

7th “NATIONAL PARKS AND MOUNTAIN SPORTS” SEMINAR

Organised by the Spanish Federation of Mountain and Climbing Sports (Federación Española de Deportes de Montaña, or FEDME) and the Regional Organisation for National Parks (OAPN) under the Ministry of Agriculture, Food and Environment at the [Centro Nacional de Educación Ambiental \(CENEAM\)](#) in Valsain (Segovia) on 15, 16 and 17 November 2013.

“Safety in the mountains”

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1. Background

The 1st Seminar on Protected Natural Areas (PNAs) and Mountain Sports was held on the island of Tenerife in 1999, thanks to the collaborative efforts of the Spanish Federation of Mountain and Climbing Sports (hereinafter referred to as FEDME after its Spanish name), the Canary Islands Mountaineering Federation (Federación Canaria de Montañismo), the Regional Government of the Canary Islands and the Ministry of the Environment. The conference had one main objective: to open up initial channels of dialogue between sports enthusiasts and environmental managers, which had hitherto been non-existent except in the Parque Nacional del Teide, on the island of Tenerife.

From then onwards, following a monographic seminar on mountain refuges in Cangas de Onís (Asturias, 2001), the following seminars were organised: in Jaca (Aragon 2003), Granada (Andalusia 2005), Covadonga (Asturias 2007), Los Barrios (Andalusia 2009), Arántzazu (Basque Country 2011). The topics discussed have always been of interest to both mountaineers and environmental managers: “Mountain refuges and National Parks”, “Terminology in PNA regulation”, “Rambling in protected natural areas”, “Rambling and rural development”, “Climbing in protected natural areas”, “Canyoning in protected natural areas”, “Mountaineering and environmental education”, “Mountain races in protected natural areas”, “The contribution of mountaineering to sustainable development in natural environments” and “Traditional uses, mountain sports and rural development”. In 2013 the seminar is in Valsain (Castilla y León), coinciding with the declaration of the Sierra de Guadarrama as a National Park and will focus on an issue that cuts right across the board: “Safety in the mountains”.

The seminars provide a model for negotiating and seeking agreements. Their successful implementation and subsequent consolidation have rested on a very simple but efficient type of basic support: individual people. And this has led to repercussions. It is only in Spain that mountaineering federations and environmental managers have started to work together, and the translation into English of all the texts from the seminars, along with their uploading onto the FEDME website at the beginning of 2009, has meant that this unique mode of action has spread all over the world.

2. Protected natural areas, sports activities in natural environments and accidents in the mountains

Protected natural areas provide a valuable contribution to the conservation of nature, founded on mutual commitment between the general public and the State, involving the participation of all stakeholders. Hence, the management of such environments needs to pay special attention to relations with nearby towns, with the owners and holders of rights, and with society in general.

27% of the land in Spain enjoys legal protection specifically for the purpose of conserving nature. This percentage includes national parks, natural parks, reservations, monuments, protected scenery and the spaces comprising the Natura 2000 Networking Programme. According to the data pertaining to EUROPARC-Spain, over 24 million people visited these areas in 2011, almost a million more than in 2010. As the report notes, it should be borne in mind that, given the difficulty of controlling the flow of visitors to these open spaces, much of the data concerning such visits collated by the managers of the various parks refers to the visitors' centres, implying that the number of people actually visiting the parks would be far greater. Every year millions of visitors flock to these spaces, and some of them fall victim to accidents and incidents.

Everyone has the right and obligation to do sport in the mountains in optimal safety conditions. Risk management is becoming more and more widespread and accepted by public managers, since it is now clear that it optimises resources and enables objectives to be achieved more easily. There is no doubt that proper risk management in protected natural areas will enhance the safety of the visitors, improve the quality of the services provided, and reduce the impact on the natural environment.

The importance of protected natural areas as places for sport and recreation implies greater responsibility in management terms, both with respect to implementing the highest level of preventive measures to ensure people's safety and the need to maintain the biodiversity of the region, regardless of the amount of environmental protection they are given.

