



BUTTERFLIES AND BEES IN THE INDIAN HIMALAYAS



DEAR EARTHWATCHER,

Earthwatch greatly values your decision to give your time and energy to this hands-on environmental science and conservation program. As a participant you have a unique opportunity to bring about a positive change in the environment. Citizen science has the potential to connect individuals of different backgrounds and age groups with field science and to empower them with knowledge, understanding and the conviction to build on conservation efforts. For many participants, joining an expedition of this kind can be a life-changing experience. The knowledge, inspiration and insights they take back to their own communities have a strong ripple effect on the lives and attitudes of those around them.

It is essential that you carefully read this programme briefing; it includes important information on logistics, such as how to reach the site, what to pack, what immunizations are needed, how to physically prepare for your expedition, and much more.

If you have questions as you prepare for your expedition, please let us know. Thank you for your interest; we appreciate your valuable support.

Sincerely yours,

(Dr. P.P. Dhyani)

Director & PI Earthwatch Project

Director, G.B. Pant Institute of Himalayan Environment and Development (GBPIHED)

Kosi-Katarmal, Almora-263643, Uttarakhand, India



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GENERAL INFORMATION

BUTTERFLIES AND BEES IN THE INDIAN HIMALAYAS



EARTHWATCH SCIENTIST

Dr. PP Dhyani

RESEARCH SITE

Upper Kullu, Himachal Pradesh, India

EXPEDITION DATES

Team 1: Apr. 10–21, 2016.

Team 2: Sep. 18–29, 2016

Team 3: Oct. 16–27, 2016



TRIP PLANNER

BUTTERFLIES AND BEES IN THE INDIAN HIMALAYAS

TRIP PLANNER

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 when your expedition is booked.

90 DAYS PRIOR TO EXPEDITION

- Log in at **earthwatch.org** to complete your volunteer forms.
- Pay any outstanding balance for your expedition.
- Book travel arrangements (see the Travel Planning section for details).
- If traveling internationally, make sure your passport is current and, if necessary, obtain a visa for your destination country.

60 DAYS PRIOR TO EXPEDITION

- Make sure you have all the necessary vaccinations for your project site.
- Review the Packing Checklist 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 relative or friend.
- Leave copies of your passport, visa, and airline tickets with a 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



THE RESEARCH

BUTTERFLIES AND BEES IN THE INDIAN HIMALAYAS



THE STORY

India's Kullu Valley, nestled among the Himalayan Mountains, is famous for its biodiversity, horticulture (which includes apple and other fruit orchards and farms), and tourism. But the valley is very sensitive to climate change. The apple growing range has already shifted almost 35 kilometers (22 miles) north due to warming temperatures. Ranges of other vegetation have also shifted, and native species are decreasing in the face of invading non-native species.

The wildlife in the valley is also impacted by the growing need for land for agriculture and cultivation: the use of pesticides has impacted the population of a number of pollinators—including bees and butterflies. This has created a deficit in crop pollination, forcing farmers to pay high prices to “hire” bees to pollinate their crops, particularly apples. In the state of Himachal Pradesh, where the Kullu Valley is located, apple production has declined over past few years. These environmental changes make traditionally sustainable agriculture more vulnerable and threaten the livelihoods of local communities.

Although many researchers have studied the biodiversity of the Kullu Valley, little information is available on how the decline in plants that attract pollinators impacts bees, butterflies, and agriculture as a whole in the landscape. This limited knowledge impacts management planning in sustainable agriculture and farming practices. That's where you come in. As a member of this expedition team, you'll work with scientists in the magnificent setting of the Himalayan Mountains to record different types of “bee flora”—the flowering plants that attract bees and other pollinators--that are growing at different elevations, and observe and record the activities of butterflies and bees.



RESEARCH AIMS

The objectives of this project—a partnership between Earthwatch and the Govind Ballabh Pant Institute of Himalayan Environment and Development (GBPIHED)—are to:

1. Assess the biodiversity in the Kullu Valley, with a focus on “bee flora”—the flowering plants that attract bees and other pollinators.
2. Monitor the phenology (the timing of natural processes) of selected bee flora, focusing on flowering and fruiting.
3. Assess and quantify the ecosystem services— benefits that humans receive from the ecosystem, including both products (e.g., clean water and food) and processes (e.g., pollination, temperature regulation)—provided by the forest to local agriculture.
4. Gain insight into how to harness the pollination services of the ecosystem to support the livelihood of local people and to preserve the region’s biodiversity.



