

## **Jamaican Iguana Research Opportunities 2025**

**Location:** Southern Jamaica

**Salary:** Stipend to cover all in country expenses and flights

**Deadline:** Open until filled

### **Background:**

Caribbean Rock Iguanas are the most imperiled group of lizards in the world, and the endemic Jamaican Rock Iguana (*Cyclura collei*) is arguably the most endangered among them, listed as Critically Endangered on the IUCN Red List. Considered extinct by the 1940s, largely due to habitat conversion and Invasive Alien Species (IAS), the Jamaican Rock Iguana was re-discovered in 1990, in the Hellshire Hills tropical dry forest, a remote ecosystem along Jamaica's southeast coast. This galvanized the conservation community to rally in support, spawning a successful international recovery effort.

Early surveys identified two communal nesting areas that served the relictual population. In 1993, a Population Viability Assessment was conducted, providing the blueprint for subsequent interventions including nest site protection, habitat and iguana monitoring, and a headstart program at the Hope Zoo. In 1997, the group started controlling invasive species, creating a core protected zone for the iguanas. As a result of these efforts this species was brought back from the brink of extinction and currently has a population estimated at ~800 individuals.

Despite intensive efforts within the iguana's core area, IAS incursions were still common, and the natural recruitment rate for the iguanas was very low. Through intensive research we were able to develop plans for a more effective protection scheme and have now greatly increased the protected area for the iguanas by implementing a buffer zone surrounding the core iguana zone. This should result in decreased IAS activity within the core iguana zone, an overall larger range for the iguanas, and increased natural recruitment. Thus, creating a self-sustaining population; the overarching aim for this recovery effort.

Two projects are available to aid in our understanding of the impacts of the buffer zone on the iguanas, other native species, and invasive species. These positions are ideal for those looking for a master's project but we will consider internship positions. Those interested in participating in these projects must be in the excellent physical and mental condition, be interested in living in remote conditions with very few daily comforts (no running water, no electricity), and be comfortable traveling internationally without extensive contact with family and friends. Experience camping, hiking, living remotely, and traveling internationally is strongly preferred.

### **Project 1. Hatchling radio tracking (Fall 2025)**

This project focuses on understanding survival, dispersal, and habitat use of Jamaican Iguana hatchlings, the most vulnerable age class. Hatchlings will be tracked during two consecutive years using standard VHF radio telemetry and well-established methods. Approximately 25 hatchlings will be tracked each year for three years. Hatchlings will be tracked daily, as possible, for three months. Several spatial analyses will be performed to identify the most appropriate and useful, depending on the data collected. We will evaluate the Minimum Convex Polygon, Kernel Density Estimation, and dynamic Brownian Bridge Movement Models to assess spatial use. Survival, movement variables, and settlement will be determined. Behavioral and habitat data will be summarized. These data will aid in determining the impacts of implementing a buffer zone to improve protection within the core iguana area. This will be used as an indicator of the effectiveness of the newly constructed buffer zone and used to adjust the buffer zone management strategy.

### **Project 2. Camera trap and tracking tunnel monitoring (Spring 2025)**

This project focuses on assessing the presence of invasive and native species within the core iguana zone, the newly constructed buffer zone, and the greater Hellshire Hills area. Elucidating the presence and relative density of IAS and native species within these three areas will allow for an understanding of the impact of the new buffer zone, provide direction for additional control measures, and direct the development of an updated IAS control protocol. Monitoring stations, equipped with tracking tunnels and camera traps, will be placed throughout the core iguana zone, buffer zone, and greater Hellshire Hills. Live trap data, where available (core and buffer only), will also be incorporated into the

assessment. These density and distribution data can then be analyzed across the three zones to determine the degree of IAS reduction and continued threats by zone.

