



WILDLIFE IN THE CHANGING ANDORRAN PYRENEES



PLANNING CHECKLIST

PLANNING CHECKLIST

IMMEDIATELY

- Make sure you understand and agree to **Earthwatch's Terms and Conditions** and the **Participant Code of Conduct**.
- If you plan to purchase additional travel insurance, note that some policies require purchase at the time your expedition is booked.

6 MONTHS PRIOR TO EXPEDITION

- Log in at **earthwatch.org** to complete your participant forms.
- If traveling internationally, make sure your passport is current and, if necessary, obtain a visa for your destination country.
- Bring your level of fitness up to the standards required (see the Project Conditions section).

90 DAYS PRIOR TO EXPEDITION

- Pay any outstanding balance for your expedition.
- Book travel arrangements (see the Travel Planning section for details).
- Make sure you have all the necessary vaccinations for your project site.

60 DAYS PRIOR TO EXPEDITION

- Review the packing list to make sure you have all the clothing, personal supplies, and equipment needed.

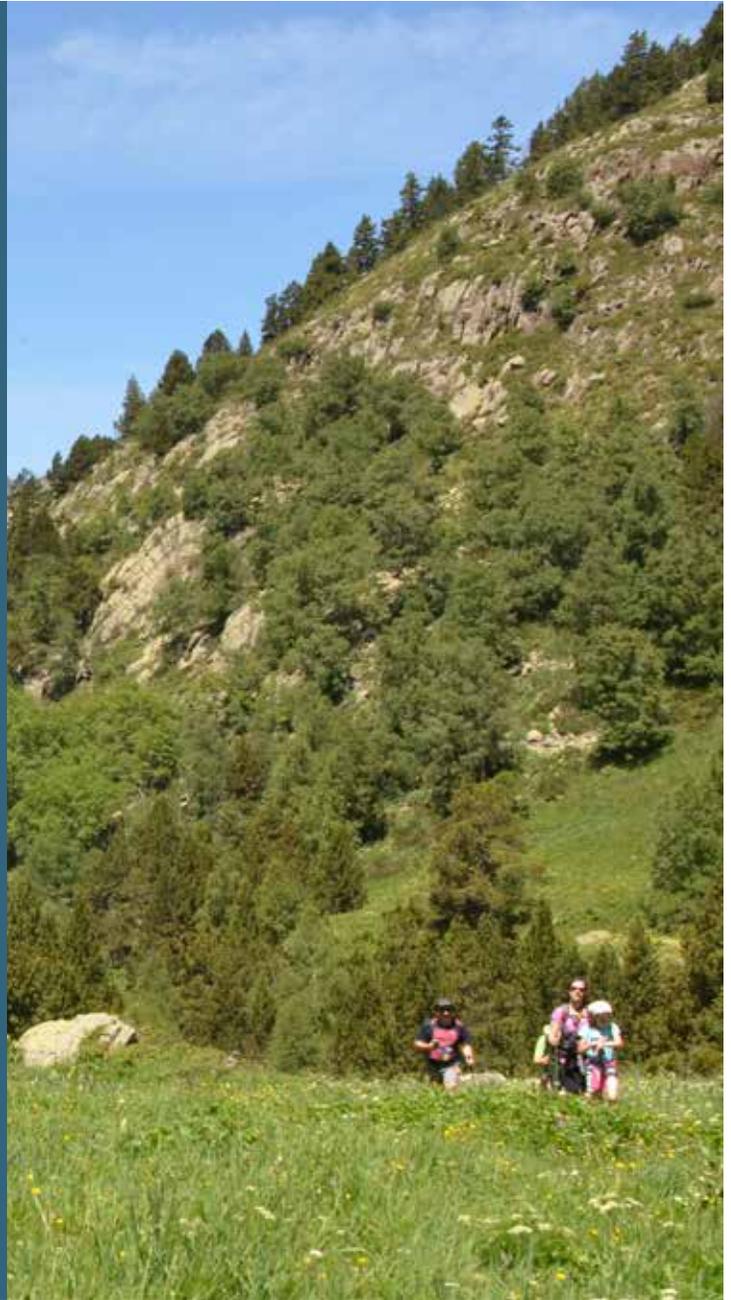
30 DAYS PRIOR TO EXPEDITION

- Leave the Earthwatch 24-hour helpline number with a parent, relative, or friend.
- Leave copies of your photo ID and flight reservation number with a parent, relative, or friend.

READ THIS EXPEDITION BRIEFING THOROUGHLY. It provides the most accurate information available at the time of your Earthwatch scientist's project planning, and will likely answer any questions you have about the project. However, please also keep in mind that research requires improvisation, and you may need to be flexible. Research plans evolve in response to new findings, as well as to unpredictable factors such as weather, equipment failure, and travel challenges. To enjoy your expedition to the fullest, remember to expect the unexpected, be tolerant of repetitive tasks, and try to find humor in difficult situations. If there are any major changes in the research plan or field logistics, Earthwatch will make every effort to keep you well informed before you go into the field.

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NOTE FROM THE PI

DEAR EARTHWATCHER

Welcome to the *Wildlife in the Changing Andorran Pyrenees* expedition! Thank you for your interest in this project and our research. Global change is causing shifts both in the spatial distribution of many species and in their phenology. In other words, species are moving along the altitudinal gradient, and their reproductive capabilities are changing. Theoretical studies suggest that this will cause significant changes in natural communities, because some species may find new predators, some predators may lack prey species, and some plant-pollinator networks will be disassembled. Thanks to their position in the Mediterranean basin and to a decreasing human presence, the Pyrenees act as environmental sentinels to detect the effects of global change in natural communities. Thus, it is an ideal observatory for the impact of climate change in natural communities.

An international group of Catalan CREAM scientists, in close collaboration with the Andorran CENMA, will guide you through this fantastic and sometimes wild environment to survey many animal and plant species, their altitudinal distribution, their life cycle, and their relationship with humans. We will walk from the bottom of the valleys where human activity imposes constraints on wildlife, to the highest alpine meadows, where a changing climate is the main limiting factor for life.

