreation, as well as its type and intensity, affects its influence on the extent of game impacts relevant in terms of regional culture. This is particularly true for disturbance of game by intensive, spatially unguided or adversely timed (dusk, winter, spring) recreational activities as well as for poor behaviour of people seeking recreation outdoors (free-roaming dogs, noise, intrusion into areas of cover, deliberately approaching game, etc.) If the leisure and recreation management pays regard to seasonal and diurnal bottlenecks in game food supply, less damage is likely to occur. Thus, if leisure and recreation management is adapted to the ecology and closely aligned with the planning of hunting, game impacts unacceptable in terms of regional culture may be reduced. First and foremost, however, it is important for the leisure and recreation management to seek information on the current situation of existing game impacts unacceptable in terms of regional culture. As a second step, the knowledge thus gained should be given consideration by the leisure and recreation management, and activities harmonised with hunting management. A necessary prerequisite is thus a regular exchange of information with hunters (see also Socio-cultural Aspects of this Assessment Set).

Even an awareness that there is *no* current information on game impacts which are unacceptable in terms of regional culture can only be gained by staying up to date. Thus, this Indicator is also applicable if there is no unacceptable game damage.

Consideration of the current status of game impact, not only on agricultural crops and forest cultures but also on features protected under nature conservation laws, is mainly expressed in terms of any measures contributing to a reduction of disturbance from recreational activities, most of all in sensitive areas and at sensitive times of the day and year. They may comprise:

- Placing of trails and paths sensitively with respect to wildlife ecology (respecting wildlife rest zones, important areas of cover)
- Adapting the density of trails and paths (leaving sufficient habitat areas undisturbed)
- Adapting the times of use (minimising conflicts with natural wildlife behaviour during certain times of the day and year)
- Education, awareness-raising and information of the recreation seekers, including on-the-spot visitor information on: connection between recreational behaviour, disturbance of wildlife and game damage; existence, meaning and observing of rules of conduct)
- Checking on the observance of rules of conduct
- Creating positive incentives for desirable recreational behaviour (e.g. by increasing the attractiveness of areas particularly suitable for recreation and less susceptible to game damage).

Indication and score:	<p>2 The responsible leisure and recreation managers seek information on the current status of game damage which is unacceptable in terms of regional culture and pay regard to the knowledge thus gained in terms of leisure and recreational use; particularly in key areas of game damage and features protected under nature conservation laws, measures taken involve close co-operation with the people responsible for hunting and nature conservation.</p> <p>–1 The responsible leisure and recreation managers seek information on the current status of game damage which is unacceptable in terms of regional culture; however, the knowledge thus gained is inadequately considered in terms of leisure and recreational management.</p> <p>–2 The responsible leisure and recreation managers do not seek information on the current status of game damage which is unacceptable in terms of regional culture.</p>
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1.1.3 Criterion: Preservation and creation of linking biotopes

Explanation: The linking up of biotopes is important in case of local and small-scale wildlife routes and thus for the immediate quality of wildlife habitats. Frequent, regular game routes such as between areas of cover and grazing, as well as seasonal routes such as between summer and winter habitats allow wild animals to complete all stages of their life cycles (linking of partial habitats to form a linked-up habitat system).

The supra-local, regional and supra-regional linking of habitats is of equal importance. The existence of wildlife corridors and large-scale linked-up biotope systems guarantee both dispersal and seasonal migration of wild animals and/or wild animal populations.

1.1.3.1 **Indicator 6: Giving consideration in terms of planning and management of leisure and recreational activities to biotope linkage that benefits wild animals**

Explanation: The fragmentation of wildlife habitats by roads, railway lines, settlements and industrial zones, as well as leisure and recreational installations, has a central influence on habitat quality. It may be mitigated to some extent by adequate leisure and recreational management by exerting as little pressure of disturbance as possible on important wildlife corridors, migration routes and other essential wildlife routes between habitats and parts of habitats, or by making them more attractive. However, if the aspect of biotope linkage is consistently taken into account in terms of planning and managing recreational activities, a significant contribution will be made to a sustainable use of wildlife habitats.

This Indicator targets the preservation and improvement of general (local and small-scale) biotope linkage. This refers in particular to local and small-scale wildlife routes used frequently and regularly by game to satisfy habitat needs and as a link between parts of habitats such as for daily transition between areas of cover and grazing, as routes of movement during the search for food or for seasonal changes between winter and summer habitats. Biotope-linking landscape structures allowing for natural movements in conformity with the respective species' needs are an integral part of their habitats. If wildlife is limited in

using them, greatly changed activity patterns will result. To link biotopes on open ranges, wildlife needs structural elements suitable for cover, sojourn and food in their habitats.

Fragmentation of wildlife habitats may be aggravated by leisure and recreational activities, e.g. by intense recreational use in sensitive areas or at sensitive times. While the disturbing effect of recreational activities that take place on marked trails is significantly lower, on account of the fact that game becomes habituated to these activities, unguided activities off trails or paths, intensively used trails and/or trails used at unfavourable times may act as „corridors of disturbance“ with considerable barrier effects for wild animals. This ought to be taken into consideration when trails and paths are planned.

It is often underestimated that steep, rocky road or trail slopes, if they form barriers for certain animal species across extended areas, may contribute to population isolation or at least interrupt routes animals have become used to, and thus may change the game's movements (Reimoser & Hackländer, 2007). This is, for example, frequently true for roe deer, red deer and wild boar. In this context, the risk of collisions of road traffic with wildlife, particularly on forest edges, should also be mentioned.

Indication and score:	2	Planning and management of leisure and recreational use mitigates as far as possible the fragmentation of wildlife habitats; barrier effects caused by recreational management measures are avoided or largely minimised.
	-2	Planning and management of leisure and recreational use does not give consideration to the fragmentation of habitats or biotope linkage for wild animals.
	-4	Barrier effects for wild animals are increased on account of leisure and recreational management measures.

1.1.3.2 Indicator 7: Giving consideration to important migration routes, wildlife corridors and other essential routes

Explanation: Migration routes, wildlife corridors and other essential wildlife routes are linear biotope linkage structures that facilitate movement, migration and dispersal particularly for wide-ranging wildlife species. They serve to link biotopes regionally, supra-regionally and even nationally. Wild animal species with wide-ranging migration and movement behaviour are, in the Wienerwald, particularly red deer and wild boar, but potentially also large predators such as bear (*Ursus arctos*), lynx (*Lynx lynx*), or wolf (*Canis lupus*). Wildlife corridors well equipped with biotope structures, however, are also preferred by other wild animal species.

Knowing about locations, course and use of important regional, supra-regional or cross-country axes of game movement (including those of large predators such as bear, lynx or wolf) is a prerequisite for being able to establish measures for preserving or reinstalling the links between habitats as well as including migration routes in spatial planning. Particularly in terms of infrastructure planning for leisure and recreational areas, as well as for transport planning, it is fundamental to also bear in mind the supra-regional mobility needs of wild animals at as early a stage as possible. They can thus become an element of planning allowing an early assessment of the need of green bridges and wildlife passes. Whether artificial wildlife routes will be effective and adopted by animals depends mainly on the correct choice of their location, their correct dimensioning and their use, e.g. by recreation seekers. Reliable information on the course of important long-range traditional routes, as well as on whether and how they are used by individual wildlife species, is an indispensable basis

for both leisure and recreation planning and management. Expert knowledge about migration routes, corridors and other essential wildlife routes is a condition for these factors to be mapped and included in planning and, ideally, legally safeguarded as well as kept free of construction.

On account of their knowledge of hunting grounds, hunters, who are experts on the site, are able to make valuable contributions to identifying migration routes, corridors and other essential wildlife routes. Co-operation with hunters and, if possible, wildlife biologists and other experts on the area should be a prime objective. Even if it shows that there are no migration routes, corridors and/or other essential wildlife routes in the planning area, this is a valuable finding. Existing long-range, main and other essential wildlife routes should be mapped as part of a leisure and recreation concept in and beyond the respective region. For an assessment of this Indicator, cross-regional communication to this effect with experts in wildlife biology as well as hunters is indispensable.

Given that habitat fragmentation mostly has effects transcending the local level for many wildlife species, the application of this Indicator may make sense also in planning areas on which leisure and recreational use does not exacerbate fragmentation.

Concrete options for action taken by leisure and recreational management are, for example:

- Regular information exchange with hunters and experts in wildlife biology
- Seeking information and knowledge on migration routes, wildlife corridors and other essential wildlife routes
- Guiding visitors in terms of space and time
- Making migration routes, wildlife corridors and other essential wildlife routes an element of planning trails and paths.

Indication and score:	<p>3 The managers responsible for planning leisure and recreation are aware of existing migration routes, wildlife corridors and other essential wildlife routes; their capacity to function is preserved and, if possible, improved.</p> <p>1 Information on important migration routes, wildlife corridors and other essential wildlife routes cannot be obtained, despite the fact that leisure and recreation managers seek such information.</p> <p>-3 Important migration routes, wildlife corridors and other essential wildlife routes occur and are known to the leisure and recreation management, but are not taken into account, or no efforts are made to seek relevant information.</p> <p>x Not applicable, no score (there is evidence that there are no migration routes, wildlife corridors and other essential wildlife routes.)</p>
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1.1.4 Criterion: Specific preservation and improvement of wildlife habitats

Explanation: Today's wildlife habitats are strongly shaped by the various forms of land use, regardless of whether users are aware or unaware of this. This is relevant not only for each individual mode of land use, but also for the interaction of all forms of land use occurring in an

area. Leisure and recreation planning and management too can actively contribute to preserving and shaping wildlife habitats.