HOW YOU WILL HELP

On this expedition, you will spend most of each day working with scientists, which involves the following activities:

- **Recording bees and butterflies.** Walk through apple trees and other crops to observe and record pollinators and help to identify the various species you see. You will also observe and record the visitation rate of different pollinators on apple flower and wild flora to prioritize the flora for each species.
- **Recording blossoming plants and pollinators.** You will observe flowers in bloom and survey the numbers of pollinators on flowering plants for 15 minutes intervals. This work will help to know which flowers each species of pollinators prefer.
- **Surveying vegetation.** You’ll walk along a set path, and observe the number of different plant species in a specified plots of land
- **Observing plant diversity:** You’ll make both qualitative and quantitative observations of the species present and the densities of those species. For the qualitative assessment you’ll follow a process called rapid sampling—you’ll observe individual plants while walking along a transect. For the quantitative observation, you will mark out 50-square-meter plots, then observe the types and numbers of plants in smaller areas within the plots: you’ll observe trees in 10-by-10-meter squares, shrubs in five-by-five-meter squares, and herbs in one-by-one meter squares.

Some of these observations might seem tedious, but such fieldwork is fundamental to our understanding of agriculture and its associated ecosystem. This is your chance to be part of the effort, to find solutions to pressing environmental problems, and to enjoy the beauty and diversity of nature in the Himalayas as you work.

DAILY LIFE IN THE FIELD

PLANS FOR YOUR TEAM



DAILY LIFE IN THE FIELD

At the start of the expedition, we'll do introductions, review a safety briefing, and provide an overview of the research and volunteer tasks. You will also visit the arboretum and the medicinal plant garden for an introduction to Himalayan plant diversity. The Earthwatch scientists will present on pollination and pollinators, and you'll watch films on bees and the impact of climate change on apple orchards.

After the first day, you will be out in the field—either the forest or an orchard, depending upon research needs—with the scientists, for field observation. Before any new task, you'll see a demonstration and receive training.

In the evenings we will visit local places of interest, such as Naggar Castle, Kais Monastery, local temples, Kullu market, and the Roerich Museum, or visit with local farmers. In the late evenings, there will be learning sessions on environment along with environmental movies.

On one day, we'll visit the local farmers to know about the agriculture practices and about the difficulties that local farmers face.

On the final day, the scientists will present on how the data you've collected will be used, and you'll visit a handicraft workshop where weavers will be at work.

Note that weather and research needs can lead to changes in the itinerary and the daily schedule. We appreciate your cooperation and understanding.



ITINERARY & DAILY SCHEDULE

NOTE that weather and research needs can lead to changes in the itinerary and the daily schedule. We appreciate your cooperation and understanding.

ITINERARY

Day	Morning	Afternoon and Evening
Day 1	Rendezvous at 8:00 p.m.	
Day 2	Travel from Delhi to Kullu	Overview and introductions
Day 3	Visit to GBPIHED	Introduction to field research
Day 4	Fieldwork	Review of the day and movie
Day 5	Fieldwork	Understanding the context of sustainability
Day 6	Fieldwork	Review of the day and movie
Day 7	Fieldwork	Visit to Naggar Castle; Review of the day
Day 8	Fieldwork	Visit to brBee Pvt. Ltd. (makers of bee products); Review of the day
Day 9	Visit of village & Meeting with farmer/ federation	Review of the day
Day 10	Research debriefing; Review and feedback	Visit to handicraft industry; Farewell dinner
Day 11	Travel from Kullu to Delhi	
Day 12	Fly out of Delhi's Indira Gandhi International Airport at any time	

DAILY SCHEDULE

7:00 a.m.	Nature walk (optional)
8:15 a.m.	Breakfast
9:00 a.m.	Daily briefing and check-in
9:15 a.m.	Fieldwork, context setting, discussions
1:00 p.m.	Lunch
2:00 p.m.	Fieldwork, context setting, discussions
5:30 p.m.	Tea Break
6:00 p.m.	Personal time
7:00 p.m.	Reflection session, review of the day
8:00 p.m.	Dinner
9:00 p.m.	Movie (optional)



ACCOMMODATIONS AND FOOD

ABOUT YOUR HOME IN THE FIELD



You will stay in the town of Naggar located in a peaceful pine forest outside of Kullu's town center. Your address will be:

Hotel Soham

Jana Falls Road,
Naggar—175130,
District Kullu,
Himachal Pradesh)

SLEEPING

Each room has two twin beds. You will be provided with fresh bed sheets, a pillow, blanket, and towel. You'll stay with another volunteer of the same gender. Couples can usually stay in a room together, provided they make the request to Earthwatch in advance. Single rooms may also be requested in advance, but availability depends on the size of the team. Each room is simple yet comfortable, and has a panoramic view of the Himalaya and the Beas River.