The golden eagle, vultures, roe deer, alpine chamois, a plethora of birds, small mammals, butterflies, and trees and flowering plants living at the highest elevations are among the species you will spot and study in this expedition. Our enthusiastic team, composed of specialists in alpine biodiversity, is waiting for you. Your collaboration will help us collect data at a high temporal and spatial resolution. We are going to have an exciting field season, and I hope your time with us will leave a nice mark on your lives, and will help you understand why we need to protect a heritage as important as biodiversity in the fragile mountain ecosystems.

Ens veiem al Pirineu!

Sincerely,

Dr. Bernat Claramunt Lopez

Lead Earthwatch Scientist





THE RESEARCH

WILDLIFE IN THE CHANGING ANDORRAN PYRENEES



THE STORY

In the high slopes of the Pyrenees, climate change has already begun to alter the landscape. Some species are moving to higher latitudes, and some have begun to decline in numbers (Chen et al. 2011, Colwell et al. 2008). The ways humans use the land also causes shifts in the natural order of things, but little research has been done on how people have impacted this particular place. Questions of how climate change and human encroachment continue to alter this alpine world need answers as local organizations work towards sustainable solutions.

Not much is known about the amazing biodiversity of the forests and alpine meadows, and your team will help identify the key species in the ecosystem and how they are changing. Your work will help researchers find out how animals are faring, and how to best manage for key species. The research will also help determine when natural events, like plant flowering and pollination, are occurring. Understanding the timing of such processes can help scientists learn if species' life cycles are becoming out of sync with each other, which could have serious consequences for the health of this ecosystem.

RESEARCH AIMS

Mountain environments are among the most important ecosystems on Earth. Often referred to as water towers because of their downstream benefits to rivers and other essential water systems, mountains also provide other key resources to humans and wildlife alike (Jetz et al. 2004). Your powers of observation will be vital to researchers as they try to answer the basic who, what, when, where, why, and how of this ecosystem: Who (which plants and animals) lives there? What are these species up to? When and where are they observed? Why are some species present in certain areas and absent in others? And finally, how do the life stages of these species intertwine to make this ecosystem function? Together, we will track this incredible diversity of plants and animals and help increase human understanding of the complex network of interactions among them.

Armed with such knowledge, scientists and local organizations can help better manage the fragile environment of the Pyrenees and mitigate the impacts of climate change and other human activities. With an intimate, but also broad knowledge of the local ecosystem, they can help shape conservation policies to ensure that wild flora and fauna, as well as humans, can thrive.





HOW YOU WILL HELP

This expedition will give you the chance to try your hand at many different field research techniques, focusing on many different species. The activities below may vary depending on the specific needs of the scientists. Specifically, teams will help:

- **NATURAL PASTORAL COMMUNITIES** (Spring, summer and autumn expeditions). We want to know how natural pastoral communities (alpine meadows over the tree line that feed both wild herbivores and livestock) will respond to climate change and to increasing grazing pressures. For each of the selected plant species, sampling will consist of measuring the following functional traits: height, specific leaf area, number of spikes (if existing), number of flowers (per spike), seed biomass, and production. Sampling will take place at low and high elevation, in the frame of an herbivore exclusion experiment that will be set up during spring expeditions.
- **LARGE MAMMALS** (Spring -equipment set up-, summer and autumn expeditions). Will large mammals (ungulates and carnivores) be affected by the abandonment of rural activities and increasing temperatures? Your team will check several camera traps that have been installed in the study region, which continuously take photos of all animals that pass by, and download images. These cameras can offer great insight into the area's wildlife because they're installed far from populated and oft-visited regions, so the animals' behavior is less likely to have been shaped by humans. When you spot wildlife—a raptor soaring overhead, perhaps, or one of the foxes, deer, or alpine chamois that are abundant in the area—the group will stop to make observations. You'll also walk shorter transects to look for traces of animal activity like footprints and scat.
- **SMALL MAMMAL DIVERSITY AND ABUNDANCE** (Spring -plot description-, summer and autumn expeditions). Shrews, mice, and voles are good indicators of biodiversity and the impacts of global warming; while some species will move to higher elevations, abandoning lower elevation territory entirely, others will simply expand their range to include cooler altitudes (Moritz et al. 2008). You'll keep an eye on how small mammals in these mountains are faring and reacting to environmental changes by helping scientists humanely capture individual mammals, then tag them and record data including weight, age, sex, and breeding condition. You won't actually handle the critters yourself, but you will get up close to the action to assist the experts as they work.
- **PASSERINE BIRDS PHENOLOGY** (Spring and summer expeditions). How will forest birds that live at the tree line be affected by global change? Your team will stop by nest boxes installed throughout the research area to look for signs that birds are using them. Scientists expect breeding patterns to change as a result of climate change, so, keeping an eye on nesting activity will reveal if and when such shifts are occurring.
- **BIRD DIVERSITY AND ABUNDANCE** (Spring, summer and autumn expeditions). Are birds living at the highest elevations changing their morphological traits? Is bird diversity at these elevations changing? Birds will be banded almost daily at low and high elevations so scientists will be able to calculate changes in the morphology and diversity of alpine bird species, complementing existing data taken by CENMA and its collaborators. Samples of bird excrements will be taken to analyse the DNA they contain to assess their diet.
- **ARTHROPOD COMMUNITIES** (Spring, summer and autumn expeditions). Invertebrates are likely to be amongst the first taxonomic groups to be affected by changing climatic conditions. Their relatively short life cycles let them quickly react to changing environments, both for the good (moving to better sites or increasing their fitness), and for the bad (disappearing from a region). A set of different trap types (flight interception, attraction and Malaise) will be installed at several sites, both at low and high elevation, and periodically visited to sample insects trapped.

- **SNOWBED VEGETATION** (Summer and autumn expeditions).

With the melting of glaciers and the continuous disappearance of snow-beds due to increasing temperatures, we want to know how the flora, which depends on snow cover for long periods of time, is responding. This monitoring is part of a broader network (we will only monitor 2 snowbeds) that includes snowbeds across the Pyrenees. You will help identify a certain number of indicator species in a gradient from the snowbed outwards. This will be done in May (if snow has melted), July and September.

- **TREE GROWTH** (Spring, summer and autumn expeditions).

How are trees responding to increasing temperatures? Are their growth rates higher and/or longer, or, due to increasing drought events in summer months, does growth stop earlier? Two kinds of dendrometers (with different resolutions) will be installed to follow tree growth at low and high elevation. You will help the scientists gather the data from these dendrometers and help review gathered data at the accommodations.