Recreational managers are expected to be up to date regarding wildlife habitats and wild animals' needs in order to plan amelioration measures. They may seek information and consultancy from local experts on wild animals' habitat needs and wildlife habitats (hunters, forest managers, regional nature experts, nature conservation authorities and advisors). If recreation seekers are then actively informed about wild animals' habitat needs and recreation managers actively help to shape wildlife habitats to meet these needs, nature and culture may benefit regionally.

1.1.4.1 Indicator 8: Environmental assessment for projects in wildlife habitats

Explanation: In order to allow leisure and recreational activities it is sometimes necessary to change habitats in ways that may negatively impact the habitat for wildlife. This is particularly true for establishing recreational infrastructures (trails and paths, roads, parking lots, buildings, sports facilities, off-road routes, golf courses, etc.)

Before planning of projects, in particular of a constructional and landscape-changing nature that interferes with wildlife habitats, they should be examined for wildlife-ecological impacts. An assessment of the impact should be made particularly in a Biosphere Reserve and especially if there is no requirement of an official assessment by the authorities, i.e. for projects not subject to an EIA or any other official formal assessment procedures.

Effects of a project should be assessed separately for the construction and operational stage. The extent and severeness of expected effects should be assessed using criteria defined according to the type of project. These criteria should be suited to cover the most important impacts of the project. Potential criteria comprise, for example:

- Disturbance of habitats (habitat loss and degradation)
- Separation and movement-barrier effects on wildlife populations
- The wildlife species spectrum and population state of wild animal species
- Risk of game damage

Effects with serious consequences (e.g. for protected or threatened wild animal species, interruption of supra-regional migration axes) should be given most weight. Less serious and cumulative effects that may result from existing or planned projects should, however, also be considered. Depending on the type of project, direct and indirect categories of effects may occur, which may be due to the nature of the construction, plant or operation and may influence each other.

The impacts of interventions with the suitability, quality and carrying capacity of wildlife habitats, the capacity of species to survive locally, the state of wildlife populations and the extent to which they may serve sustainability of hunting may be examined especially on the basis of the following criteria:

- Habitat loss, destruction of significant key habitat structures (food, cover, reproductive space, etc.) and disruption of complete habitats into parts that must be used separately
- Decrease of ranging space/areas
- Habitat fragmentation and isolation of sub-populations on account of barriers, in particular interruption of migration or other wildlife routes (e.g. European Commission, 2003; Völk et al., 2001; Holzgang et al., 2001; Glitzner et al., 1999)

- Influence on wild animal populations and species structures including potential indirect effects on competition between wild animal species
- Environmental influences on wildlife habitat (e.g. on account of noise, light, increased intensity of recreational use) and their effects upon the spatial and temporal behaviour and distribution of wildlife
- Change in the risk of game damage to forests and agricultural crops.

In case of larger interventions from which major effects can be expected, several alternative options should be examined and the most compatible solution chosen. Along with the integration of potential impacts upon wildlife habitats into the assessment and consideration process, potential effects on other protected features should as a rule be examined. If, as a result of the examination of potential effects, significant negative impacts upon a wildlife habitat are to be expected and none of the planning options are adequate, particularly in a Biosphere Reserve, the project should not be implemented.

Indication and score:	<p>3 Before carrying out projects planned for leisure and recreation in wildlife habitats, several options have been assessed for wildlife ecological impacts; the best option for wildlife has been chosen in each case; projects that would have significant negative impacts on wildlife habitats have not been implemented.</p> <p>1 Projects planned for leisure and recreation in wildlife habitats have only to some extent been assessed for wildlife ecological impacts; in these cases, the best option for wildlife has been chosen.</p> <p>–4 Projects planned for leisure and recreation in wildlife habitats have not been assessed for wildlife ecological impacts, or projects with considerable negative impacts on wildlife habitats have been implemented</p> <p>x Not applicable, no score (over the last three years, there have been no such projects in wildlife habitats).</p>
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1.1.4.2 Indicator 9: Active preservation of wildlife habitats

Explanation: The suitability of wildlife habitats for native wild animal species is, mainly for anthropogenic reasons, limited to some extent. Seasonal habitats that a few years ago used to be freely accessible for wildlife are now inaccessible, difficult to access or mere relicts. Many of these limitations of habitat quantity and quality may be reduced, or even removed entirely, through biotope care and management measures.

Leisure and recreational activities sometimes require measures with potential negative impacts on wildlife habitats. If a recreational project does not appear to be compatible with the needs of hunting and/or wildlife, adequate compensatory measures (balancing off the interference or replacing the original situation) have to be taken by those responsible for its impacts. Often, landscaping and other measures may help to avoid impairments of wildlife habitats. Habitat replacement should only be taken if damage avoidance, reduction or compensatory measures cannot be implemented. Replacement involves creating and/or re-establishing habitat (Loos, 2006). Compensatory measures are applied in the area actually affected, to mitigate the negative impacts, and are thus preferable.

Examples of measures to mitigate negative impact on wildlife habitats may comprise: establishing wildlife rest zones in order to counteract growing habitat destruction; new cultivation and restoration strategies; re-establishing effective corridors for migration; habitat improvement (e.g. increased grazing availability); creating green bridges and linking-up of vegetation structures; protective measures such as constructions to reduce the impacts of sound emissions; establishing game fences and wildlife warning systems along roads; establishing landscape structures that secure specific needs of animals; replacement afforestation and re-afforestation with high habitat quality; replacement of lost habitat by creating new habitats of adequate quality (which is only possible to a certain extent).

These measures should be directed in particular toward the habitat needs of threatened, sensitive or little-hunted native species. Regional lists of currently occurring wild animals species, species of the potential natural wildlife inventory as well as lists of threatened wild animal species (e.g. on the basis of relevant Red Lists) and protected species (under nature conservation laws, Bird Protection Directive, Flora-Fauna-Habitats Directive, etc.) may provide valuable assistance in this regard. Measures to improve and preserve wildlife habitats for hunted species also as a rule benefit other, non-hunted species.

Planning should harmonise with the objectives of the Biosphere Reserve and be discussed and co-ordinated with other users, in particular hunters.

Indication and score:	<p>4 If leisure and recreational activities change wildlife habitats, all options to improve and preserve habitats have been applied to avoid negative impacts, compensate for them or replace habitat functions; the measures are mainly oriented according to the habitat needs of native wild animal species and the objectives of the Biosphere Reserve.</p> <p>2 If leisure and recreational activities change wildlife habitats, only some measures have been applied to avoid negative impacts, compensate for them or replace habitat functions.</p> <p>-2 If leisure and recreational activities change wildlife habitats, no measures to improve or preserve habitats have been applied; quality of wild animal habitats has been impaired (e.g. through habitat loss or deterioration as a consequence of establishing leisure and recreational infrastructure).</p> <p>x Not applicable, no score (over the last three years, there have been no changes in wildlife habitats attributable to leisure and recreation activities).</p>
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1.2 Principle: Leisure and recreational activities and their management should endeavour to preserve and enhance the diversity of species

1.2.1 Criterion: Leisure and recreation management is oriented according to the potential natural wildlife inventory of the region

Explanation: The potential presence of native wild animal species in a habitat, i.e. species pertaining to the spectrum of species typical for the region of a respective geographic area is described as the "potential natural wildlife species inventory." The species composition of the "potential natural wildlife species inventory" depends on the current habitat conditions and corresponds to the optimum achievable today in terms of biodiversity and near-natural habitat quality (see also Definition of Terms at the beginning of the Assessment Set).

1.2.1.1 Indicator 10: Taking into account a current and potential natural wildlife species list

Explanation: The existence of a current and a potential natural wildlife species list at the body responsible for leisure and recreation planning and management is an indicator of a functioning flow of information from wild animal management groups.

Knowing about a wildlife species list is a good start towards taking account of the potential natural species and demonstrates that the leisure and recreation managers and planners are interested and possibly actively seeking information. Nevertheless, the mere existence of a list does not guarantee that the leisure and recreation management is actually able to integrate the information on potential natural wildlife species into planning. This might be more easily achieved if hunters supplement the wildlife species list with descriptions of the

needs of individual species. Hunters might further explain how leisure and recreation managers can contribute concretely to conserving wild animal species. This information should be gathered by the leisure and recreation planners and managers, on the condition, of course, that adequate information has been made available by hunters.