BATHROOMS

Each room has its own bathroom with a shower and toilet fitted with a western toilet seat. The hotel has hot and cold running water 24 hours a day. The hotel will provide a towel and soap, as well as a bucket that you can use to wash clothing by hand. The hotel also offers a laundry service, which costs about US\$1 per item of clothing (you'll be responsible for any laundry costs).

ELECTRICITY

The region has regular electricity, with occasional power cuts due to bad weather, in which case a generator usually takes over. Each room has a battery-operated lantern for emergency purposes. Voltage in India is 230V 50Hz; if necessary, bring a convertor to match Indian standards.



PERSONAL COMMUNICATIONS

There is free Wi-Fi Internet at the hotel, which you can use from your own laptop or mobile phone. You can also check emails on a free hotel computer. The hotel has a copier and printer that you can use for a fee. Major mobile phone companies (Airtel, BSNL, Idea, and Vodafone) operate in the area, and there are phone booths near the hotel from which you can make long-distance calls. You can also get a SIM card at the airport if you wish to use your cellphone during the expedition.

FACILITIES AND AMENITIES

Naggar Castle is only 100 meters from the hotel. There are also restaurants and shops within walking distance where you can find fish, wine, and local handicrafts. The Roerich Museum, which houses paintings of Nicholas Roerich, a Russian saint and philosopher, is also in walking distance from the hotel, about 400 meters.

A Punjab National Bank ATM, which accepts Indian debit/credit cards only, is 500 meters away. A State Bank of Patiala ATM, which accepts foreign cards, is three kilometers (1.9 miles) away in Patlikuhl.

DISTANCE TO THE FIELD SITE

From the hotel, it takes from 25 minutes to an hour to drive to the various research sites. You will be traveling in comfortable vans with seat belts. Please note: Alcohol and smoking are not allowed anywhere inside the hotel.

FOOD AND WATER

The hotel has a restaurant, which will provide most breakfasts, lunches, and dinners. You will also have early morning tea served in your room. Depending on the distance to the research site and the day's schedule, the restaurant may provide breakfast or lunch as a packed meal to take into the field. The kitchen is on a terrace over the first floor, next to a small dining hall. You'll enjoy meals while taking in a view of the Himalaya and Kullu Valley.

You'll eat local dishes on this expedition, and the Indian diet is primarily vegetarian. However, the cooks will make an effort to provide non-vegetarian food at least twice a week. You'll have access to a pantry with a refrigerator for cold water and juices. You can also buy extra food or beverages and store a small quantity of food in the refrigerator.

This list provides only examples, and it is important that you be flexible.

TYPICAL MEALS

BREAKFAST	Paratha (Indian flatbread), puri sabji (fried rounds of bread accompanied by spiced potatoes), other breads, butter, apple jam, apple chutney, honey, omelets, boiled eggs, cereal, and fruit, along with coffee, tea, milk, and juice.
LUNCH	Rice, vegetable dishes like dal (a thick stew of lentils, peas, or beans), curry, salad, and Indian breads. Packed lunches may include sandwiches, puri sabji, rice, vegetable biryani (a rice dish), or other dishes.
DINNER	Soup, vegetable biryani, dal, raita (a yogurt-based condiment), Indian breads, and northern Indian dishes. Trout will likely be served at the dinner on final evening. (Italian food and pizza can be served for those who can't tolerate Indian food. All food is made fresh and not very spicy.)
SNACKS	Fruit, pakora (potato, cauliflower, and onion dipped in chickpea flour paste and deep fried), Indian sweets such as halwa and assorted mithai (milk- and nut-based sweets).
WATER	The hotel provides water filtered with Aqua-guard (a reverse osmosis filter). If you're not comfortable with aqua-guard water you can ask for free bottled water, but we encourage using filtered water, to minimize our carbon footprint. Do not drink untreated tap water.

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.

Vegetarian and vegan diets are easily accommodated, but other special diets are not likely to be accommodated due to availability, location, and local conditions.