- **SOIL STUDIES** (Spring, summer and autumn expeditions).

How are the changing environmental conditions at high elevation (namely temperature and precipitation) affecting organic matter decomposition (soil respiration)? To answer this important question and calculate carbon balances, we will use a standard methodology to assess soil organic matter decomposition, which entails observing the decrease in mass of tea bags [Keuskamp et al 2013]. Teams will collaborate to install the tea bags in May and July, and subsequent teams will collect them in July and September. At the accommodations, tea bags will be cleaned, labeled and classified to be taken to the lab to dry.

- **MUSHROOMS AS BIOINDICATORS OF GLOBAL WARMING**

(Spring, summer and autumn expeditions). Volunteers will survey mushroom species at the tree line, with the goal of determining how these sensitive species respond to changing environmental conditions. You will help scientists understand how a warmer summer, or changes in the precipitation regime, affects the growth of mushrooms, which are crucial for trees, soil activity, and the local economy.

- **USING EFFICIENT SEARCH STRATEGIES TO SURVEY FAUNA WITH A DRONE** (spring, summer and autumn expeditions).

We will use a drone equipped with a thermal sensor to test diverse search strategies to assess which is more efficient to survey wildlife.

WINTER EXPEDITIONS

Due to special environmental conditions during winter, with snow in almost all sampling sites, activities during this period have been adapted. The planned activities are as follows:

- **PRESENCE OF LARGE VERTEBRATES.** The team will hike with snowshoes each day to study areas and look for evidence of vertebrates. This includes both direct observations (for passerine birds, raptors and large mammals), and indirect evidence such as footprints in the snow, markings on vegetation, scat, or feeding rest areas (for small and large mammals). The location, identification and -if possible- activity of each observation will be recorded.

- **BIRD DIVERSITY AND ABUNDANCE.** This activity will be the same as the one described above for the spring, summer and autumn teams, but will be adapted for the colder conditions. We aim to know both the diversity and the fitness status of birds that overwinter in the Pyrenees.

- **ARTHROPOD COMMUNITIES.** This activity will be the same as the one described for the spring, summer and autumn expeditions, but will include adapted sampling protocols for winter conditions. The arthropod community that inhabits the Pyrenees in winter is unknown, but will probably be amongst the first to react to increased warming conditions.

- **SEARCHING FOR THE BOREAL OWL.** The Boreal Owl (*Aegolius funereus*) is one of the most important small mammal predators in the higher elevations of the Pyrenees, and while its presence has been assessed in other areas, little is known about it in the Ordino valley. We will assess the presence of this important species in our study area, and if we find the owl, we may install special nest boxes for the spring and summer teams.

- **TRACKING ENVIRONMENTAL CONDITIONS.** The government of Andorra has several sensors in the region to monitor the quantity and quality of the snow pack. The team will help CENMA -our local partner- to check some of these sensors and, if needed, download data.

- **USING EFFICIENT SEARCH STRATEGIES TO SURVEY FAUNA WITH A DRONE.** We will use a drone equipped with a thermal sensor to assess different strategies and their efficiency for surveying wildlife.



DAILY LIFE IN THE FIELD

PLANS FOR YOUR TEAM

Upon arrival, you'll receive a safety briefing and a presentation on the goals of the project, and a framework for all the project's key protocols. When we begin our fieldwork, project staff will introduce and demonstrate each new task; we'll work with you until you're comfortable with any new activities. We will also supervise to ensure data quality. Your days in this stunning environment will vary. Sometimes you'll work at a research site close to home, and on other days you'll venture into the mountains at the highest elevations. Throughout the expedition, you'll see much of the countryside, from wooded mountain sides to quiet valleys and open pastures.

DAILY ACTIVITIES

You'll generally rise early and have breakfast, then head out into the field. You'll take breaks throughout the day, including a stop for lunch. In the late afternoon, the team will return to the hotel to rest, record data, and/or identify photos of animals taken by camera traps. Evenings will include a communal dinner and time to rest, see local sites, or learn more about the research. On the last night of the expedition, your team will share a special dinner offered by the Ordino municipality to celebrate all you've accomplished.

ITINERARY (Spring, summer and autumn expeditions)

DAY 1 ARRIVAL

- Arrive at the rendezvous airport (12:00 p.m.) get picked up by the shuttle at 1:00 p.m. (Terminal 1). Travel 3.5 hours from Barcelona to the accommodations in the Valley of Ordino, Andorra.
- Meet the team, unpack, and settle in before having a group dinner
- Safety briefing and Introduction to the Research

DAY 2-4 TRAINING AND FIELD WORK

- Learn field methodologies (carried out directly in the field)
- Carry out sampling activities

DAY 5

- "Day-off": help organize collected data, visit sites of cultural interest

DAYS 6-8 RESEARCH

- More data collection and work in the field
- Special dinner the evening of the 8th day
- Debrief and discuss how the data collected will be used to better understand and manage the research areas.

DAY 9 DEPARTURE

Program close and depart for the airport at 7:30 a.m. The shuttle will arrive at the airport in time for flights departing Barcelona at 2:00 p.m. or later. You will have the option to stop in Barcelona Sants before arriving at the airport.

ITINERARY (WINTER EXPEDITIONS)

DAY 1 ARRIVAL

- Arrive at the rendezvous airport (12:00 p.m.) get picked up by the shuttle at 1:00 p.m. (Terminal 1). Travel 3.5 hours from Barcelona to the accommodations in the Valley of Ordino, Andorra.
- Meet the team, unpack, and settle in before having a group dinner
- Safety briefing and Introduction to the Research

DAY 2-3 TRAINING AND FIELDWORK

- Learn how to work in an alpine environment in winter
- Carry out sampling activities

DAY 4

- Morning: field work
- "Afternoon-off": visit sites of cultural interest

DAYS 5-6 RESEARCH

- More data collection and work in the field
- Special dinner the evening of the 6th day
- Debrief and discuss how the data collected will be used to better understand and manage the research areas.

DAY 7 DEPARTURE

- Program close and depart for the airport at 7:30 a.m. The shuttle will arrive at the airport in time for flights departing Barcelona at 2:00 p.m. or later. You will have the option to stop in Barcelona Sants before arriving at the airport.