In order to be able to compare the existing wildlife species inventory with the inventory of potential natural wildlife species, it is necessary to draw up a regional list of the potential natural wildlife inventory. Bearing in mind the anthropogenic influence upon the cultural landscape (agriculture, forestry, settlements and housing, transport rail/road, leisure and recreation, etc), the unsuitability of the recently altered cultural landscape for the original native and regionally typical wildlife species originally present can be evaluated and thus a potential natural list of wildlife species prepared. Wildlife-ecological spatial planning (WESP) in terms of regional culture may also provide an important basis for drawing up a list of potential natural wildlife species. Drawing up such a list is only envisaged and only makes sense for larger and fairly homogeneous territories in terms of the type of cultural landscape. Comparing the current with the potential natural wildlife species list allows conclusions as to the completeness of the potential natural species inventory that is achievable (in accordance with the given economic and socio-cultural environment). The comparison also enables assessment of various factors influencing the species actually present, in particular hunting, but also the role of leisure and recreational activities.

Keeping wildlife species lists up to date requires regular monitoring on the part of the hunters, most of all of sensitive and recolonising wild animal species. Leisure and recreation managers, in turn, should regularly seek information. Furthermore, wildlife species lists and the habitat needs of the respective species should become elements of planning and leisure and recreational management.

Indication and score:	<p>3 There are current and potential natural wildlife species lists, and leisure and recreation managers are aware of them; the habitat needs of the current and the potential wildlife species are given consideration in terms of leisure and recreation planning and management.</p> <p>1 There are no current and potential natural wildlife species lists, but there is evidence that leisure and recreation managers have inquired about and requested such lists.</p> <p>-3 There are current and potential natural wildlife species lists and leisure and recreation managers are aware of them, but they are not considered during planning and management for leisure and recreation activities.</p> <p>-4 Leisure and recreation managers are not aware whether there are lists of current and potential natural wildlife species.</p>
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1.2.2 Criterion: Leisure and recreation management accommodates the habitat needs of wild animals

Explanation: The habitat needs of wild animals are strongly characterised by species-specific requirements for food, cover and reproductive areas, which are key habitat functions in the life cycle of wild animals.

Leisure and recreational activities exert an influence upon the nature and quality of wildlife habitats and habitat structures, regardless of whether this influence is exerted consciously or unconsciously. Every construction by the leisure and recreation management entails a change and reshaping of wildlife habitats – new structures are being created, others are removed. This is augmented by the fact that the temporal and spatial distribution of leisure and recreational use may affect wild animal life cycles. Often, changes in habitats render habitats unfit for wild animals' needs and thus inadequate for the respective species or population to live in. In order for recreational activities to conform with ecological needs of wildlife, it is of key importance to accommodate the habitat requirements of wild animals.

Measures to preserve habitats should be directed in particular to covering the habitat needs of threatened, sensitive or little- hunted native wild animal species. Measures acting upon economically relevant species must not have negative impacts upon threatened species. Regional lists of currently occurring wild animals species, of potential natural wildlife species and of threatened wild animal species (e.g. on the basis of relevant Red Lists) and protected species (under nature conservation laws, Bird Protection Directive, Flora-Fauna-Habitats Directive, etc.) may provide valuable assistance in this regard.

1.2.2.1 Indicator 11: Giving consideration to the habitat needs of threatened, sensitive and recolonising wildlife species

Explanation: The term “recolonising species” refers to wildlife species native to a certain area whose populations temporarily ceased to exist and which, with or without human influence, are returning to inhabit their original habitats, whether by re-immigration (e.g. Eurasian otter (*Lutra lutra*), beaver (*Castor ssp.*)), or by selective re-introduction (e.g. ural owl (*Strix uralensis*)). The existence of certain wildlife species within a habitat gives clues as to anthropogenic impacts on the wildlife habitat, including hunting. Threatened and sensitive wildlife species need special mention in this context, including capercaillie (*Tetrao urogallus*) as well as ural owl, an animal somewhat shy by nature, which are good bio-indicators of the wildlife ecological habitat quality and hunting impacts on it. The assessment should consider not only whether these species are not impaired by hunting, but also whether predators whose populations have grown unnaturally large owing to the lack of natural enemies and/or epidemic control (e.g. that of fox as a consequence of anti-rabies vaccination), are hunted efficiently in favour of rare recolonising species (as a rule red-listed species), without risk to the recolonising species (e.g. through traps and snares). It is worth remembering that “benefit” from optimising the potential wildlife species inventory may also be generated through some recolonising native wildlife species displacing other less desired species. The extinction of the (non-native) musk rat (*Ondatra zibethica*) as a result of the renewed spread of otter (*Lutra lutra*) is an example.

Supporting a potential natural wildlife species through hunting ought to aim at creating conditions that allow populations of the relevant species to survive over an extended period of time in harmony with regional culture, without impairing the viability of other native species nor their long-term sustainable use in hunting (“PCI – Hunting,” Indicator 19).

Indication and score:	4	Measures taken by the leisure and recreation management (modification of habitats, guiding of visitors, education) give particular consideration to the habitat needs of threatened, sensitive and/or recolonising wildlife species.
	-1	Measures taken by the leisure and recreation management do not take into consideration the habitat needs of threatened, sensitive and/or recolonising wildlife species.
	-4	Measures taken by the leisure and recreation management cause an impairment of habitats or populations of threatened, sensitive and/or recolonising wildlife species.

1.2.2.2 **Indicator 12: Giving consideration to the undisturbed life cycle of wild animals**

Explanation: Leisure and recreational use is rarely regarded as a factor of disturbance, in particular by recreation seekers themselves. However, pressure from recreational activities often has a strong impact on wildlife behaviour and thus indirectly upon its habitats. In cloven-hoofed game, for example, a high frequency of recreational activities causes, among other factors, reduced use of open grazing areas (e.g. on meadows of the Wienerwald), which results in increased browsing damage to the forest vegetation that provides cover.

Leisure and recreational management should be aware of the disturbance recreational use can cause to wild animals' life cycles. Encouragement not to disturb the life cycle of wildlife should be documented in strategies for leisure and recreational use. In sensitive areas such as rutting or birth places, seasonally adjusted visitor guidelines, prescribed paths and rules for dog behaviour may be introduced. Establishing areas flagged as wildlife rest zones only makes sense if agreed upon with other land user groups.

Life cycles of wild animals benefit from any temporal and spatial guiding measures that minimise avoidable disturbance, as well as information and awareness-raising measures to this effect directed at recreation seekers.

Indication and score:	4	Life cycles of wild animals are freed from disturbance to the greatest extent possible through spatial and temporal guidance of leisure and recreational activities as well as promotion of behaviour that conforms with the guidance.
	1	Life cycles of wild animals are freed from disturbance to some extent only through spatial and temporal guidance measures and/or information provided to recreation seekers
	-3	Life cycles of wild animals are not freed from disturbance through measures by leisure and recreation management; the lack of consideration is confirmed by other land users.
	-4	Measures by the leisure and recreation management are counterproductive to keeping wild animals' life cycles undisturbed; this is confirmed by other land users.

1.2.2.3 Indicator 13: Giving consideration to the reproductive biology of threatened and sensitive game species

Explanation: In the reproduction of various wildlife species, factors of timing (among others) play a central role. Thus, particularly with regard to reproductive biology, the timing of leisure and recreational activities is significant in terms of their impact on the reproduction of wild animal species.

Leisure and recreational managers should therefore take into account areas and times critical in terms of reproductive biology, through active guidance of visitors. This is particularly significant for threatened and sensitive wild animal species designated in the wildlife species inventory or on separate lists. It is important in this context that lists with explanations of relevance to leisure and recreation management regarding the habitat needs of wild animals be supplemented by hunters. Precise information provided by hunters to leisure and recreation managers, regarding regionally and species-specifically critical factors of reproductive biology of sensitive wild animal species, is a key prerequisite in the attempt to achieve a meaningful and sustainable integration of these facts into leisure and recreation planning.

Specific consideration given to sensitive factors of the reproductive biology of wild animal species should be documented in the leisure and recreation management strategy.

Indication and score:	3	Areas and times critical for threatened and sensitive wild animals are taken into account by the leisure and recreation management through adequate and flexible measures.
	1	Areas and times critical for threatened and sensitive wild animals are taken into account to some extent by the leisure and recreation management.
	-2	Areas and times critical for threatened and sensitive wild animals are not taken into account by the leisure and recreation management.
	-3	Leisure and recreation managers are unaware of areas and times critical for threatened and sensitive wild animals.

1.2.2.4 Indicator 14: Existence of biosphere-reserve-wide leisure and recreation strategies co-ordinated between different recreational activities

Explanation: When habitats and living conditions are altered, planning should encompass not only the areas changed but also include the use of other habitats, particularly of wide-ranging wildlife species. Biosphere-reserve-wide leisure and recreation strategies are the best way of responding to the habitat use of wild animals. This is mainly true for wide-ranging wild animals such as red deer, wild boar and migrating birds. The smaller the planning areas, the more desirable are cross-territorial leisure and recreation strategies and visitor guidelines. This objective may be promoted by the formation of planning communities, but also by informal agreements. Both forms of cross-territorial leisure and recreation strategy and guiding of visitors should be documented in writing.

It is also important that guidance and development concepts are co-ordinated among various different activities in order to avoid proliferation of informal trails, paths and regulations, etc.