PROJECT CONDITIONS

THE FIELD ENVIRONMENT

The average daytime temperature during June and August will be around 30°C (86°F). August will be a bit humid but comfortable. The temperature may fall suddenly by up to 10°C (18°F) due to bad weather. In October the average daytime temperature will be around 20 to 25°C (68 to 77°F), and at night the temperature will be around 10°C (18°F). Please check Kullu's weather online before coming.

GENERAL CONDITIONS

ANNUAL TEMPERATURE RANGE: -5°C/ 25°F (winter) to 35°C/95°F (summer)

ALTITUDE: averages 1,500 meters/4,900 feet

ANNUAL RAINFALL: Kullu lies in a rain shadow area; the maximum average rainfall per month during the rainy season (August) is 15 centimeters/6 inches.



ESSENTIAL ELIGIBILITY REQUIREMENTS:

All participants must be able to:

- Follow verbal and/or visual instructions independently or with the assistance of a companion.
- Enjoy being outdoors all day in all types of weather, in the potential presence of wild animals and insects.
- Tolerate 30°C (86°F) heat and moderate humidity levels if participating in June and August teams.
- Traverse an uncleared 100-meter (300-foot) transect of sometimes dense and tangled forest vegetation twice per day for quadrat study. Volunteers can take this activity at their own pace within their group. Total time hiking is less than four hours per day and the total distance less than 6.4 kilometers (four miles) per day.
- Safely work around bees and other insects, as well as plants and pollen. Those with severe allergies to insects or plants should discuss participation with their doctors.
- Carry personal daily supplies such as water, and some small field equipment—about one to five kilograms (two to 10 pounds) for up to 60 minutes each day, 30 minutes at a time.
- Get low enough to the ground to complete research tasks for up to four hours each day
- Move around the forest on an undulating surface to lay quadrates and measure tree girth and count the number of trees of each species.
- Get oneself up into and down out of a minivan and ride, seated with seatbelt fastened, for a total of about two hours a day (or up to four hours when going to the research station).
- Function without a consistent source of electricity. Generators may not always run throughout the night; therefore, the project cannot accommodate electrical devices such as a C-PAP machine.



POTENTIAL HAZARDS

BUTTERFLIES AND BEES IN THE INDIAN HIMALAYAS

HAZARD TYPE	ASSOCIATED RISKS AND PRECAUTIONS
Transportation	Road travel is the highest risk on this project. You'll travel by road to and from Delhi and between the hotel and the research site drop-off (the starting point for walking to the forest plots). Precautionary measures will include traveling at slow speeds to navigate roads with heavy traffic from people, vehicles, and animals. Some travel will be on unpaved roads, which can be bumpy. Participants prone to back pain should consult their physician about these road travel conditions. Seatbelts must be worn at all times.
Terrain	Some areas of the forest have uneven terrain and fallen branches covering the ground. Some of the terrain is terraced for agricultural use, with small streams. Wear comfortable, sturdy boots in the field and pay attention to where you step.
Insects	Appropriate clothing and insect repellent are essential, as you will be involved in research activities related to insects. Wear long-sleeved shirts and long pants to avoid insect bites (and sunburn). Snakes, wasps, ants, and bees may be present. If you are allergic to any insect bites or stings, please include this information on your Health Form and bring the appropriate medication with you into the field.
Water	Tap water is not safe to drink; drink bottled, boiled, or purified water only. You will be provided with bottled or reverse-osmosis filtered water.
Plants	Some plants along the trails—nettle, berberis, rubus, and some grasses—have thorns or are likely to cause irritation if handled. You'll be briefed on these species so that you can exercise caution in the field.
Wildlife	Leopards are present in the forest of the upper valley regions of Kullu near the hotel, so please do not walk around outside after sunset. Snakes are present, but contact is unlikely. Scorpions and other arthropods are also found in the region. By adhering to the guidelines provided during safety briefing, and wearing long trousers/pants and footwear and socks that cover the ankles, you can reduce the chance of accidents.
Climate/Weather	Much of the work will be carried out under the forest canopy, but in the open, the sun will likely be very strong. Wear appropriate protection: sunscreen, long-sleeved shirts, and a hat. Temperatures may fall suddenly, and rain or hail may come on quickly. We advise you to always carry warm layers and an umbrella or raincoat.
Personal Security	Kullu is a small town, and the research will be conducted in the surrounding rural areas with minimum security concerns. Crime is rare in the region. However, visitors should be cautious. Here are some simple suggestions: <ul style="list-style-type: none"> • Stay in pairs or groups when walking around, especially if you go out in the late evening. Carry a torch/flashlight when necessary. • Wear conservative clothing that covers the upper arms and legs. • Don't carry more cash than necessary. • Keep hold of your belongings in public areas. • Do not engage in reckless or risky behavior. • Always carry emergency contact information wherever you go. • Please inform Earthwatch staff before leaving the hotel. • To tackle with beggars in Delhi and other cities, always keep some sweets or biscuits. Please do not give money.
Village Hazards	When working in the villages, be careful of cook stoves. Additionally, unmarked drains, which present a tripping risk, may be present around the village homes. Loose and stray dogs and cows may be present and should always be avoided. Please ask permission from villagers before taking photos.

