Galápagos Conservancy Workshop 2023:
Giant Tortoise Field Ecology and Conservation

Background

About this workshop

Giant Tortoises are endemic to the Galápagos Islands, and perhaps the most iconic component of the island's unique biodiversity. Giant Tortoises have evolved many traits to survive in the harsh, arid terrestrial ecosystems that comprise the Galápagos. They also play a key role engineering Galápagos ecosystems to the benefit of many forms of biological diversity. They have evolved into many different species and played a significant role in Charles Darwin's theory of evolution and natural selection. Today many of the species of Giant Tortoises in Galápagos are endangered due to habitat loss, hunting and introduction of invasive species.

This workshop is designed to introduce college-level students to the Giant Tortoises of Galápagos, the environments they inhabit, and the techniques that are used to conserve and study them in the field. The workshop in organized around a rigorous weeklong field expedition to an uninhabited island to study a population of giant tortoises undergoing restoration. Through hands-on field activities, students will accomplish the following objectives:

- Learn field and laboratory sampling and monitoring techniques for studying Giant Tortoises.
- Understand how these techniques can be used to answer questions about the ecology, evolution and conservation of Galápagos Tortoises.
- Understand the roles that giant tortoises play in their ecosystem.
- Participate in ongoing research studies being conducted by Galápagos Conservancy to understand and restore Giant Tortoise populations

This course is comprised of a field trip to a remote Galápagos Island lasting a week, plus expedition preparation and quarantine before and expedition “take down” after, for 12 days total (inclusive of travel to and from Galápagos). Course time before and after the expedition is based in simple, shared dormitory facility with basic amenities. During the expedition the group of up to 10 students will camp together, cook together, and work together. Everyone shares all of the work. We wake at 0600 and often walk 10-20 km per day in intense heat (up to 100 F at mid-day) and over difficult terrain. Food is basic. Bathroom facilities are basically the shoreline or the woods – in some places with little cover. Everyone sleeps in an individual tent in close proximity in a shared camping site. Terrain is often extremely rough lava that destroys boots quickly, including within the week of the expedition. All participants must know and abide by the rules of the Galápagos National Park Directorate when in Galápagos, including and especially quarantine procedures for field trips. Participants will be required to provide a digital copy of their passport as well as CV to we can arrange transit visas.

Course schedule (tentative)

Dates: 12-23 August 2023

Day	Activity	Location
Sat.	Arrivals to continental Ecuador (Quito)	Quito
Sun.	Travel to Galápagos, Settle into lodging, course orientation and introductory seminar, greetings dinner	Baltra Island - Santa Cruz Island

Mon.	Morning: expedition preparation; quarantine and inspection Afternoon – Giant Tortoise rearing facility tour; evaluation of status of Floreana tortoise breeding group	Santa Cruz Island
Tue.	All day: Visit to “La Reserva” tortoise population in highland Santa Cruz Evening: expedition preparation	Santa Cruz Island
Wed.-Sun.	• Travel to Santa Fe Island, establish base camp on shoreline, site orientation • Population estimation through mark-recapture and distance sampling • Field measurements of tortoises • Measurement of habitats • Assessing behavior (including thermoregulation and foraging) • Inter-species interactions and role in ecosystem	Santa Fe Island
Mon.	Return to Santa Cruz Island, reverse quarantine, data entry, analysis	Santa Fe Island - Santa Cruz
Tue.	Data synthesis; retrieve and clean equipment	Santa Cruz
Wed.	Baltra > Quito – departures *(course participants may wish to stay on post-course in Galápagos – if so must make their own arrangements and have own support to do so)*	Baltra Island - Santa Cruz Island

Equipment list (bring these items and largely *only* these items – space is limited):

Required	
Hat with large brim	Laptop computer
Light cap	*Shorts
*Thick hiking socks (5 pair minimum)	Swim suit
*Underwear	Head buff
*Sleep wear (shirt and pants, 2 sets)	Head lamp and batteries
*Shirts short-sleeved field (at least 3) for town and field	Rite-in-rain or similar notebook and pencils
Light travel shoes	Day pack (at least 30 liters, no “hydration systems” e.g., camelback)
*Ankle-high broken-in hiking boots	*Backpack or duffle bag
Teva-type sandals or wet shoes for surf	Water bottles (3 liters total)
*Ditty bag for dirty laundry	Passport with two photocopies

Waterproof light coat (for field and boat rides)	*Camping towel
*Field pants (3 pair) - light, strong, cool and not easily torn	Medications and personal care products as needed
*Field shirts – light weight, strong, non-cotton, and must be long-sleeved (at least 3)	Sunscreen (SPF 50 or higher)
Note: Clothes, boots and camping equipment used during the field trip (indicated on equipment list by "") will be entered into quarantine 2 days prior to departure and 1 day after return – therefore separate sets of clothes and footwear are required for the expedition (5-6 days in the field) as well as for remainder of course (2-3 days in lab and office plus short field forays) and travel – plan accordingly (we can advise).*	

Recommended	International cell phone plan
Small binoculars	Hydration tablets
Camera	Power brick
Pocket knife (put in checked luggage)	Flashdrive
Small dry bag for passport, electronics	*Snorkel and mask

Course Work:

- **Field Journal (50% of evaluation):** Each student is responsible for keeping a field journal during the workshop.Style and format of field journals will be discussed in detail during the workshop.
- **Research Project Syntheses (50% of evaluation):** Completion of expanded written Abstracts with supporting analyses for each of the class projects.
- All course work is due by last day of the course.
- You may be able to arrange academic credit through your home institute – we can help you arrange that.

Recommended resources:

Wildlife of the Galápagos: Second Edition (Part of the Princeton Pocket Guides Series) by Daniel Fitter, Julian Fitter, David Hosking ~$20.

Galapagos Giant Tortoises (Biodiversity of the World: Conservation from Genes to Landscapes) 1st Edition by James Gibbs (Editor), Linda Cayot (Editor), Washington Tapia Aguilera (Editor) $60-90 (paper and digital copies available during course)

Santa Fe Island Tortoise Monitoring Protocol (paper and digital copies provided)

Course contact:

For further inquiries about the course, please contact Dr. James P. Gibbs:james@galapagos.org