According to the latest Survey of Spanish Sporting Habits (CSD and CIS, 2010), 75% of the Spanish population do sports on their own: mountaineering/rambling/backpacking ranks sixth among the most popular sports in Spain with 8.6%, ahead of basketball, tennis, athletics, padel, etc. Furthermore, 45% of Spaniards would rather do sport in open public spaces (park, street, countryside, mountains, seaside, lake, river, greenway, etc.). Such data give us an idea of how significant nature sports are.

90% of the land in Spain is rural, but it is home to only 20% of the population. The progressive loss of population in rural areas over the past few decades makes it necessary to take measures to make it more attractive to stay, giving it future prospects. For this reason, it is imperative to reduce the inequalities that have arisen, particularly in terms of amenities and quality of life, so as to offer the same opportunities that can be found in a town. To do so, we need complex, multisector, active policies combining small actions linked to the region with a broader, more comprehensive vision, in constant partnership with the organisations upholding the social fabric. In comparison with other countries forming part of the Alpine arc, what we know as "mountain tourism" in which rambling is the main activity, as explained in the study conducted by the Secretary General for Tourism in 2009, is very poorly structured and developed here in Spain. Nevertheless,

mountaineers have always enjoyed a very close relationship with small mountain villages that have a hard and very difficult life.

It is logical and only natural that the exponential growth in the number of people visiting wild natural environments is paralleled by an increase in the number of accidents and rescues. The absence of consistent and reliable statistics for the whole country complicates the determination of accidents in the mountains on a typological and case-by-case basis. Case studies and attempts to improve the collection of data will enable us to improve our information and enhance prevention schemes to stop them happening.

To give an example, according to the data released by the Guardia Civil, the number of rescue operations carried out in 2012 was 815, resulting in 83 dead, 459 injured and 845 unharmed. This information only refers to interventions resulting from an accident or incident and cannot be compared and contrasted with specific data for practitioners of an activity as such data is not available. With respect to interventions according to activity, rambling (40%), endurance running (12%) and canyoning (12%) are particularly significant. Apart from the cost of direct intervention, there are also other socio-economic costs, which are of equal or even greater importance, such as hospital care or sick leave. Over 80% of those rescued do not belong to mountaineering federations, and hence it can be assumed that many of those involved in accidents have not had any training.

On the whole, the treatment of mountain-related accidents in the media is typically characterised by a lack of knowledge of the subject and the reasons why such accidents happen. It is not a lot different from the way a car crash or accident in the home is reported, apart from where it takes place. A climbing accident is never looked at from a global or statistical perspective.

The upward trend in accident rates makes it essential to raise awareness and attempt to turn the current situation around, by setting our sights on prevention as a cornerstone, increasing safety levels for those carrying out activities in the mountains, and fomenting greater enjoyment of natural environments into the bargain. For all these reasons, it is imperative that we foster a global perspective on prevention and risk management, in which all stakeholders - public authorities, clubs and federations, businesses engaged in this sector, training centres, etc. - should interact with one another to obtain the highest levels of involvement and commitment. In doing so, one of the basic aims should be the promotion of a culture of prevention, along with a significant reduction in the number of accidents.

3. How and where safety precautions are implemented in mountain areas

a) Information and communication technologies

Information and communication technologies (websites, social networks, downloadable apps for mobiles, etc.) represent an increasingly popular vehicle used by regular practitioners of mountain sports to obtain information and plan their activity outdoors in the wild. And their use is expected to become even more widespread over the coming years. Private individuals, companies and others have all started to use these communication channels with one serious problem: variability in the guarantees and contrast in the information they provide. It is important that the authorities involve themselves in the use of information and communication technologies for prevention purposes.

b) Environmental training and awareness

We need to establish the idea of conservation and safety as being a two-pronged notion enshrined in awareness policies for natural areas, by setting up specific programmes that combine both aspects, with one of the aims focusing on planning for public use.