NOTE: Once you are in India and if you are facing any problem please dial #100 to reach police in any city.



SAFETY

HEALTH INFORMATION

EMERGENCIES IN THE FIELD

The Naggur Government Health Centre is within walking distance from the hotel and is equipped with all basic medical facilities. There are also private clinics nearby (e.g., Dr. Chanderdeva Negi, phone: +91-9816125853 which can be used in an emergency.

Serious injuries or health problems will be treated at the Kullu district hospital (18 kilometers/11 miles away), a large hospital with many specialists. Extremely critical cases will be referred to the hospital in Chandigarh, 268 kilometers (167 miles) from the accommodations.

Physician, nurse, or EMT on staff: Project staff members are not medical professionals.

NEAREST CLINIC

Naggur Government Health Centre

(300 meters from the accommodations)

PHONE: +91 (941) 849 8357

(mobile number for Dr. Bishan, medical officer).

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

Please be sure your routine immunizations are up-to-date (for example: diphtheria, pertussis, tetanus, polio, measles, mumps, rubella and varicella). Medical decisions are the responsibility of each volunteer and his or her doctor, and the following are recommendations only. Visit the Healix Travel Oracle website through the "Travel Assistance and Advice" page in your Earthwatch portal, cdc.gov or who.int for guidance on immunizations.

PROJECT VACCINATIONS

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

RECOMMENDED FOR HEALTH REASONS: Hepatitis A and B, Typhoid, Polio, Rabies, Japanese Encephalitis

ADVICE REGARDING DISEASES

Diseases found in India include malaria, dengue fever, filariasis, leishmaniasis, Japanese encephalitis, leptospirosis, polio, measles, and avian influenza. Traveler's diarrhea also affects many international travelers. Please see the CDC (cdc.gov) or World Health Organization (who.int) websites for more information on these conditions and how to avoid them.

You can decrease your risk of most diseases above by avoiding mosquito bites, practicing good hygiene, and drinking only bottled or filtered water when appropriate.

A few notes on vaccinations and treatment:

MALARIA: Malaria is present in Delhi, but not at the research site. Please consult your doctor about malaria prevention during your expedition.

RABIES: Stray dogs are present in the area, so you may wish to get a rabies vaccination for this project. The pre-exposure vaccination consists of three doses over a 28-day period. Please be sure to consult your physician or travel health clinic well before your expedition to ensure that you have time for the full vaccination series. If you have previously been vaccinated, a booster shot may be required.

Whether you have been vaccinated or not, always avoid loose and stray dogs. The pre-exposure vaccination does not eliminate the need for post-exposure medical attention and treatment, but it does provide additional protection against the disease in event of a delay in treatment. In addition, bites or scratches should be immediately and thoroughly washed with soap, clean water, and a topical povidone-iodine solution or ethanol.



TRAVEL TIPS

SUGGESTIONS FOR THE ROAD

YOUR DESTINATION

LANGUAGE: People in the region generally speak Hindi or their local language. The project staff members and the hotel owner speak English.

TIME ZONE: India Standard Time (IST).

CULTURAL CONSIDERATIONS: People generally dress conservatively, so please bring conservative clothing (e.g., long pants, not shorts or short skirts) while you are in the field and even in Delhi. While in the field, please ask permission before taking photos of people.

TELEPHONE DIALING CODES: When calling India from another country, dial that country's international dialing code, followed by 91 and the number. When calling another country from India, dial 0, followed by the other country's country code and the number.

NOTE: You should check with your cell phone provider to obtain any carrier-specific dialing codes you may need; many providers have dialing procedures that may differ in whole or in part from these directions.

MONEY MATTERS

LOCAL CURRENCY: Indian rupees (INR).

PERSONAL FUNDS: Participants may want to bring a small amount of money (INR5,000/US\$100) to cover personal expenses. You can exchange money at the airport or at ATMS in Kullu or the State Bank of India ATM near the research station, which takes foreign cards. There is western union close to Naggar where you can exchange currency.