RECREATIONAL TIME: In most cases, you will have some free time at the end of the afternoon activities and before dinner. You will have the chance to rest and relax in your room or in the hotel lounge, or to use the spa that the hotel opens in 2017/18 (with an extra cost). The hotel also has a gym, so you will be also able to do some stretching there (or exercise more if the day has been too easy for you!!). In case of bad weather, organized groups will visit the surrounding towns, or you will also have the chance to stay at the hotel and help organizing some data. During the day-off, the Department of Tourism of Andorra offers a couple of visits to museums in the region, so you will learn about the history and traditions of this country in the middle of the Pyrenees. In the afternoon, we will visit Andorra La Vella and Les Escaldes, the two most famous cities in the country, full of shops and activities.



ACCOMMODATIONS AND FOOD

ABOUT YOUR HOME IN THE FIELD



SLEEPING

You will be staying at the Hotel Brinqué in the Valley of Ordino, Andorra. Each room is equipped with two beds, so volunteers can expect to share their room with another teammate. Rooms will be split by gender, but couples can easily be accommodated upon request. All rooms are climate-controlled and bedding is provided, along with basic toiletries.

BATHROOMS

All rooms have hot water showers and conventional toilets. The hotel offers a laundry service with a cost that depends on the quality and quantity of clothes (consider a max cost of 30€). Please bring sufficient clothing to save on washer and dryer costs.

ELECTRICITY

You are welcome to bring electrical equipment. Andorra uses 220–240 volt type F plugs.

FACILITIES AND AMENITIES

The hotel has a spa, a gym, wireless Internet, and access to hiking trails. The accommodations will be the main site for all group activities including meals, presentations, and relaxation time. Feel free to bring cards and board games.

PERSONAL COMMUNICATIONS

Free Wi-Fi is available at the accommodations. Cell service is also available, but you will have to check with your carrier to set up international calling in advance.

Please note that personal communication with outsiders is not always possible while participating in an expedition. Earthwatch encourages volunteers to minimize outgoing calls and immerse themselves in the experience; likewise, family and friends should restrict calls to urgent messages only.



VOLUNTEER CONTACT INFO IN THE FIELD

You may be required to list the following contact information on your visa application and immigration form, or if your luggage does not make it to baggage claim at your destination:

Bernat Claramunt Lopez

Hotel Bringué
Av. de Sant Pere, AD300
El Serrat, Andorra

DISTANCE TO THE FIELD SITE

Research will take place in many different sites within the Valley of Ordino. Elevation ranges from 4,900–8,200 feet, and volunteers should expect varying terrain types and steepness. For any given site, volunteers can expect to drive up to 15 minutes and walk between 30 to 90 minutes to reach each location. Distances will vary depending on the team and research needs.

FOOD AND WATER

You'll eat breakfasts and dinners at the hotel restaurant, which features Catalan and French style food. For lunch, the team will pack sandwiches, fruit, and other snacks to enjoy while taking in the scenery. Goat cheeses are a Pyrenean specialty along with salads, vegetables, and local meats.

The following are examples of foods you may find in the field. Variety depends on availability. We appreciate your flexibility.

Smoking and alcohol consumption are not permitted on teen expeditions

TYPICAL MEALS

BREAKFAST	Buffet with cereals, fruit, bagels, hard-boiled eggs, cheese, yogurt, coffee, tea
LUNCH	One sandwich, a picnic tapper with salad, pasta, rice, and fruit (packed lunches prepared for the field)
DINNER	Varied menus including salad, pasta, soups, vegetables, meat, fish and desserts
SNACKS	Fruit, chips, pretzels, granola bars, etc.
BEVERAGES	Water (okay to drink from tap) and different juices. A cup of wine per person is included in the menu. Extra alcoholic drinks are not included.

SPECIAL DIETARY REQUIREMENTS

Please alert Earthwatch to any special dietary requirements (e.g., diabetes, lactose intolerance, nut or other food allergies, vegetarian or vegan diets) as soon as possible, and note them in the space provided on your volunteer forms.

This project can cater to vegetarian, vegan, lactose free, and gluten free diets, but please, we need to know in advance and clearly indicate your preference when filling out your volunteer forms.



PROJECT CONDITIONS

THE FIELD ENVIRONMENT

Andorra is a landlocked state bordered by France and Spain in the eastern Pyrenees mountains. It is the sixth smallest nation in Europe. While the official language is Catalan, the project will be conducted in English. Due to its location in the Pyrenees, Andorra consists predominantly of rugged mountains, and the average elevation is 6,500 feet above sea level. Andorra has an alpine and continental climate, and its higher elevation means there is typically more snow in winter, low humidity, and cooler days in the summer.

GENERAL CONDITIONS

HUMIDITY: 50% to 75%

TEMPERATURE RANGE: -3.4° (winter) -19.2° C (summer)

RAINFALL: 1,040 mm annually

ALTITUDE: 1,500–2,500 meters above sea level



ESSENTIAL ELIGIBILITY REQUIREMENTS:

In spring, summer and autumn expeditions, all participants must be able to:

- Follow verbal and/or visual instructions.
- Enjoy being outdoors all day in all types of weather in the potential presence of insects and other wild animals.
- Walk up to 2–8 km per day, over rocky, off-trail and steep alpine terrain. Elevation gains will vary each day, but they will be around 500m (except in one site, where elevation gain is 800m, where teams are organised accordingly, i.e. not all participants must walk to this site).
- Carry personal daily supplies such as lunch, water, and some small field equipment while hiking. (field material will not be heavier than 1.5 kg).
- Get up into and down out of a four-wheel-drive vehicle, minibus, or car and ride, seated with seatbelt fastened.

In addition to the above, for the **winter expedition**, volunteers must be fit enough to walk on snow with snowshoes and walking poles all day in steep slopes. Although not compulsory, we recommend that volunteers practice using snowshoes before the expedition. Daily hikes will be between 2 and 8 km, and elevation gains in winter will also vary each day, but they will typically be around 500m.