Indication and score:

- 4 There are biosphere-reserve-wide leisure and recreation strategies co-ordinated among different recreational activities, which take into account the habitat needs of wild animals; wide-ranging wildlife species are given particular attention in this regard.
- 2 There are biosphere-reserve-wide leisure and recreation strategies co-ordinated among different recreational activities, which take into account the habitat needs of wild animals.
- 1 There are no biosphere-reserve-wide leisure and recreation strategies co-ordinated among different recreational activities, which take into account the habitat needs of wild animals; however, such strategies are intended by leisure and recreation managers.
- 2 There are no biosphere-reserve-wide leisure and recreation strategies co-ordinated among different recreational activities, which take into account the habitat needs of wild animals, nor are such strategies intended by leisure and recreation managers.
- 3 There are no biosphere-reserve-wide leisure and recreation strategies co-ordinated among different recreational activities, which take into account the habitat needs of wild animals; leisure and recreation managers do not intend such strategies and even prevent them.

2 ECONOMY

Explanation: This section looks at the economic sustainability of integrated wildlife management from the point of view of leisure and recreation management only. The assessment focuses on how the provision, planning and management of leisure, recreation and tourism impact upon the economic sustainability of hunting.

2.1 Principle: Leisure and recreation management should give consideration to securing and improving the value of hunting

Explanation: The applicability and assessment of some Indicators within this Principle are largely a matter of individual opinion. Thus, the economic assessment of a hunting operation will be based more on balance sheet entries in the eyes of a lessor or owner, tenant or hunting customer than in the eyes of leisure and recreation managers. What for one group of actors becomes relevant as return or yield will often be listed on the expense-side by another group. This is augmented by the fact that the result of an economically sound balance-sheet in the strictly monetary sense will rarely turn out positively for the tenant and/or hunting customer. For them, aesthetic values are, as a rule, much more significant in deciding whether material costs are considered acceptable and justified, while lessors will be looking for a positive bottom line on the financial balance-sheet.

2.1.1 Criterion: Contributing to the profitability of hunting in the medium-term

Explanation: The economic value of hunting is of relevance mainly for lessors and land owners. From the point of view of hunting tenants, profitability of hunting will be reduced by costs of leases and/or hunting license, hunting ground installations, taxes and fees, feeding, etc. Profitability is therefore unlikely to be a prime motivation of a hunting tenant; the socio-cultural, recreational and aesthetic values of hunting are more important. Nevertheless, along with subjective value for hunting tenants, monetary yields of hunting are worth discussing. Game produces income and, within the framework of the Assessment Set, is directly linked with leisure and recreational use.

2.1.1.1 Indicator 15: Support for marketing regional game products

Explanation: Despite high meat quality, the average proceeds from game are generally low. Experience has shown that proceeds from game can be increased far beyond the average regional prices by way of good marketing and special customer service.

Leisure and recreation management can contribute to marketing game. Beyond monetary aspects, game has additional value through providing a positive image for hunting. A specific marketing strategy for game strengthens the positive image and may contribute to increasing the public acceptance of hunting. Product quality and consumer health represent factors boosting the positive image. The product should distinguish itself from super market mass products. A promising option would be where there recreational feeding of wildlife is unavoidable, to use only feedstuff produced within the Biosphere Reserve. This would guarantee particularly high venison quality to the consumer. Creating a regional game label

for the Wienerwald Biosphere Reserve, the value of regional game products would allow the export of quality standards, increase consumer identification with products from hunting and promote sustainable regional development.

Indication and score:	3	Leisure and recreation management contributes to marketing an existing quality label for regional game products to visitors or supports hunters in creating such a quality label.
	2	The marketing of regional game products is supported by the leisure and recreation management or by other means.
	-2	The marketing of regional game products is not supported by the leisure and recreation management.

2.1.2 Criterion: The value of hunting is given consideration when managing leisure and recreational activities

Explanation: Along with aesthetic and cultural values, hunting has an economic component for lessors (land owners). The economic value of leased territories is derived from the lease price with deductions for agreed installations and services (costs of a hunting lodge, prevention of game damage, etc.). If the hunting value is reduced, the lessors (land owners) lose income. The hunting value decreases if it becomes more difficult to hunt game, habitat quality is lost, wildlife populations are reduced, etc. The leisure and recreational use of a region has a direct impact upon both wildlife habitats and populations, and thus an indirect impact upon a territory's hunting value. Thus, leisure and recreation management also influences the economic sustainability of hunting.

2.1.2.1 Indicator 16: Measures on the part of the leisure and recreation management to preserve the market value of a hunting operation

Explanation: The market value achieved by a hunting operation depends on factors such as the hunting territory's richness in wildlife species, the bags achieved, the (average) quality of trophies, scope for hunting game, etc. The aesthetic and recreational values for hunting tenants are also a key factor in preserving market value.

These factors may be both positively and negatively influenced by leisure and recreation management. Conflicts with recreational activities mainly result from the disturbance of wildlife during leisure activities. This may impact upon the scope for hunting game, e.g. if the wildlife becomes increasingly nocturnal or remains in areas of cover for prolonged periods of time, which lowers its visibility for the hunter and reduces practical hunting possibilities. Consequently, meeting hunting requirements and thus regulating game populations is rendered more difficult, hunting efficiency is lowered and game find it harder to feed.

To give some concrete examples, the value of a hunting operation may be influenced by leisure activities in the following ways:

- Seasonal overlapping of leisure activities and times sensitive in terms of hunting:
 - in autumn: hunting priority (regulatory hunting) on red and roe deer
 - in winter and spring: hunting priority (regulatory hunting) on wild boar

- in winter: feeding time
- Diurnal overlapping of leisure activities and times sensitive in terms of hunting:
 - main hunting times at dawn and dusk are also peak times for many leisure activities (particularly in the evening).
 - limitation of the window of time for hunting free of disturbance (90 minutes before sunrise until 90 minutes after sunset) on account of intense recreational use during the day (60 minutes after sunrise until 60 minutes before sunset), and sometimes peaks of recreational pressure at dawn and dusk.
- Conflicts relating to days of the week: on weekends and holidays, peaks of tourist use concur with available leisure time for many recreational hunters
- Disturbance of hunters: intense leisure and recreational use reduce the aesthetic value of hunting (recreational value of hunting depends greatly on peace and quiet without disturbance)
- Intense recreational use lowers the economic value (market value of a hunting territory): as a rule, the material value of hunting decreases both if the hunting operation is rendered more difficult and the aesthetic value of hunting is reduced.
- If wildlife becomes more difficult to hunt as a consequence of disturbance from leisure and recreational activities, the hunting frequency will increase, thus generating greater hunting pressure, which, in turn, negatively influences scope for hunting (aggravating feedback).
- Pressure from leisure activities may increase wildlife's sensitivity to hunting pressure and vice versa (mutually aggravating effect).
- Staying on trails and paths allows wildlife to become habituated (in particular roe deer, to a minor degree red deer), while straying from paths negatively influences scope for hunting to a much greater degree.
- If visitors stay for longer periods of time on open spaces, recreational meadows, game meadows or hunting areas, these areas may be rendered unfit for hunting.
- Damaging or inappropriate use of hunting infrastructure by recreational users (feeding installations, high seats, etc.).

All these factors may be influenced by leisure and recreation management. In co-operation with hunters, the value of a hunting operation may be preserved or even increased. The following measures may have a positive impact upon the hunting value:

- An infrastructure for guiding visitors that takes into account hunting-related needs;
- Guiding visitors through comprehensive information on the spot;
- Guiding visitors with a code of conduct that gives consideration to needs of hunting;
- Regular evaluation of visitor conduct with a view to adequacy and compliance;
- Checking whether visitors observe rules of conduct;
- Active information of potential visitors in intensely visited spots regarding the requirements of hunting and sustainable wild animal management as well as on existing rules of conduct, and close co-operation with land owners when advertising infrastructure for leisure and recreational activities and tourism.

Measures on the part of the leisure and recreation management that diminish the market value of a hunting operation are mainly to be found in terms of lack of co-ordination with hunters and wildlife management.

Indication and score:	2	Measures on the part of the leisure and recreation management contribute to preserving the market value of hunting
	0	Measures on the part of the leisure and recreation management do not make a noteworthy contribution to preserving the market value of hunting.
	-2	Measures on the part of the leisure and recreation management diminish the market value of hunting.

2.2 Principle: Accommodating efficient game hunting is an objective of planning and managing leisure and recreational activities

Explanation: The leisure and recreation management may draw the attention of recreation seekers to hunting-related activities (e.g. sensitive times for wildlife) so that recreational activities will not result in an impediment to hunting. People seeking recreation can contribute by adapting their behaviour to the rules of conduct.

2.2.1 Criterion: Minimising impediments to hunting

2.2.1.1 Indicator 17: The leisure and recreation management gives consideration to the scope for hunting game

Explanation: Leisure and recreational use may have a strong impact upon the living conditions and life cycles of wild animals. By planning and implementing measures in line with sustainable wildlife management, the management of leisure and recreation activities may reduce negative impacts upon hunting or even make a positive contribution to scope for hunting. Measures to promote this objective may be the establishment of a recreational infrastructure, visitor guidance which is spatially and temporally adjusted, and the provision of information (e.g. boards, events, folders) for recreation seekers

This Indicator assesses the extent to which economic aspects of hunting game are factors in the leisure and recreation management's actual planning.