LUGGAGE: 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 and/or takes several days to catch up with you.

Please check with your airline(s) on baggage weight limits, liquid restrictions, fees for checked baggage, etc.

If your luggage goes astray, please have the airline deliver it to:

Earthwatch

Augusta Point (Level 4),
Sector 53, Golf Course Road,
Gurgaon – 122002 India

PHONE: +91 (124) 435-4248, 408-8958 (10 a.m.–5:30 p.m)

MOBILE: (981) 024-9071; (955) 511-4663

TRANSFERRING LUGGAGE: If you'll be taking an international flight with one or more connections in the country of your destination, you must collect any checked bags at the airport where you first arrive in the destination country. After proceeding through customs, you will have to recheck your luggage before flying onto your final destination.

PASSPORTS AND VISAS

Passport and visa requirements are subject to change. Check with your travel advisor, embassy or consulate in your home country for requirements specific to your circumstances. Generally, passports must be valid for at least six months from the date of entry and a return ticket is required.

CITIZENSHIP	PASSPORT REQUIRED?	VISA REQUIRED?
United States	Yes	Yes
United Kingdom	Yes	Yes
Europe	Yes	Yes
Australia	Yes	Yes
Japan	Yes	Yes

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.

CONTACT INFORMATION

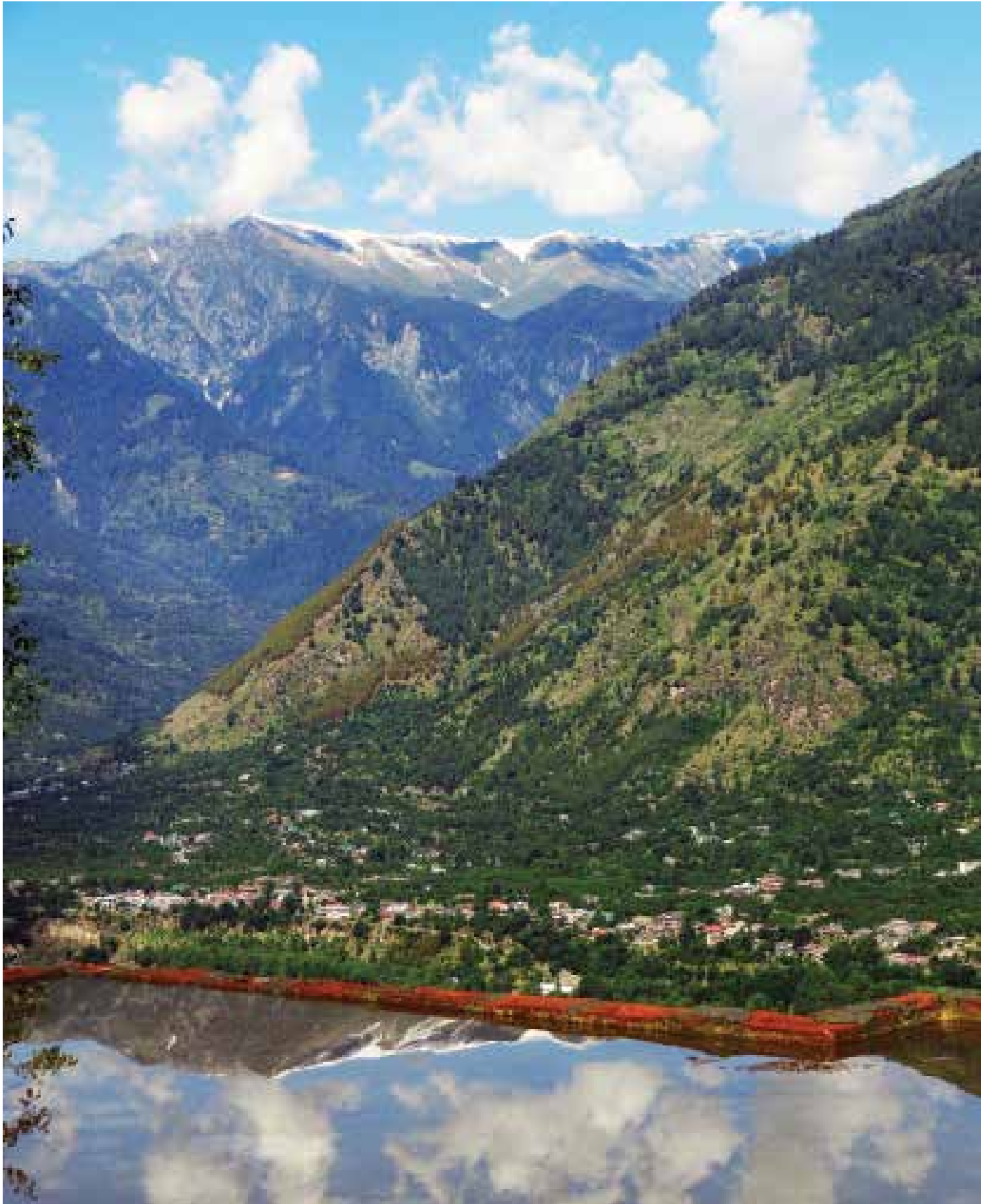
You may be required to list the following contact information on your visa application and immigration form, or if your luggage does not make it to baggage claim at your destination:

Earthwatch, United States

114 Western Avenue
Boston, MA 02134
U.S.A.

EMAIL: info@earthwatch.org





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

- Earthwatch T-shirt
- Lightweight, quick-drying, long-sleeved shirts (the best protection against sunburn, bites, and scratches)
- Lightweight, quick-drying trousers. Jeans are not recommended for field work.
- Appropriate footwear: lightweight, quick-drying hiking boots, sturdy walking shoes (preferably waterproof), or tall rubber boots. Footwear should be well worn in to avoid abrasions and blisters. Sandals and flip-flops are not acceptable for fieldwork.
- Calf-length socks that trousers can be tucked into. Wool-rich fabrics (about 70% wool, 30% nylon) wick moisture away and keep feet dry and comfortable. Inner socks are also recommended.
- Waterproof jacket or poncho
- Waterproof over-trousers
- Wide-brimmed hat
- Summer teams: a light sweater
- October team:** a warm sweater, a jacket, wool socks, and a warm hat

CLOTHING/FOOTWEAR FOR LEISURE

- At least one set of clothing to keep clean for recreational time and the end of expedition
- Slippers or sandals for use in the hotel

FIELD SUPPLIES

- Small daypack
- Drybag or plastic sealable bags (good for protecting equipment like cameras from dust, humidity, and water)

- Insect repellent spray
- One water bottle

BEDDING AND BATHING

NOTE: all bedding, as well as a bath towel, is provided at both of the research stations.

- Please bring a thin fleece blanket for September and October team as it is cold.

PERSONAL SUPPLIES

- Personal toiletries (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
- Sunscreen lotion with SPF 30 or higher

OPTIONAL ITEMS

- Headlamp with extra batteries and extra bulb
- Travel guide
- Extra eyeglasses, contact lenses, and/or lens solution
- Bandana or scarf
- Sewing kit, safety pins, and extra shoelaces
- Sunglasses
- Gloves for collecting plant and soil samples and other research tasks
- Camera, film or memory card(s), extra camera battery
- Hardware for sharing digital photographs at the end of the expedition
- Books, games, 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.

NOTE: The check in baggage limit in domestic flights is 15kg and hand baggage is 8kg. Additional luggage is charged at the rate of INR 250/kg. So plan your luggage accordingly.



PROJECT STAFF

YOUR RESOURCES IN THE FIELD



DR. P.P. DHYANI is the Scientist-G and Director of the G.B. Pant Institute of Himalayan Environment and Development (an autonomous R&D Institute of Ministry of Environment and Forests, Govt. of India). He did his M.Sc. and Ph.D. (in Botany) from HNB Garhwal University, Srinagar, Uttarakhand. A plant ecophysiologicalist by training, Dr. Dhyani is the Fellow of the National Institute of Ecology (FNIE), Indian Academy of Environmental Sciences (FIAES) and Indian Botanical Society (FBS). He is also a Member of the Mountain Protected Area (MtPA) Network of the World Conservation Union (IUCN), USA w.e.f. 1995. Dr. Dhyani's scientific expertise is in the field of eco-physiology, restoration ecology and conservation biology; he has 129 research publications, including 5 books and 1 monograph, to his credit. Dr. Dhyani has 33 years' research experience; he has participated in 224 national and international conferences/symposia/workshops in 10 countries of the world. Based on his outstanding contribution in the arena of scientific research, Dr. Dhyani, in 2009, was named as one of the 'Leading Scientists of the World' and 'Top 100 Scientists of the World' by the International Biographical Centre (IBC), Cambridge, United Kingdom (UK). In 2009, he was also honored by the 'Bharat Excellence Award' by the Friendship Forum of India (FFI), New Delhi. In 2010, he was awarded 'Gold Medal' by the Indian Academy of Environmental Sciences (IAES), Haridwar, Uttarakhand. In 2012, Dr. Dhyani was conferred by the 'Gold Medal for India' and 'Award of Excellence' by the American Biographical Institute (ABI), North Carolina, United States of America (USA). Recently in 2013-14, Dr. Dhyani has been elected as a Sectional President for Environmental Sciences Section of the 101st Session of the Indian Science Congress (ISC) by the Indian Science Congress Association (ISCA), Kolkata, West Bengal. Dr. Dhyani has been listed in various global documents including 24 national and international biographical directories based on his outstanding contribution in the field of science and society. **Not present in the field**