POTENTIAL HAZARDS

WILDLIFE IN THE CHANGING ANDORRAN PYRENEES

HAZARD TYPE	ASSOCIATED RISKS AND PRECAUTIONS
Transportation	Only qualified drivers will transfer volunteers in project vehicles; we ensure project vehicles are well maintained. Seatbelts must be worn at all times. Volunteers are not permitted to drive.
Working at High Altitudes	While most of the project tasks will occur at or below 2,500 meters above sea level, volunteers should be aware that they are working in areas with thinner air and may become tired or out of breath. Be sure to hydrate and take breaks frequently. While altitude sickness is unlikely, project staff will be trained to recognize the symptoms and manage any issues accordingly.
Hiking	Most activities require walking in an alpine environment during most of the day. Although there will be many stops during these treks, terrain can be steep or very steep in some sections, and off-trail sections are common each day. Volunteers are asked to have some experience hiking in mountain environments.
Getting Lost	Staff will count team members at frequent intervals, and will caution you against going off alone. Please inform project staff if you need a moment away from the team. Volunteers will work in groups of at least two at all times. The scientists take great care to know, at all times, where each volunteer is working, so that volunteers can be located quickly.
Animals/ Plants	Very few animals or plants are dangerous in the region. None of the activities require the manipulation of these species or looking for them, so encounters are likely to be very infrequent. Activities also occur in a region where brown bears live, but the low abundance of this species also makes encounters very rare and unlikely. Volunteers will be taught about these species and what to do in case of encounters.
Personal Security	The region is safe, and volunteers generally do not need to worry about personal security. As a precaution, valuables should not be left in the open and should be stored away when not in use. It is possible to lock valuables in your hotel rooms.
Avalanche (winter team only)	As a special case for the winter expedition , all volunteers will carry an ARVA (avalanche beacon), which will be provided by the organisation. Volunteers will be trained on their use on the first day.
Distance from Medical Care	If you have a chronic condition which could require immediate medical care (e.g., heart condition, kidney problems, severe asthma, etc.), or if you are pregnant, please discuss your participation on this expedition with you physician. Some trails are remote, and medical evacuation will be accessible by helicopter only.
Climate/Weather	Dehydration, heat exhaustion, sunburn, and other heat-related illnesses can occur, but you can protect yourself by drinking sufficient water, wearing high-SPF sunscreen, and wearing appropriate clothing. Dehydration from sweating can be a problem; please bring your own water bottles that you can easily carry and refill them with electrolyte-replacing packets. At high altitudes, there can be quick weather changes and shifts in temperature. Packing layers will be essential each day. In winter, temperatures can be quite low (expect starting temperatures in the morning to be below 0°C), so please pay special attention to the packing list
Project Tasks/ Equipment	Most activities do not require carrying heavy scientific material, and volunteers will only need to help carry small equipment to the field along with their personal items. A 40 liters backpack will be sufficient.



HEALTH & SAFETY

WILDLIFE IN THE CHANGING ANDORRAN PYRENEES



EMERGENCIES IN THE FIELD

Accommodations and vehicles all have first aid kits. In the event of a medical emergency, the Earthwatch scientists will administer first aid, and depending on the seriousness of the injury or condition, either take the volunteer to the hospital using one of the project vehicles (always available) or call emergency services by cellphone. While in the field, the scientists will carry portable two-way radios and each will carry a cell phone for emergency communication. If a volunteer has to leave the expedition early for emergency reasons, the Earthwatch scientists will determine the most appropriate form of transport (either one of the project vehicles or ambulance).

STAFF CERTIFIED IN SAFETY TRAINING

CPR: Bernat Claramunt, Irene Figueroa, Albert Burgas, Jana Marco, Guillem Mas and Manel Niell

FIRST AID: Bernat Claramunt, Irene Figueroa, Albert Burgas, Jana Marco, Guillem Mas and Manel Niell

WILDERNESS FIRST RESPONDER: Bernat Claramunt, Irene Figueroa, Albert Burgas, Jana Marco, Guillem Mas and Manel Niell.

NEAREST MEDICAL CARE

The nearest fully equipped hospital is "Hospital de Nostra Senyora de Meritxell" at ca. 16 km from the accommodation (25-minute drive). Its address is Avinguda Fiter i Rossell, 13, AD700 Escaldes-Engordany

For emergency assistance in the field, please contact Earthwatch's 24-hour emergency hotline number on the last page of this briefing. Earthwatch is available to assist you 24 hours a day, 7 days a week; someone is always on call to respond to messages that come into our live answering service.

IMMUNIZATIONS & TRAVEL VACCINATIONS

Please be sure your routine immunizations are up-to-date (for example: diphtheria, pertussis, tetanus, polio, measles, mumps, rubella and varicella) and you have the appropriate vaccinations for your travel destination. Medical decisions are the responsibility of each volunteer and his or her doctor, and the following are recommendations only. Visit the cdc.gov or who.int for guidance on immunizations.

If traveling from countries or region where yellow fever is endemic, you must have a certificate of vaccination.



TRAVEL TIPS

SUGGESTIONS FOR THE ROAD



YOUR DESTINATION

LANGUAGE: Catalan, French and Spanish, but the project will be conducted in English

TIME ZONE: Central European Time Zone UTC +1.

CULTURAL CONSIDERATIONS: Casual, modest dress is acceptable nearly everywhere. Tipping restaurant wait staff, taxi drivers and airport curbside baggage handlers is customary.

ELECTRICITY: Andorra uses 220–240 volt type F plugs.

LOCAL CURRENCY: Euros

PERSONAL FUNDS: 150/200 euros should suffice if you'd like to purchase additional snacks or incidentals. There are ATMs at the airport to withdraw cash and most locations accept credit cards. International volunteers may use credit cards and ATM cards at local banks to obtain currency in US dollars. There is also a currency exchange counter at the airport.

COUNTRY AND PROJECT ENTRY REQUIREMENTS

Entry visa requirements differ by country of origin, layover, and destination, and do change unexpectedly. For this reason, please confirm your visa requirements at the time of booking and, again, 90 days prior to travel. Please apply early for your visa (we recommend starting 6 months prior to the start of your expedition). Refunds will not be made for volunteers cancelling due to not obtaining their visa in time to meet the team at the rendezvous. You can find up to date visa requirements via the following site:

www.travisa.com

If a visa is required, participants should apply for a TOURIST visa. Please note that obtaining a visa can take weeks or even months. We strongly recommend using a visa agency, which can both expedite and simplify the process.