Indication and score:	<p>2 There is evidence that, in the course of planning and implementing recreational provisions (trails, paths, rules of conduct and their communication to recreation seekers etc), the preservation and improvement of scope for wildlife hunting is taken into account to the greatest extent possible.</p> <p>1 There is evidence that in the course of planning and implementing recreational provisions (trails, paths, rules of conduct and their communication to recreation seekers etc), the preservation and improvement of scope for wildlife hunting is taken into account only to some extent.</p> <p>-2 In the course of planning and implementing recreational provisions (trails and paths, rules of conduct and their communication to recreation seekers etc), the preservation and improvement of scope for wildlife hunting is not taken into account at all.</p>
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2.3 Principle: Contributing to avoiding game damage is an objective of leisure and recreation management

Explanation: In drawing up leisure and recreational planning and management strategies and visitor guidelines, recreational managers should realise that leisure and recreational activities may indirectly cause game damage.

This is mainly to be considered in terms of economic aspects of game-induced losses and additional expenses for agriculture and forestry. According to Austrian hunting laws, the person permitted to hunt is liable for game damage vis-à-vis the land owner who has incurred the damage, and is obliged to make game damage compensation payments to the land owner concerned, independent of the actual cause underlying the game damage. Leisure and recreational, in common with all other land-use activities, exerts an influence on game damage and can be a factor in causing severe game damage. By avoiding or reducing game damage, leisure and recreation management can lower costs accruing to the hunters and thus make a positive contribution to the economic sustainability of hunting.

2.3.1 Criterion: Management of leisure and recreational activities takes into account the susceptibility of agricultural crops and forests to game damage

2.3.1.1 Indicator 18: Leisure and recreation management gives consideration to avoiding game damage

Explanation: Game damage can be avoided if leisure and recreation management accommodates the susceptibility of agricultural crops and forests to game damage. This should be achieved by anticipating how spatial and temporal aspects of recreational planning may impact agricultural and forest habitats. Measures to this effect might include: paying heed to cover and grazing areas when laying out trails and paths; considering temporal

feeding bottlenecks, such as early morning and late evening as well as times of poor food supply, when regulating the hours allowed for leisure and recreational activities. Additionally, recreation seekers should be informed about behaviour that may result in game damage.

Indication and score:	<p>4 There is evidence that leisure and recreation management measures give optimum consideration to the influence of leisure and recreational activities on game damage to farm crops and forests and contribute to avoiding such damage.</p> <p>2 There is evidence that leisure and recreation management measures give optimum consideration to the influence of leisure and recreational activities on game damage to farm crops and forests.</p> <p>1 Leisure and recreation management measures only occasionally give consideration to the influence of leisure and recreational activities on game damage to farm crops and forests.</p> <p>-3 Leisure and recreation management measures cause or aggravate game damage to farm crops and forests.</p>
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2.4 Principle: Leisure and recreation management aims to benefit from synergies with hunting

2.4.1 Criterion: Leisure and recreation management forms an economic unit with hunting

Explanation: Leisure and recreational use, together with hunting and other anthropogenic forms of use (agriculture and forestry, housing and industrial areas, transport infrastructure, etc.) puts its stamp on wildlife habitats. The aim of any anthropogenic form of use is to actually benefit from it. It thus makes sense for leisure and recreational use to form an economic unit with other human activities in wildlife habitats.

2.4.1.1 Indicator 19: Confirming a common policy

Explanation: A fundamental requirement for forming an economic unit with hunting is regular contact and coordination with hunters or those who represent their interests. The forming of a unit of common economic action will be confirmed by the hunters or those who represent their interests on the hunting territory.

Indication and score	2	Those using the wildlife habitat for hunting confirm an optimum joint economic policy
	1	Those using the wildlife habitat for hunting confirm a joint economic policy, although they signal that there is room for improvement.
	-1	Those using the wildlife habitat for hunting do not confirm any joint economic policy.
	-2	Those using the wildlife habitat for hunting indicate that leisure and recreation management acts in a counterproductive manner.

2.4.2 Criterion: Optimising planned changes in wildlife habitats

Explanation: Leisure and recreation can change wildlife habitats, in common with hunting-related impacts and changes on account of road and railway construction, settlements and housing development, construction of power plants, etc.,. With regard to many of these changes, a consideration of wildlife-ecological aspects at an early stage of planning could minimise detrimental effects upon wildlife habitats, or even avoid them altogether. Interdisciplinary spatial planning is can be much more cost-effective than rehabilitation measures and compensation payments after the fact. In the planning process, leisure and recreation planning management and wildlife ecology/hunting are equal planning partners.

2.4.2.1 Indicator 20: Commitment by leisure and recreation managers to interdisciplinary wildlife-ecological spatial planning (WESP)

Explanation: Wildlife-ecological spatial planning is an instrument of integrated management of wildlife populations and habitats to re-establish a balance between the habitat needs of wild animals, the capacity of ecosystems for wildlife populations, and the various different user interests on the part of society (hunting, agriculture and forestry, tourism, general spatial planning). Along with the preservation of habitats of native wildlife species and guaranteeing their sustainable use, avoidance of user conflicts and unacceptable game-induced forest damage remain ulterior goals. WESP may be carried out on the basis of legal provisions, on a voluntary basis on the regional level, as well as on the basis of individual initiative on the part of the hunter. Integrating WESP into general spatial planning ought to be an objective.

WESP should be demanded by leisure and recreation managers. Aspirations to this effect on the part of leisure and recreation managers ought to be documented.

Indication and score:	<ul style="list-style-type: none"> 4 Wildlife-ecological spatial planning (WESP) exists, and leisure and recreation managers actively support its implementation. 2 WESP does not exist, but there leisure and recreation managers favour its establishment. -1 WESP does not exist, nor is there any indication that leisure and recreation managers favour its establishment. -3 WESP exists, but leisure and recreation managers do not actively support its implementation.
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2.4.2.2 Indicator 21: Co-operation of leisure and recreation managers with hunters regarding plans and projects that change wildlife habitats

Explanation: On account of their expert knowledge of hunting areas, hunters should be called upon to contribute their territorial and wildlife-ecological expertise to plans and projects of leisure and recreation managers that have a potential to impair wildlife habitats. This contribution can be of great help in reducing or avoiding negative impacts on wildlife as well as benefitting the practical implementation, economics and aesthetic value of hunting.

Recreational infrastructure projects, such as large-scale leisure facilities, building compounds, roads, paths, etc., serve as an example in this context: Along with their barrier effects in wildlife ecology, they may also result in fragmentation of hunting areas, economic devaluation of separated parts of hunting territories, and a reduction of the recreational value of hunting. When it comes to establishing recreational infrastructure projects, the local community of hunters is more often than not the prime source of information for assessing the impact of projects upon hunting and wildlife ecology. Participatory processes provide formalised opportunities to comment on projects and influence them to some extent. Legally established ecological compensation and mitigation measures to reduce negative impacts of projects provide another basis for considering hunting-related aspects (artificial game corridors, planting of vegetation structures, creation of substitute biotopes, etc.) Wildlife-ecological spatial planning (WESP) may be a useful instrument for relating to hunting and wildlife ecology to the planners of leisure and recreational facilities. In most cases, it will be necessary for leisure and recreation managers to request co-operation with hunters, even if the stakeholders do not have formal status in participation processes.

Indication and score:	<ul style="list-style-type: none"> 2 There is evidence that in planning and implementing leisure and recreational facilities, leisure and recreation management seeks co-operation with hunters in order to prevent a degradation of wildlife habitats and hunting. -1 In planning and implementing leisure and recreational facilities, leisure and recreation management does not seek co-operation with hunters in order to prevent a degradation of wildlife habitats and hunting. x Not applicable, no score (no habitat-changing planning or projects during the last three years).
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3 SOCIO-CULTURAL ASPECTS

Explanation: The socio-cultural in this Section relate to the management of leisure and recreational planning, its interaction with hunting and, where practical, with recreation seekers.

Particularly with regard to socio-cultural aspects, it is difficult to define clearly measurable indicators for understanding sustainable recreational management in connection with hunting. The quality of communication, for example, does not lend itself easily to an assessment within the narrow confines of clear-cut and verifiable indicators. The indicators thus comprise only those socio-cultural aspects that can typically be recorded in practise.

This section looks at several aspects that encourage co-existence and co-operation. This is not to say that there should not be any conflicts, as creative tensions can enrich the way people interact. Much rather, we will be talking about how conflicts can and should be tackled. In order to be able to prevent conflicts, a certain extent of knowledge of the other party's points of view is necessary.. The status of knowledge of leisure and recreation management about wildlife ecological and hunting-related effects of their own management measures is given great importance among the socio-cultural indicators.