Also of importance is the integration of environmental awareness in training programmes on recycling for professionals that carry out their activities in natural environments, and the coordination of training and preparatory modules and programmes for obtaining various qualifications, thereby making environmental knowledge carry more weight in the curricular development of all educational activities.

c) Safety precautions on marked trails

The actual marking of a footpath is considered to be the basic safety strategy for rambling in natural environments, whether or not there is any form of protection. Waymarking will enable the flow of visitors to be channelled to benefit conservation and safety. The choice of path and route design will be crucial, as will the determination of potentially hazardous situations, the execution and implantation of the project, and the maintenance and monitoring of marked itineraries.

Since it would be impossible to provide it on the markings themselves, information about the trails, particularly that which is available prior to carrying out the activity, should not only cover the physical description of the marked routes but also safety issues. Furthermore, in those spaces with more mountainous terrain, there should also be information on the natural environment and on safety, including the state of the trails and waymarkings, information on specific matters deriving from the weather and on the activity of the rambler: essential equipment, expertise, approximate timings based on speed, hours of daylight, etc., with special emphasis on those protected areas receiving the most visitors.

The “MIDE method” (the Spanish trekkers’ information system with the acronym 'MIDE' (spelling out the word ‘measure’) standing for “Medium Itinerary Difficulty and Effort required”) should be used on all marked trails, whether or not they are approved.

d) Safety measures for climbing, canyoning and via ferrata routes

There are various complex and diverse aspects concerning safety in climbing activities, canyoning and via ferrata. Along with matters regarding personal equipment, specific knowledge of materials, training and practice, we also need to consider features that concern the group. In this regard, the most important thing is to implement guidelines that are clear but also flexible at the same time, designed to nurture a culture of prevention. For this reason, it is advisable to draw up codes or recommendations of good practice that have a low impact on the surroundings but are safe and dynamic for the person doing the activity. These might be specified as follows:

- Defining the number of people per group (so as to avoid any chaotic or disorderly progression), this also being a factor that has a direct impact on conservation of the environment and maintaining the biodiversity of the area.
- Encouraging participation in making the equipment, retrofitting and removing equipment, except in clear cases of emergency or where pre-existing equipment is to be disabled, with safety and conservation being of paramount importance. Maximum consensus should be sought between the stakeholders: those managing the PNA concerned, climbing clubs and federations, rescue parties, etc., encouraging meetings, training and educational activities and regular monitoring of such facilities.
- Favours standardisation of pedestrian entry points through the use of minimal, basic signage, thereby preventing dispersion and limiting impact on the environment, while at the same time providing better orientation in case of emergency.
- Offering guidance in friendly practices, including the consideration of which seasons are unfavourable for protected species.
- Establishing an information strategy, particularly at marked entry points, containing aspects relating, among others, to the physical, climatic and environmental conditions of the area.

In keeping with the current model of footpath, it would be convenient to reach agreements to improve the equipment and register the various climbing schools and areas, via ferrata and canyons fitted with installations, which will make it safer and environmentally more efficient to carry out this type of activity.

e) Safety in sports competitions

Sports federations play an important role in managing risk during competitions, in which many times hazard perception on the part of the competitors is diminished since they are bent on maximum performance. Sports regulations are the tool for minimising risk in these competitions.

In events like mountain races, ultra trails, downhill skiing and other disciplines over winter terrain, the federations and their referee committees should implement and update these safety measures in their regulations, with respect to the characteristics of the circuit, the protective material, evacuation plans, self-protection plans, etc.

f) Use of approved materials

Attention is drawn to the importance of the use and proper maintenance of equipment approved for climbing, canyoning, via ferrata, mountaineering and other mountain activities involving risk for the practitioners. Such approved equipment must follow the European guidelines which should be visible and feature the CE stamp, along with those of the International Mountain and Climbing Federation (UIAA), as appropriate. It is recommended that the material used should always be approved, and its useful life verified at all times.