Generally, passports must be valid for at least six months from the date of entry and a return ticket is required.



TRAVEL PLANNING

RENDEZVOUS AND DEPARTURE INFORMATION



RENDEZVOUS

LOCATION: Volunteers will be met by a shuttle at the Barcelona El Prat Airport (BCN). Somebody from the staff team, with an Earthwatch t-shirt or a sign with Earthwatch logo will be waiting for you in front of the "FC Barcelona official store" at the Terminal 1 or in the "Caffe di Fiore" tables that are in front of the store (see pictures).

For teen team volunteers, please retrieve your bags and proceed through customs. Your Earthwatch facilitator will be waiting for you in front of the "FC Barcelona official store" at Terminal 1. The facilitator will be wearing an Earthwatch t-shirt.

DATE:

Team 1: Winter Team: Jan. 20, 2019

Team 2: May. 10, 2019

Team 3: May 19, 2019

Team 4: Jul. 5, 2019

Team 5: *TEEN: Jul. 14, 2019

Team 6: Jul. 23, 2019

Team 7: Sep. 14, 2019

Team 8: Sep. 23, 2019

TIME: Pick up at 12:00 p.m. at the BCN airport (Terminal 1), in front of the FC Barcelona Official Store

Although Earthwatch can often suggest resources to help with travel planning, please remember that you are responsible for making your own travel arrangements to the rendezvous site and that airline information is subject to change. You are encouraged to register your travel itinerary with your embassy.

It is essential to the success of the expedition that you do not plan to arrive late or leave the expedition early.



HOW TO MEET YOUR TEAM

The team will meet in front of the FC Barcelona Official store of the Barcelona airport (Terminal 1). Look for a person holding a sign with "Earthwatch" written on it and/or wearing an Earthwatch t-shirt. If in doubt, ask for help at the airport information desk, and the person there will call Earthwatch on the public broadcast system. After gathering, the team will travel to the accommodations, which is about a 3.5 hour drive north to Andorra depending on weather and road conditions.

Please inform Earthwatch of your exact arrival and departure times by filling out and returning your Travel Form as soon as possible.

ARRIVING EARLY

If you are arriving early in the area, please notify Earthwatch in advance of your exact travel plans. Regardless of your travel plans before the expedition, volunteers must still meet the rest of the team at 12:00 p.m. on the first day in front of the FC Barcelona store in the airport (Terminal 1).

Teen volunteers are advised not to arrive early.

ARRIVING LATE

Please do not reserve a flight that arrives after your team's scheduled rendezvous time. Keep in mind that the shuttle to Andorra leaves at 1:00 p.m., and it will not wait for you. If your flight is delayed and/or you miss the rendezvous, call Bernat Claramunt Lopez on #34 646 301 474. If you arrive late and miss the shuttle, you will have the chance to take the shuttle departing later (at 3:00 p.m., 6:30 p.m., 8:00 p.m. or 11:00 p.m.), from the Barcelona Airport, Terminal 1, with the same ticket. To be able to do so, call Bernat Claramunt Lopez if you know your travel plans are delayed to help coordinate this alternative option.

If you are unable to reach a project staff member, please contact Earthwatch's 24-hour emergency hotline number on the last page of this briefing.

DEPARTURE

LOCATION: Depart from the Hotel Bringué to the Barcelona Airport

DATE:

Team 1: Winter team: Jan. 26, 2019

Team 2: May 18, 2019

Team 3: May. 27, 2019

Team 4: Jul. 13, 2019

Team 5: **TEEN: Jul. 22, 2019

Team 6: Jul. 31, 2019

Team 7: Sep. 22, 2019

Team 8: Oct. 1, 2019

TIME: 7:30 a.m. on Day 9 (departing flights should be booked for 2:00 p.m. or later)

NOTE: Early departures cannot be accommodated except in cases of emergency. Before leaving a project early for any reason you must sign an Earthwatch release form.

On the last day of the expedition (Day 9), we will depart in the morning for the BCN airport. Please do not book a flight that departs earlier than 2:00 p.m. on the last day.

For the teen team, the facilitator will accompany the group to the airport and help volunteers proceed through security.



EXPEDITION PACKING LIST

WHAT TO BRING

EXPEDITION PACKING CHECKLIST

GENERAL

- This expedition briefing
- Your travel plans, rendezvous details, and Earthwatch's emergency contact information
- Photocopies of your passport, flight itinerary, and credit cards in case the originals are lost or stolen; the copies should be packed separately from the original documents
- Passport and/or visa (if necessary)
- Certification of vaccination (if necessary)
- Documentation for travel by minors (if necessary)

CLOTHING/FOOTWEAR FOR FIELDWORK

- Lightweight, quick-drying, long-sleeved shirts
- Quick-drying long pants (2–3 pairs)
- Water resistant pants
- Fleece for cool evenings
- Wide-brimmed sun hat
- Well worn-in hiking boots with ankle support
- Raincoat (Gore-Tex or similar)
- Windbreaker
- Gloves
- Two pairs of trekking shoes (at least one pair must be waterproof)
- Gaiters are highly recommended to keep boots and lower pants dry, specially in spring expeditions, when walking on snow may be possible in some sections.

CLOTHING/FOOTWEAR FOR LEISURE

- One or two sets of clothing to keep clean for end of expedition
- Pair of light shoes to wear around the hotel during down time
- Warm sleepwear

FIELD SUPPLIES

- A daypack to keep your personal items together and dry and help carry gear for the field. Minimum capacity: 35 L.
- Waterproof cover for your pack
- Binoculars (optional)
- Two one-liter water bottles
- Sunscreen 30 SPF or higher
- Sunglasses
- Insect repellent spray
- Notebook and pencils
- A pair of hiking poles (or one) are highly recommended

ADDITIONAL SPECIAL OR COMPULSORY EQUIPMENT FOR WINTER EXPEDITIONS:

- Gaiters
- A pair of hiking poles
- Gloves for cold temperatures
- Winter hiking boots.
- Waterproof jacket (Gore tex or similar)
- Insulated jacket or thick fleece
- Thick hiking trousers
- Waterproof trousers (highly recommended)
- Beanie for cold temperatures
- Sunglasses 100% UV protection
- Binoculars (8x42 or similar)
- Snowshoes (if you have your own. Otherwise, the organisation will provide a pair for you)