3.1 Principle: Leisure and recreation management contributes to the mutual acceptance of recreation seekers and hunting interests as well as to avoiding or defusing conflicts

Explanation: It is desirable for people pursuing leisure and recreational activities and hunting interests to mutually respect and accept each other. Particularly when understanding of hunting is dwindling, it is essential to promote exchange of opinions among different interests. Through regular exchange of information with hunting interests, leisure and recreation management can contribute to constructive conflict settlement. Sectoral group-thinking is often an impediment to this process. In order to be able to mediate between people pursuing leisure and recreational activities and hunting interests, all stakeholders involved must work out a basis of respect and acceptance of the respective "other" group. A readiness for open communication from both sides – recreational management and hunting – is a prerequisite. "Talking to each other" has to be seen as a two-way process. The present Assessment Set, however, only evaluates the contribution on the part of the leisure and recreation management.

3.1.1 Criterion: Planning and management of leisure and recreational use is oriented toward the objectives of the Biosphere Reserve

Explanation: Biosphere reserves are committed to the guiding principles of sustainability. UNESCO foresees three major goals and/or functions for Biosphere Reserves: to preserve biological diversity (landscapes, ecosystems, species, genetic diversity); ensuring economical, ecological and social (including cultural and spiritual) sustainability; and supporting research, observance of the environment and educational activities to advance our understanding of interactions between people and the rest of nature (UNESCO/MAB, 1996; UNESCO & MAB-ICC, 1996). The Wienerwald Biosphere Reserve was recognised by UNESCO in 2005, as its management and zoning strategy meets the UNESCO criteria and it

pursues a sustainable development strategy. This includes the subdivision of the park into three zones: core zones (~5 % of the area), in which the focus is on the conservation of nature (in the Wienerwald this is primarily forest ecosystems) and development free of human interference to the greatest extent possible; cultivation zones (~19 % of the area) buffering the core zones, in which measures of cultural landscape preservation are accepted; and development zones (~76 % of the area) as living, economic and recreational space for the population, in which use and economic development should follow the criteria of sustainability. Thus, there are different contributions to sustainability in each zone.

3.1.1.1 **Indicator 22: Giving consideration to guiding principles and management goals of the Biosphere Reserve**

Explanation: There are currently no legal limitations on hunting in the Wienerwald Biosphere Reserve. Nevertheless, particularly in the core zones, nature and wild animals should be treated with special care by leisure or recreation seekers as well as by hunters. Care is especially important in core zones, whose objective is to develop forest eco-systems as near-natural as possible and where special regulations and recommendations apply (e.g. the obligation to stay on trails/paths). Leisure and recreation management should note that the guiding principles and objectives of the Biosphere Reserve pertaining to leisure and recreation are of relevance to wildlife ecology and hunting too. This concerns in particular:

- Management plans for core zones;
- Core zones for which limitations on use are foreseen (wildlife rest zones, habitat protection zones);
- Management recommendations in core zones relevant to recreation (incl. e.g. re-location of trails/paths);
- Principles for hunting that are also relevant for recreational activities.

(See also Section 5.4.2 on “Recommendations for core zones” of the present report.)

Indication and score:	4	There is evidence that planning and management of leisure and recreational activities is oriented optimally towards guiding principles, management goals and Biosphere Reserve zoning of wildlife ecology and sustainable hunting.
	2	The planning and management of leisure and recreational activities is only appropriate for some guiding principles, management goals and zoning of wildlife ecology and sustainable hunting.
	-4	The planning and management of leisure and recreational forms of use is not oriented towards guiding principles, management goals and zoning of wildlife ecology and sustainable hunting.

3.1.2 Criterion: Contacts exchange of information, and avoidance and settlement of conflicts with local stakeholders

Explanation: Giving consideration to the interests and opinions of all land user groups is an important element of sustainable leisure and recreation planning. The early integration of relevant interests into planning and/or the mutual exchange of information among various different land user groups can avoid conflicts or contribute to a constructive settlement of conflicts.

This part of the Assessment Set is designed to raise issues of communication and information exchange between leisure and recreation management and hunting and other countryside activities. Only the contribution that leisure and recreation management can make will be assessed. This includes factual information and awareness-raising work fostering the acceptance of hunting among leisure and recreational users, the contribution of leisure and recreation management to regular communication with recreation seekers as well as with hunters, and, last but not least, the application of constructive conflict management strategies.

3.1.2.1 Indicator 23: Documentation of disagreements by the local authority

Explanation: It is generally desirable for leisure and recreational use to be aware of social and economic aspects of other activities whose local interests they may affect – all the more so as recreational use in the Wienerwald commonly takes place on private land and hunting territories. Whether or not this aspect is given consideration can be demonstrated in documentation of disagreements by the local authority.

Indication and score:	<p>2 Leisure and recreational activities are planned and carried out with consideration for hunting interests; there is no documentation of disagreement with hunting interests (people permitted to hunt, people owning the right to hunt) at the local authorities.</p> <p>-2 Leisure and recreational activities are not planned and carried out with consideration for hunting interests; there is documentation of disagreement with hunting interests (people permitted to hunt, people owning the right to hunt) at the local authorities.</p>
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3.1.2.2 Indicator 24: Respecting hunting-ground installations

Explanation: By way of fact-focused information and awareness-raising activities, leisure and recreation management can contribute to avoiding damage to installations on hunting territories (high seats, feeding installations, etc.) and their inappropriate use (“vandalism”). In the long run, respectful treatment of hunting-ground installations requires an acceptance of hunting that can be supported by information distributed on the part of the leisure and recreation management.

Indication and score:	<p>2 By passing on specific information and raising awareness, leisure and recreation management contributes optimally to avoiding damage to hunting-ground installations (e.g. high seats, feeding installations) or their inappropriate use by recreation seekers; violations are pursued actively.</p> <p>-2 Leisure and recreation management does not carry out specific information and awareness-raising activities in order to prevent damage to hunting-ground installations (e.g. high seats, feeding installations) or their inappropriate use by recreation seekers.</p>
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3.1.2.3 Indicator 25: Existence of efficient communication channels within groups engaging in leisure and recreation activities

Explanation: This Indicator concerns the regularity and efficiency of information flows within leisure activities. The respective leisure and recreation management bears the main responsibility for communicating information relevant to wildlife and hunting to its own interest group, in particular information concerning rules of use and conduct as well as their justification and meaning. The existence of communication channels is a fundamental prerequisite.

Indication and score:	<p>3 Communication channels have been established within groups of people pursuing leisure and recreational activities; Recreation seekers are regularly and efficiently informed about wildlife ecology and sustainable hunting.</p> <p>0 Communication channels exist within groups of people pursuing leisure and recreational activities, but they are only rarely used to distribute information about wildlife ecology and sustainable hunting to recreation seekers.</p> <p>-2 There are no functioning communication channels within groups of people pursuing leisure and recreational activities.</p>
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3.1.2.4 **Indicator 26: Existence of institutionalised communication structures between leisure and recreation management and hunting interests**

Explanation: Institutionalised communication structures provide a sound basis for a regular and efficient flow of information between leisure and recreation management and hunting interests. It is important that both sides support these structures and are prepared to use them regularly. A unilateral strategy would neither persist nor guarantee an effective mutual information exchange. Organised instruments of communication supported by both sides, with the purpose of opinion exchange and mutual harmonisation, include: jointly organised communication fora, regular information and discussion meetings or even regular informal get-togethers.

Indication and score:	<p>3 There are institutionalised communication structures for information exchange with hunting interests; a leading point of contact for solving problems has been established.</p> <p>2 There are institutionalised communication structures for information exchange with hunting interests.</p> <p>-3 Despite a readiness on the part of hunters, there are no institutionalised communication structures for information exchange with them.</p>
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3.1.2.5 Indicator 27: Regular exchange of information with hunting interests

Explanation: For mutual acceptance and harmony between people pursuing leisure and recreational activities and hunting interests, it is important to integrate hunting interests into leisure and recreation management, and vice versa. Another indicator is whether people representing hunting interests are regularly and actively invited to co-operation and co-ordination, or even kept informed by the leisure and recreation managers. Organised instruments of opinion exchange and mutual harmonisation include: invitations to communication fora, to locally specific (including non-hunting-related) events and to regular information and discussion meetings as well as institutional gatherings or regular informal get-togethers of those responsible for leisure and recreation management. This is not to be confused with co-determination in the sense of a formal right to vote. Rather, it is whole-hearted participation in information flows and consultation (see also www.partizipation.at/anwendung.html). Moreover, it is important to include hunting management with other forms of land use in preliminary and other issues of land management planning. This guarantees reconciliation of the needs of landowners and other interests.

Regular exchanges of views may help to avoid many a disagreement, soften altercations before they escalate or, at least, settle them soon after they arise. While exchanges of views may take place irregularly and informally, established, organised and regular meetings (in the sense of an institutionalised communication structure as defined under indicator 26) provide a better framework. They are a sign that leisure and recreation managers, in the sense of a positive culture of debate, openly and actively support a favourable conversation climate.

A regular exchange of information with hunting interests demands openness vis-à-vis hunting activities from leisure and recreation managers; it also requires that they actively respond to information and communication offered by hunters, but also actively offer information and communication to the hunters. What is more, regular contact is a prerequisite for a mutual basis of conversation (qualitative-emotional component).