It is essential to assess and analyse the material reserved for collective use, with particular emphasis being placed on the anchorage points of all the different types of installation. Many anchorage points undergo premature rupture due to corrosion and other exogenous factors. It is imperative to set up direct contact with the manufacturers both to get them to provide specific indications on their labels about the use for which each safety element is intended, and also so they can promote casting analysis, materials resistance, etc, in order to avoid any premature wear and tear or rupture of the material.

g) Prevention campaigns

It is considered to be of paramount importance to focus on accident prevention campaigns in mountain areas. To give an example, we have the campaign entitled “Montañas para vivirlas seguro”, (*Mountains to experience safely*), which has been conducted in Aragon since 1999, or “Sierra Nevada para vivirla segura” (*Sierra Nevada to experience in safety*) initiated in 2004, which spell out the importance of providing backpackers with information *in situ*; the collection of data in the form of a questionnaire to find out what sort of equipment and experience the backpackers have, and where they are; the training skills of the team of volunteers helping out with the campaign; and the development of studies and tools designed for the prevention of accidents.

In other natural areas awareness-raising campaigns have also been carried out using information leaflets, banners on relevant websites, and direct advice at information offices.

h) Safety in activities involving minors

Children are particularly vulnerable and, therefore, extra precautions need to be taken, including the request for sports experts trained in mountain activities to accompany them.

The presence of recreational youth clubs and family groups in natural mountain environments requires a greater amount of training and control with respect to safety matters by the schools responsible for training monitors and also on the part of the youth authorities. It also requires climbing federations to adopt risk management policies so that these can be passed on to organisations that take children out on excursions to the mountains.

Joint programmes need to be set up involving PNA managers, mountaineering federations and representatives from youth clubs, that do not focus merely on enforcing greater control of mountain activities with minors, but also on such important issues as prevention, information before setting off, the training of group leaders and advice on safety and hazard perception in sporting activities carried out on camping expeditions and excursions.

For minors regularly engaged in activities in the mountains organised by clubs or federations, special emphasis should be placed on training adapted to children's needs, stressing the importance of proper planning by those in charge and the application of codes of good practice. Stricter precautions will need to be implemented where children, unfamiliar with mountain terrain, occasionally take part in activities in this environment.

Broadening already existing methods tried and tested by mountaineering groups, such as the Spanish trekkers' information system (MIDE), should be tackled directly by those responsible for safety at FEDME, including ratings for age, group/leader ratios and even the physical fitness of the participants in their assessments.

There needs to be collaboration between the youth, tourism and education authorities, as well as with social and voluntary organisations, since these are the ones that currently have most contact with children.

The conclusions arising from this seminar with respect to matters concerning activities with minors in mountain terrain will be transferred from FEDME to INJUVE (Instituto Nacional de Juventud, the Spanish National Youth Institute) and to the Regional Governments, with proposals for channelling collaboration between federations, authorities, protected natural areas and young people.

i) Club and federation training commitments

One of the keys in reducing the number of accidents lies in training the mountaineering community. Through its regional federations, FEDME should establish a clear commitment in this regard, with clubs and related federations being the main targets, along with other indirect users. A specific training programme needs to be set up adapted to their needs and supported by new technologies, plus solid support provided by annual schemes and campaigns, and a chart of organisation identifying safety officers. Similarly, a watchdog needs to be set up to provide a global view of a specific area, with SMART objectives (specific, measurable, achievable, realistic, and time-bound), from which conclusions can be drawn and guidelines established for future campaigns, along with the teaching that needs to be undertaken.

j) Codes of good safety practice

Codes of good practice should be drawn up based on the results and analysis of accidents, aimed, among other things, at creating a culture of prevention, awareness and lifelong training, and thereby accomplishing a clear objective - that of preventing accidents. The federations and authorities currently have a group of trained technicians and professional staff, who should form the linchpin of a culture of prevention offering training sessions, information and practical advice to clubs, observation of the ratings that can be awarded in a timely manner to clubs or their members in order to ensure that this message reaches the end of the line, urging both national and international users to observe safe and careful conduct when performing such activities, along with information on the potential hazards they might be exposed to in their transit through these natural areas.