BEDDING AND BATHING

- All bedding, shampoo and towels will be provided by the accommodations

PERSONAL SUPPLIES

- Personal toiletries (extra biodegradable soaps and shampoos are encouraged)
- Antibacterial wipes or lotion (good for cleaning hands while in the field)
- Personal first aid kit (e.g., anti-diarrhea pills, antibiotics, antiseptic, itch-relief, pain reliever, bandages, blister covers, etc.) and medications
- Spending money

OPTIONAL ITEMS

- Comfortable shoes to change into after conducting field work
- Camera, film or memory card(s), extra camera battery
- Hardware for sharing digital photographs at the end of the expedition
- Dry bag or plastic sealable bags (e.g. Ziploc) to protect equipment like cameras from dust, humidity, and water
- Books, games, art supplies, etc. for free time
- Earplugs for light sleepers
- Travel guide
- Books, games, journal, art supplies, etc. for free time

NOTE: Do not bring more luggage than you can carry and handle on your own. If traveling by air and checking your luggage, we advise you to pack an extra set of field clothing and personal essentials in your carry-on bag in case your luggage is lost or delayed.



PROJECT STAFF

YOUR RESOURCES IN THE FIELD



NOTE: The specific staff scheduled to run your team is subject to change.

DR. BERNAT CLARAMUNT-LÓPEZ'S initial research was focused in plant ecology, but his interest in animal ecology started during his post-doc in a project on the grazing effects of herbivores in semi-arid ecosystems of South America. He then focused on the alpine species of the Pyrenees. In 2008 he started building a database to study the interactions among vertebrates in alpine ecosystems, totaling more than 400 species and 2,500 interactions. Dr. López is part of the Scientific Committee of the Observatoire Pyreneen pour le Changement du Climat, and collaborates with the Catalan Office for Climate Change as an expert in alpine biodiversity. Schedule: all teams



MANEL NIELL is a biologist specializing in fungi, Ethnobotany and Ethnomycology. He holds a Master's in Mycology for his study of Entomopathogenic fungi. He works as a technician for the Center of the Study of Snow and the Mountains of Andorra (CENMA) for the Institute of Andorran Studies (IEA), and he has been involved in numerous research projects focusing on vegetation, mycology and Ethnobotany. He has helped contribute to the books "Fungi of Andorra" and "Remedies and plants used traditionally in the Pyrenees".



GUILLEM MAS is a naturalist with a biology degree from the University of Barcelona, specializing in biodiversity conservation. His career has always been linked to conservation NGOs (both marine and terrestrial), project planning, management and monitoring of natural areas, and wildlife and biodiversity in general. Among his most notable projects are the management of a marine reserve on the Costa Brava, the creation of dozens of aquatic habitats, and the reintroduction of endangered species. In 2009, he founded the company Ecotons S.C.P., which provides consulting expertise in nature conservation to NGOs or individuals.



ALBERT BURGAS is a biologist specializing in wildlife studies. He obtained his M.S. studying jaguar and puma populations in Costa Rica and their relation to livestock, under the supervision of Dr. Bernat Claramunt-López. He works as a freelance field technician with many research groups and universities around the world, and thus has been involved in research projects focusing on many species, particularly birds and mammals. He also participates in many birding campaigns in Europe.



IRENE FIGUEROA is a biologist specializing in animal ecology. She is currently working towards her Ph.D. on the alpine marmot in the Pyrenees, focusing on population dynamics, genetics, morphology and behavior, as well as interactions with other species such as rock ptarmigan and golden eagles. She has also been in charge of coordinating all field campaigns for this project since 2009. As a naturalist, she is interested in opisthobranchia (gastropods) and terrestrial vertebrates. She is cofounder of three organizations, Living Landscapes, the Association for Alpine Research and Conservation Alpina (ARCA), and the Research Group of Opisthobranchia in Catalonia (GROC).



JANA MARCO is a biologist and an expert birdwatcher. She has combined her degree study years with an active professional life collaborating in several projects and campaigns such as Greek tortoise volunteering, Alpine marmot studies, and has focused on bird census for research projects. She is currently developing her own project supported by the ecology department of the University of Alicante on the wild population of European hedgehog, focusing on behavior, home range and ecology. She is also working with the University of Miguel Hernandez studying the trends, ecology, and interactions of the raptors community on the southern wetlands of the Iberian Peninsula.

An **EARTHWATCH TEEN TEAM FACILITATOR** (TEEN team only) will accompany the teen team from the time you step off the plane for the rendezvous until the end of the expedition. If you have any questions or problems, such as issues with another volunteer, homesickness, or an emergency back home, please talk to your facilitator. Follow your facilitator's advice on safety and personal conduct. All facilitators have experience teaching and leading groups of teenagers. Remember, your facilitator is there for you. (Teen: Facilitator ratio is approx. 6:1)



RECOMMENDED READING

YOUR RESOURCES AT HOME

RESOURCES

FIELD GUIDES

- Mammals of Europe (Princeton Field Guides).
- David W. MacDonalds, Priscilla Barrett
- Birds of Europe (Princeton Field Guides).
- Lars Svenson, Dan Zetterstrom, Killian Mullarney
- Collins Tree Guide. David More, Owen Johnson
- Peterson Field Guide to Animal Tracks.
- Olaus J. Murie, Mark Elbroch, Roger Tory Peterson

PROJECT-RELATED WEBSITE

- Facebook page of the project:
[facebook.com/wildlifepyrenees](https://www.facebook.com/wildlifepyrenees)
- Instagram: the PI uses his personal account ([bernatclaramunt](https://www.instagram.com/bernatclaramunt)) with the following hashtags:
[#earthwatch](https://www.instagram.com/bernatclaramunt), [#biodiversitypyrenees](https://www.instagram.com/bernatclaramunt), [#creaf](https://www.instagram.com/bernatclaramunt)

EARTHWATCH SOCIAL MEDIA

- FACEBOOK: [facebook.com/Earthwatch](https://www.facebook.com/Earthwatch)
- TWITTER: twitter.com/earthwatch.org
- INSTAGRAM: [instagram.com/earthwatch](https://www.instagram.com/earthwatch)
- BLOG: <https://blog.earthwatch.org/>
- YOUTUBE: [youtube.com/earthwatchinstitute](https://www.youtube.com/earthwatchinstitute)



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YOUR RESOURCES AT HOME

LITERATURE CITED

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EMERGENCY NUMBERS

AROUND-THE-CLOCK SUPPORT



EARTHWATCH'S 24-HOUR EMERGENCY HOTLINE

Call Earthwatch's 24-hour on-call duty officer in the U.S.:

+1 (978) 461.0081

+1 (800) 776.0188 (toll-free for calls placed from within the U.S.)