Indication and score:	4	Leisure and recreation management initiates regular exchange of information with local hunting groups about measures both groups take for wildlife and hunting.
	1	Leisure and recreation managers participate in a regular information exchange with local hunting groups about measures both groups take for wildlife and hunting
	-2	There is no regular information exchange with local hunting groups about measures for wildlife and hunting.

3.1.2.6 **Indicator 28: Conflict management strategies**

Explanation: This Indicator does not intend to eliminate differences in opinion altogether. Sometimes, differing views, if they are expressed respectfully and on a factual basis, harbour potential for creative, innovative and efficient solutions. An indication of whether a conflict is dealt with in a solution-oriented, factual and respectful manner is whether a de-escalating approach is taken and an “escalation scale” is observed. The objective is to first seek direct conversation (on the spot, for example, or in an informal setting); as a next stage, an impartial third person is involved to act as a moderator; and only as a last step will the matter be taken to court. Even in the case of conflicts between smaller groups on the one hand (e.g. hunters) and larger groups on the other (e.g. people pursuing leisure and recreational activities such as mountain bikers, horse riders, etc.), this indicator may be applied by getting in touch with relevant stakeholders from the respective other side and raising the matter with them.

Indication and score:	<p>2 In coping with conflicts related to hunting, leisure and recreation managers have, over the last three years, <i>always</i> sought the means with the least escalation potential (escalation step with the lowest possible escalation intensity, e.g. direct personal conversation ahead of conversation moderated by an impartial third person, ahead of taking the matter to court).</p> <p>–1 In coping with conflicts related to hunting, leisure and recreation managers have, over the last three years, <i>not always</i> sought the means with the least escalation potential (escalation step with the lowest possible escalation intensity, e.g. direct personal conversation ahead of conversation moderated by an impartial third person, ahead of taking the matter to court).</p> <p>–2 In coping with conflicts related to hunting, leisure and recreation managers have, over the last three years, <i>never</i> sought the means with the least escalation potential (escalation step with the lowest possible escalation intensity, e.g. direct personal conversation ahead of conversation moderated by an impartial third person, ahead of taking the matter to court).</p> <p>x Not applicable, no score (there has been no conflict over the last three years.)</p>
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3.1.2.7 **Indicator 29: Training in public relations, communication and conflict management**

Explanation: Public relations work related to hunting, together with the methods, intensity and quality of contacts of leisure and recreation managers with hunting representatives, significantly influence mutual acceptance and the quality of relations between these interests. Prejudices on either side may be eliminated by professional public relations work, communication, and adequate self-presentation of the players concerned. This calls for efforts on both sides. Within the scope of the present Assessment Set, however, only the active commitment by leisure and recreation managers can be evaluated. The efforts of

leisure and recreation managers to seek further education and training in this field are chosen as an indicator of the quality of public relations work, communication and conflict management between leisure and recreation managers and other land users.

Examples of public relations activities: excursions and events relating to wildlife ecology and hunting; articles for local media on wildlife-ecological and hunting-related subjects; contributions to internal and external information brochures on the issues of wildlife ecology and hunting; launching websites on these issues, etc.

Examples of further training in communication: assessment of the partner in conversation, development of self-assuredness and confidence of actions; patterns of speech; phrasing; intonation; intercultural dimensions, etc.

A few examples of further training in conflict management: meaning of factual and relational level; self-ascertainment instead of escape or attack behaviour; conversations that boil-over – triggers and emergency braking techniques; minimising unnecessary hurting or upsetting; influence of preconceptions on conflict behaviour; exploring interests behind rigid positions; “objective” truths and the question of who is right; causes of conflicts; conflict signals; meaning of objections: what provoked/aggravated opposition, how can it be avoided/reduced?

Indication and score:	3	Over the last five years, several activities of further education and training in public relations, communication or conflict management were attended.
	1	Over the last five years, one activity of further education and training in public relations, communication or conflict management was attended.
	-3	Over the last five years, no activities of further education and training in public relations, communication or conflict management were attended.

3.2 Principle: Leisure and recreation activities give consideration to game welfare

Explanation: Leisure and recreation managers are generally aware of their responsibility vis-à-vis animals and nature. Leisure and recreation activities need to be oriented toward the welfare of wildlife. Leisure and recreation managers should inform people pursuing leisure and recreational activities about rules of conduct resulting from this responsibility. However, recreation seekers also bear responsibility themselves and should act accordingly. This includes actively seeking information on rules of conduct for wildlife welfare. Violations of animal protection legislation must be counteracted both by leisure and recreation managers and by the people pursuing recreational activities themselves.

3.2.1 Criterion: Leisure and recreation activities impair the natural behaviour of wildlife minimally

Explanation: Leisure and recreation management plays affects wildlife habitats and thus influences the living conditions and life cycles of wild animals. The welfare of wild animals

should therefore be an element of leisure and recreational planning. People pursuing leisure and recreational activities are often unaware of the impacts their activities have upon the well-being of wild animals. Rules of conduct favouring the well-being of wild animals should be actively conveyed to this group of people. Drawing the attention of recreation seekers to these rules induces responsible behaviour by making them aware of the impacts leisure and recreational activities have on nature and animals.

3.2.1.1 **Indicator 30: Minimising stress for wild animals**

Explanation: Far-sighted planning for wildlife spatial and temporal requirements can significantly reduce stress for wild animals caused by leisure and recreational use. This motivates measures to enhance behaviour that respects animal protection laws and adapts as much as possible to the needs of wild animals. Such measures may include adequate infrastructural establishments for leisure activities, visitor guidance in line with spatial and temporal needs of wild animals, adequate information policy, etc. In these ways, leisure and recreation management can contribute to reducing stress for wild animals.

Indication and score:	<p>3 Avoidable stress for wild animals is minimised as far as possible by guiding leisure and recreational activities according to the spatial and temporal needs of wildlife (routeing and density of trails/paths, hours of use, etc.) as well as by way of behaviour in line with the relevant rules (information concerning the obligation to use certain paths or stay on paths, leash dogs, etc.)</p> <p>1 Avoidable stress for wild animals is minimised to some extent (in some areas/at certain times) by guiding leisure and recreational activities according to the spatial and temporal needs of wildlife (routeing and density of trails/paths, hours of use, etc.).</p> <p>-3 Deficient guiding of leisure and recreational activities according to the spatial and temporal needs of wildlife (routeing and density of trails/paths, hours of use, etc.) and/or deficiencies in promoting conduct in accordance with the rules (information concerning the obligation to use certain paths or stay on paths, leash dogs, etc.) cause stress for wild animals from the recreational activities.</p>
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3.2.1.2 **Indicator 31: Active and public information on rules of conduct for recreation seekers**

Explanation: In order to draw the attention of leisure and recreation seekers to their influence on wildlife, leisure and recreation management should apply various information strategies.

Practicable examples of information on rules of conduct for people pursuing leisure and recreational activities is offered by the Province of Vorarlberg, by the "Wohngemeinschaft Natur" ("Nature – a Living Community") Initiative and the Mountain-Bike-Fair-Play rules of Austria's largest land owner, Österreichische Bundesforste (Austrian Federal Forests), which are designed to draw mountain bikers' attention to correct outdoor behaviour. The

"Wohngemeinschaft Natur" Initiative pursues the motto "RespekTIERE deine Grenzen" ("Respect your limits. Respect animals"). This information campaign marks protection and care zones for animals and plans with information and illustrative boards, etc. In addition, information and explanations for people pursuing leisure and recreational activities promotes understanding about important habitats for plants and animals (see www.respektiere-deine-grenzen.at).

Information on appropriate outdoor behaviour for people pursuing leisure and recreational activities also promotes respectful co-existence with other land users, e.g. hunters, but also the respect for others within each activity.

Indication and score:	<p>2 The leisure and recreation management makes use of numerous opportunities to inform people pursuing leisure and recreational activities systematically and efficiently about current rules of conduct (fair-play-rules, hours of use, limitations of space) (e.g. through information events, print media, the internet, gatherings of members, etc.)</p> <p>1 The leisure and recreation management makes use of only some opportunities to inform people pursuing leisure and recreational activities systematically and efficiently about current rules of conduct (fair-play-rules, hours of use, limitations of space) (e.g. through information events, print media, the internet, gatherings of members, etc.)</p> <p>-2 People pursuing leisure and recreational activities are not actively informed about current rules of conduct by the leisure and recreation management.</p>
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3.2.2 Criterion: Leisure and recreational activities causes as little pain as possible to wild animals

Explanation: Leisure and recreational activity must be conducted so as to cause as little pain as possible to wild animals. A fundamental prerequisite is that rules of conduct for dog owners, mountain bikers or cyclists as well as for other recreational users are adjusted to time and space requirements of wildlife. The leisure and recreation management is obliged to work out such rules of conduct, and to communicate, support and give reasons for them. People pursuing leisure and recreational activities have the obligation to observe regulations relevant in terms of animal protection, in particular with regard to wild animals. Violations of such regulations are, for example: straying from trails/paths marked as obligatory, robbing nests or destroying breeding sites, intruding upon areas of cover, deliberate or unwitting chasing of wild animals by dogs, and disturbing wild animals at rest etc. ,on account of the leisure activity. Such violations must be consistently punished.