FEDME represents more than 90,000 federated members, and can be exploited to access a participatory group, through the regional federations and clubs, that is involved in promoting risk prevention in sporting activities in the wild, as well as acting as a catalyst for reaching the rest of the population. It should provide extensive information, both through digital channels of communication (Internet, social networks, etc.) and at visitors' centres in natural spaces, without forgetting the importance of clear signage in general indicating the risks and ways to avoid them.

k) Accident and liability insurance

The Spanish Sports Act of 1990, completed by Royal Decree 1835/91 regulating sports federations, establishes the obligation to take out compulsory sports insurance for all federated athletes participating in official sporting events at national level. This compulsory insurance policy will cover all health risks borne as a result of practising the corresponding sporting event, with the insurance company undertaking to reimburse the costs incurred for any healthcare provided to the athlete. This insurance policy is intended for those competing in such events.

However, FEDME sets out in its Statutes the obligation of all its members to be in possession of a federated license and hold a valid sports insurance policy covering the risks arising from the sports activity practised, whether they take part in competitions or not. This is over and above the obligatory cover imposed by sports legislation. The regional federations have used negotiations with insurance companies to obtain compulsory accident insurance cover for all their members and have negotiated, as an extra, the inclusion of civil liability in the federation license, freely contracting the terms preferred, with the premiums varying depending on the autonomous region and type of license requested.

This model of voluntary insurance, beyond the provision of the law, should be encouraged for everyone involved in mountain activities such as sporting events, mountain associations, or businesses, with the obligation to include compulsory insurance in the specifications drawn up by the environmental authorities when organised events are held.

l) Contribution to the safety of mountain refuges

Mountain refuges have long been traditional in places now defined as protected natural areas. They provide a base for mountaineering, enjoy the consideration of sports infrastructure and public utility, and should be converted into points of information and dissemination of the values pertaining to protected spaces and guidelines for appropriate conduct. In addition, they should also offer support for accident prevention and rescue facilities. For such purposes, refuge officers should liaise with the public authorities and rescue parties concerned.

There are examples of this type of collaboration between the Government of Aragon and the Aragon Mountaineering Federation, in Asturias and Sierra Nevada, providing elements that contribute to safety, such as weather stations or radio and satellite communications systems through which warnings about accidents or changes in the weather can be given and assistance provided to the network issuing snow or severe weather alerts.

Along with the safety functions offered by mountain refuges, we should add those natural or man-made elements (caves, shepherd's huts, etc.) that might serve at some time as a non-guarded refuge, if their geographical location is divulged and they are equipped with automatic warning systems, within the realms of what is considered economically viable.

m) Contribution to the safety of mountain professionals

At the mountain federations it is our understanding that there should be greater interaction between PNA managers, public authorities and mountain professionals (mountain guides, active tourism companies, state-run safety services and corporations,

emergency relief and rescue organisations, refuge wardens, etc.), since these can offer privileged information for proper risk management.

Given the current expansion of facilities for active and adventure tourism, it should be stressed that such professionals should undertake to implement all possible safety precautions available in this sector.

4. Proposals

a) Generalities

Prioritise prevention over intervention. It is essential to focus on education and training, and on information, particularly if it is borne in mind that more and more people are doing sport on their own and therefore they need to be encouraged to join the relevant federation and participate in mountain clubs.

Include safety criteria and an undertaking to maintain protected natural areas in trail schemes and networks. Proceed to correct waymarked trails containing erroneous information or, where this is not possible, to remove those that do not comply with the quality and safety provisions established initially. With respect to approved footpaths, regional mountaineering federations should activate procedures for disqualifying those trails that do not meet the quality and safety controls established in the footpath handbooks issued by these federations.

Promote an inventory of climbing, canyoning and via ferrata routes in protected natural areas, and assess their conditions and safety so as to obtain a local and national catalogue of such data.

Regarding authorisations for conducting sporting events, managers of protected natural areas should consult with the relevant federations to assess potentially hazardous areas that might lead to accidents depending on their layout.