DR. S. S. SAMANT is Scientist "F", the head scientist for biodiversity conservation and management at GBPIHED and has a great deal of experience working in Kullu area communities. He has a Ph.D. in botany and specialized conservation and management, and has conducted research in the Indian Himalaya for more than 30 years. He is Fellow of the National Academy of Sciences (FNASc;2010) India and Fellow of the Society of Ethnobotanists (FSE; 2010). He will be the lead scientist for this expedition. **All teams**



DR. AMAN SHARMA has a Ph.D. in botany and more than six years of research experience in biodiversity conservation and management and environmental impact analysis in the Himalaya. He specializes in the assessment of plant diversity and resource utilization; endemic and rare plants of the region; and in identifying and prioritizing for conservation threatened communities, species, and habitats. He currently works as a scientist fellow on this project. **All teams**



DR. PRADEEP MEHTA is the Research and Programme Manager at Earthwatch India. He has over 15 years of postdoctoral experience in natural resource management and sustainable livelihoods (mainly agriculture) in the western Himalayan areas of Uttarakhand and Ladakh. He has received a Junior Research Fellowship as part of Indian Council for Forestry Research and Education and Nuffic Fellowship. Before joining Earthwatch, he worked as a country representative of India at Appropriate Technology Asia. He is member of IUCN Commission on Environment Communication (CEC), Commission on Ecosystem Management (CEM) and Commission on Protected Areas. He is also member of Global Citizen Science Association. He has been leading this expedition since 2012. **All teams**

NOTE: Staff schedules are subject to change.



RECOMMENDED READING

YOUR RESOURCES AT HOME

RESOURCES

FILMS

- Himachal Apple Cultivation: himvani.com
- The Weeping Apple Tree: [youtube.com/watch?v=Xc8yXYXZarY](https://www.youtube.com/watch?v=Xc8yXYXZarY)

APPS

We have designed two Android apps you are welcome to download before you arrive that will help you to identify some of the pollinators you will encounter on the expedition. Those who do not have access to an Android will be able to view the information on a computer before coming.

- **BEES AND BUTTERFLY** <https://play.google.com/store/apps/details?id=com.earthwatchindia.butterfliesandbees>
- **POLLINATORS** <https://play.google.com/store/apps/details?id=com.earthwatchindia.pollinators>

PROJECT-RELATED WEBSITES

GB PANT INSTITUTE OF HIMALAYAN ENVIRONMENT DEVELOPMENT: gbpihed.gov.in

SUSTAINABLE AGRICULTURE RESOURCES: sustainabletable.org/intro/whatis/environment, nationalgeographic.com/environment/habitats/sustainable-agriculture/

INFORMATION ON THE AREA: hptdc.nic.in/welcome.htmr

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: earthwatchunlocked.wordpress.com

YOUTUBE: [youtube.com/earthwatchinstitute](https://www.youtube.com/earthwatchinstitute)



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 living 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: HEALIX INTERNATIONAL

+44.20.3667.8991 (collect calls and reverse charges accepted)

U.S. TOLL FREE: +1.877.759.3917

U.K. FREE PHONE: 0.800.19.5180

E-MAIL: earthwatch@healix.com

You may contact Healix 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,

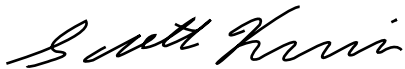
Thank you for joining this expedition! We greatly appreciate your decision to contribute to hands-on environmental science and conservation. It is volunteers like you who fuel our mission and inspire our work.

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,

A handwritten signature in black ink that reads "Scott Kania". The signature is written in a cursive, flowing style.

Scott Kania
President and CEO, Earthwatch



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