3.2.2.1 Indicator 32: Violations of animal welfare provisions

Explanation: It should be an objective of leisure and recreational activities to cause game the least disturbance possible. To this end, people pursuing leisure and recreational activities need to behave in compliance with animal protection regulations. In particular, violations against the following regulations should be prevented: Pursuant to § 2 "Cruelty to Animals" of

the Animal Protection Act of Lower Austria, no-one must inflict unjustified pain, suffering or damage to an animal, e.g. through traps or snares (§ 2, Sub-section 13). Furthermore, pursuant to § 2, Sub-section 10, it is prohibited to “*sic an animal onto another animal, or to use an animal to make another animal fierce, or to use an animal to test another animals fierceness.*” (Animal Protection Act of the Province of Lower Austria, Provincial Legal Gazette 4610).

According to § 11, Sub-section 3, “Protection of Species” of the Nature Protection Act of the Province of Lower Austria, “*fully protected animals*” must not “... *be persecuted, caught, intentionally disturbed, killed, purchased alive or dead, stored, conveyed, transported or offered for sale ... This protection also extends to developmental forms (eggs, larvae, pupae, subadult stages) and parts (in particular feathers, hides and fells). ... Equally, the intentional destruction of their habitat (in particular, hatching locations and cover) is prohibited.*” Sub-section 4 reads that “*the removal, damaging or destruction of hatching locations or nests of protected animals ... is only permitted if they do not contain young animals and are located in or on human constructions or private gardens, and only from October until the end of February to the people who own these properties.*” (Act on the Conservation and Cultivation of Nature – Nature Protection Act of the Province of Lower Austria, Provincial Legal Gazette 5500).

§ 64 of the Lower Austrian Hunting Act regulates game protection as comprising “*the defence against violations of provisions for the protection of game.*” It regulates the “*right and duty to tend to game and impede damage to game caused by poachers and vermin.*” The above hunting act defines “*vermin*” as “*other animals causing damage to managed (protected) game, in particular quartering and stray dogs and stray cats ... Those responsible for game protection are thus ... entitled to kill, within the sphere of their official influence ... [for example] stray dogs, dogs which have evidently escaped the control of their keeper straying in the hunting territory out of hearing range and away from public installations, and cats straying at a distance of more than 300 m away from housing and agricultural buildings. ... The owners of the ... killed dogs and cats ... are not entitled to damages;*” but the those responsible for game are obliged to “*explain to the administrative district authority the circumstances justifying the killing.*” (Lower Austrian Hunting Act, Provincial Legal Gazette 6500).

With regard to leisure and recreational use, the relevant paragraphs of the Lower Austrian Hunting Act signify that owners of pets should take responsibility for the whereabouts and activity of their pets on hunting grounds, for their own good. Recommendations such as the leashing of dogs are appropriate.

In general, the legislation cited above clearly defines actions subject to punishment and thus the minimal legal obligations to be met by people pursuing leisure and recreational activities as well as by the responsible management.

Indication and score:	4	No violations of animal protection provisions (e.g. the failure to leash dogs; stray dogs) have been documented.
	-1	(Some) violations of animal protection provisions (e.g. the failure to leash dogs; stray dogs) have been documented.
	-4	Numerous violations of animal protection provisions (e.g. the failure to leash dogs; stray dogs) have been documented.

3.2.2.2 Indicator 33: Responsible wildlife watching

Explanation: Observing wild animals is an important non-consumptive use of nature. It may contribute greatly to experiencing nature and fosters environmental education, in particular in recreational areas near big cities such as in Wienerwald. Care should be taken, however, to avoid causing stress for wild animals unintentionally. Stress may, for example, result from stalking wild animals, intruding into areas of cover, rest and reproduction, etc. It lies within the responsibility of the leisure and recreation management to work out adequate rules and guidelines for visitor conduct, with hunters, wildlife biologists and other experts, and to convey them to the public in an understandable manner. Visitor information on the spot may be a valuable element in this regard.

Indication and score:	1	Leisure and recreation management guides people toward exercising care when observing wild animals through explanations and information.
	-1	Leisure and recreation management does not take any measures directing people toward exercising care when observing wild animals.

3.3 Principle: Management of leisure and recreation is aware of the impacts of their activities on wild animals, their habitats and hunting

Explanation: Leisure and recreational activities in wildlife habitats take place in the natural environment of animals and frequently interfere with these habitats. Leisure and recreation managers need to be aware of the impacts upon wild animals and the hunting of these animals and should aim at keeping disturbance of wildlife caused by leisure and recreational activities to a minimum through adequate planning and design of recreational infrastructure as well as with visitor information and guidance.

3.3.1 Criterion: Rules of conduct for recreation seekers, as well as other management measures, are continuously developed and updated

Explanation: In order to guide adequately the behaviour of people pursuing leisure and recreational activities in wildlife habitats, leisure and recreation managers must keep their knowledge of developments in wildlife habitats and new findings in the field of sustainable hunting up to date. Recreational infrastructure should be planned and designed on the basis of the latest scientific findings. The same applies to visitor information and guidance, and monitoring of visitor behaviour.

3.3.1.1 **Indicator 34:** Improvement of knowledge about wildlife-ecological and hunting-related impacts of leisure and recreational activities

Explanation: Many activities of people seeking leisure and recreation have potential effects upon the balance of nature and ecosystems. This includes influences upon wild animals,

their habitats and, consequently, the hunting of these animals. It is thus desirable for leisure and recreational managers to make themselves aware of the conscious and unconscious consequences of leisure and recreational activities for wild animals and hunting, via interdisciplinary education and to regularly update their knowledge in this regard. This may be documented by activities contributing to high-quality education and training in wildlife ecology and hunting-related subjects. Examples of compliance are regularly attended educational events (lectures, expert meetings, discussion events, excursions, etc.) but also relevant literature – in general, any available means of imparting knowledge, directly or indirectly, which is relevant to wildlife ecology and hunting

In applying this indicator, it should be borne in mind that education through sources of general leisure and recreation-related material may provide valuable help in dealing with ecological or hunting-related issues. Making use of such sources is positive in the assessment, provided there is a direct or indirect reference to wildlife ecology and hunting.

Indication and score:	<p>2 Over the past three years, <i>several</i> education and further training activities (events, excursions, etc.) with relevance to wildlife ecology and/or hunting (events, excursions, etc.) were attended.</p> <p>1 Over the past three years, <i>one</i> of the educational activities described above was attended.</p> <p>–1 Over the past three years, <i>none</i> of the educational activities described above (events, excursions, etc.) was attended.</p> <p>x Not applicable, no score (there is evidence that no educational or information offer of wildlife-ecological and/or hunting relevance was available).</p>
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3.3.1.2 Indicator 35: Monitoring and evaluating compliance with regulations for leisure and recreational activities

Explanation: Both for drafting new regulations and updating existing ones, and for general planning and measures on the part of the leisure and recreation management, it is fundamental to know whether regulations are accepted and observed . There is a need for action if there is an attitude of rejection to a certain regulation, or if people pursuing leisure and recreational activities do not observe a regulation,. This indicator is designed to focus particularly on the status of knowledge about compliance with regulations concerning impacts of leisure and recreational activities on wildlife habitats and hunting. In order to improve the status of knowledge on these issues, regular evaluations of visitor guidelines should be made by way of questioning and counting people seeking leisure and recreation. Informal exchanges between different user groups may also help the assessment.

Indication and score:	<p>3 Comply with regulations for leisure and recreational activities was evaluated during the last ten years; other land user groups were consulted in this regard.</p> <p>1 Compliance with regulations for leisure and recreational activities was not evaluated during the last ten years; however, other land user groups were consulted in this regard.</p> <p>-2 Over the last ten years, compliance with regulations for leisure and recreational activities was not evaluated, nor were other land user groups consulted in this regard.</p>
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3.3.1.3 Indicator 36: Improving the status of knowledge on technology for planning recreational infrastructure and for visitor information and guidance

Explanation: The planning and design of recreational infrastructure and visitor information and guidance has a major effect upon wildlife habitats in many areas. If leisure and recreation management is to be sustainable, it is important to be up to date regarding knowledge on these issues. Improving the status of knowledge also supports planning and implementing a leisure and recreation strategy geared to the needs of countryside activities. Moreover, negative impacts of leisure and recreation on wildlife habitats may be more effectively and lastingly counteracted by the leisure and recreation management if visitor information and guidance meet the latest criteria. Ideally, an adequate guidance system should involve all relevant recreational activities and exist for the entire area of the Biosphere Reserve; it should avoid regulations differing across the Biosphere Reserve and uncoordinated planning activities on the part of individual municipalities, land owners, etc..

Leisure and recreation managers are encouraged to take initiatives to update their knowledge on recreational infrastructure design and planning, as well as on visitor information and guidance, with the help of further education and training, technical journals, and practical examples such as excursion to Best-Practice-sites, to give a few examples.

Indication and score:	<p>2 <i>Several</i> activities of training and further education (events, excursions, etc.) have been undertaken during the last three years.</p> <p>1 <i>One</i> of the educational activities described above was attended during the last three years.</p> <p>-1 <i>None</i> of the educational activities described above was attended during the last three years.</p>
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