Training should be extended to athletes belonging to clubs and federations. In turn these should seek contact with safety experts and even safety officers responsible for drawing up protocols for prevention and safety, i.e. risk management, for activities involving clubs and/or children. They should also undertake to draw up reports on new materials and elements that have an impact on the safety of mountain sports enthusiasts.

Risk management policies should also be extended to the activities conducted by public or private organisations operating in mountain terrain: federations, clubs, youth associations, schools, active tourism companies, guides working in natural spaces, etc.

Regulated training deriving from the organic Education Act of 2006 and sports experts trained within the same framework should provide the instrument for promoting

safety and awareness of the environment. The essential requirement for defined, regulated and recognised qualifications deriving from such legislation for activities conducted with children should not be delayed any further. If this is true in campsites, it is even more urgent when moving through the mountains.

Setting up a watchdog to monitor accidents in mountain terrain would help to articulate risk management policies on the part of the authorities, contribute to a better understanding of the causes of accidents in the mountains, and prevent the enactment of regulations by regional governments that fail to solve problems, such as charging for rescue operations, and fees or penalties levied on those rescued.

It is essential to initiate another procedure in which regional mountaineering federations together with the FEDME can devise a comprehensive strategy involving the public authorities in the prevention of accidents in the mountains. It is therefore recommended that a working group be set up to look at safety issues composed of representatives from mountaineering federations, environmental managers, authorities and other stakeholders, to work on safety in mountain sports from various different angles. This working group should form part of a National Mountain Safety Council.

Promote the drawing up and dissemination on the part of the authorities and federations of a code of good safety practice in mountain areas that will be effective in reaching those conducting activities in mountain terrain. Publications and information and communication technologies (websites, social networks, downloadable apps for mobile phones, etc.), whether for professionals or for the general public, should include lists of good practices and advice on minimum equipment for each level and activity.

Mountaineers and authorities should engage with the media to generate a picture of the mountaineering world as it really is, reflecting its true values and simultaneous concerns for freedom and reasonable regulation of the sector. This means carrying out a realistic campaign for the prevention of accidents, devoid of any tragic overtones, and using television for a better understanding of the mountaineering world and the values and social benefits it generates.

b) Natural Protected Areas

Educate and train visitors and users of protected natural areas in the safe planning of activities they intend to undertake.

It is advisable to conduct specific assessments of the risks involved in each protected natural area, with periodic reviews, to pinpoint hazard spots that need to be signposted and re-assessed on a regular basis, along with all their equipment and facilities.

These should be equipped with self-protection guides for visitors, with provision for those contingencies that are most likely to affect each area: fires, floods, avalanches, etc.

Record and georeference incidents and accidents so as to signpost, equip and/or protect critical points where accidents routinely converge in the mountains.

PNA staff should have general training in safety and risk management so as to be able to inform visitors, both at the physical and virtual entry points. Staff should be given training in life-saving and first aid, and other rescue techniques should be provided for relevant employees that might enable them to help out in rescue operations and offer medical assistance.

Analyse mountain accidents from a global and statistical perspective.

Promote external communication in PNAs with emergency services using the technical resources deemed appropriate, incorporating an efficient warning system to provide hazard information.

Promote the dissemination of codes of good practice that will facilitate changes in conduct helping visitors to adopt behaviours leading to greater safety.

Communication between the environmental authorities and mountaineering federations should go beyond mere representation in participatory bodies in protected natural areas, providing for ongoing communication on safety issues that are of mutual interest to all those involved.

PNAs need to have proposals aimed at schoolchildren, with hiking trails offered to schools that integrate an environmental awareness factor with that of safety in sports.

Encourage the use of new ISO and UNE standards. Groups and companies involved in active tourism operating in protected natural areas have excellent reference guides for improving safety in the new ISO 21101 Safety Management System, ISO 21102 Leaders' competencies, and ISO 21103 Information for participants. Environmental managers have ISO 31000 Risk management as a managerial model, and the forthcoming ISO standard for PNAs, based on UNE 187002. This standard specifically points out that "PNA management should establish the measures required for ensuring the maximum level of safety for users."