After business hours, leave a message with our live answering service. State that you have an emergency and give the name of your expedition, your name, the location from which you are calling, and if possible, a phone number where you can be reached. An Earthwatch staff member will respond to your call within one hour.

TRAVEL ASSISTANCE PROVIDER: ON CALL INTERNATIONAL

TEL: +1 603-952-2680 (collect calls/reverse charges accepted)

TOLL FREE FROM U.S. & CANADA: 1-833-819-2939

TEXT ONLY: +1-603-945-0103

EMAIL: mail@oncallinternational.com

You may contact On Call International at any time. They can assist in the event of a medical or evacuation emergency or for routine medical and travel advice, such as advice on visas and vaccine requirements.

FOR VOLUNTEERS BOOKED THROUGH THE EARTHWATCH AUSTRALIA OFFICE:

Earthwatch Australia 24-Hour Emergency Helpline

+61.0.3.8508.5537



MESSAGE FROM EARTHWATCH

DEAR EARTHWATCHER,

Thank you for joining this expedition! We greatly appreciate your decision to contribute to hands-on environmental science and conservation. It is volunteers like you who fuel our mission and inspire our work.

While at Earthwatch, I've had the opportunity to field on a few expeditions, most recently in Kenya with one of my daughters. Each expedition has touched me deeply, and made me proud to be able to roll up my sleeves alongside my fellow volunteers and contribute to such meaningful work.

As an Earthwatch volunteer, you have the opportunity to create positive change. And while you're out in the field working toward that change, we are committed to caring for your safety. Although risk is an inherent part of the environments in which we work, we've been providing volunteer field experiences with careful risk management and diligent planning for nearly 45 years. You're in good hands.

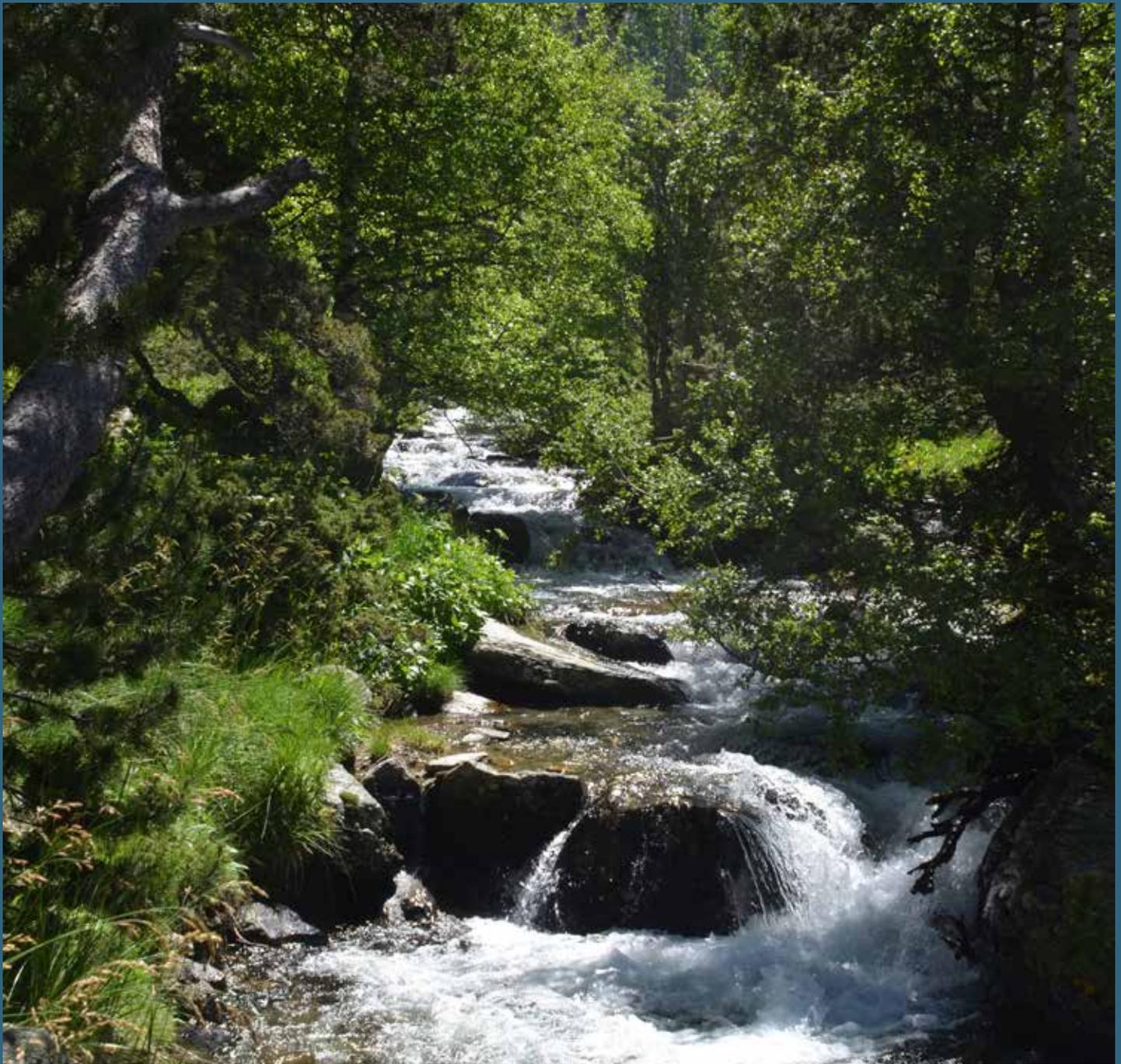
If you have questions as you prepare for your expedition, we encourage you to contact your Earthwatch office. Thank you for your support, and enjoy your expedition!

Sincerely,



Scott Kania
President and CEO, Earthwatch





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