**Location:** These projects will occur within the Hellshire Hills of Jamaica, a tropical dry forest, primarily made up of karst limestone terrain. This is an extremely remote location. Reaching base camp will require a 1-2 hour car ride, a one hour boat ride, and a one hour hike into the forest. All materials (camping equipment, food, etc) must be carried to the field site on foot.

**General Schedule:** The research projects typically last three months however additional time may be considered and will be discussed on an individual basis with students. While on site in Jamaica the typical schedule is three weeks at the remote field site within the Hellshire Hills, one weekend in Kingston, then back to the field for the next three weeks.

**Accommodation:** The base camp within the Hellshire Hills has no running water or electricity, aside from a small solar power station. There is no formal toilet, only a very primitive long drop. There is no shower and water is extremely limited. All water available is from rainwater collection. Each person is allowed a quick bath with 1 liter of water each week. There are four permanent, male, rangers on site at all times as well as Dr Pasachnik at times. Everyone sleeps in tents on cement platforms. A tent will be provided but all items needed inside the tent must be brought by the student (sleeping pad, sleeping mat, pillow, headlamp, etc). While in Kingston on weekend students will stay in a small studio apartment.

**Food:** While in the Hellshire Hills, dinners will be made by the rangers and enjoyed communally. Everyone is on their own for breakfast and lunch. There is a small kitchen area with a propane stovetop to prepare food but there is no refrigeration available. In Kingston there is a kitchen within the studio apartment to prepare food and ample restaurants to go out and enjoy.

**Medical Considerations:** Medical care is available in Jamaica but not at the remote field site. Any injury that occurs within Hellshire Hills will require transport to Kingston which will take at least three hours. Extreme emergencies may require a helicopter evacuation. Students are required to have international travel insurance that covers medical evacuation in case of an emergency. It is also the student's responsibility to discuss with their doctor any inoculations they may feel is necessary for this location and to ensure they have any medications with them in excess of what they will require for the time period.

**Funding:** All research equipment costs will be covered. All basic accommodation and food costs will be covered. Going out to eat while in Kingston and extraordinary (expensive specialty items) food costs will be the student's responsibility. One round trip flight will be covered. All personal items must be covered by the student (toiletries, clothes, boots, backpacks, etc). A cellphone SIM card for Jamaica will be provided but cell phone plans will need to be purchased by the student. This is typically \$20 USD per month but depends on how much data is used.

**Expectations:** In the months leading up to the field project start date students will be expected to meet with Dr. Pasachnik at least twice per month to develop the project proposal and discuss the details of living and working at the field site. Prior to departure a completed proposal will need to be submitted to Dr. Pasachnik (this can often be the same proposal submitted to your university). Students will be responsible for all data collection, storage, and management. Ownership of the data will reside with the International Iguana Foundation. In the months following the field work it is expected that the student will work with Dr. Pasachnik to analyze and publish a manuscript in a peer-reviewed journal covering the topic studied. At times projects will run for multiple seasons/years and thus the work of more than one student will be combined for publication.

If interested please contact Dr. Pasachnik at [SAPasachnik@iguanafoundation.org](mailto:SAPasachnik@iguanafoundation.org) for an application.

## Packing list

Keep in mind that anything brought into Hellshire will need to be carried to camp in your backpack so plan to pack as light as possible. Extra items can be stored in Kingston at Dr. Pasachnik's apartment.

### Required:

- Small day pack for use during research
- Large pack for carrying supplies to and from base camp
- Two pairs of hiking boots (the terrain is extremely rough and good boots cannot be purchased in Jamaica so **two pairs are absolutely necessary**)
- Camp/water sandals (all boat trips will have wet landing so water sandals will be necessary)
- Long pants and long sleeve shirt for research (2 sets) (my preferred clothing for this site is flexible convertible pants [climbing will be necessary at times], tank top, and a cheap cotton button down shirt). I do not recommend spending money on expensive outdoor clothing as it will be quickly destroyed.
- Lounge clothes for time at camp (1 set). Mosquitos, bees, and sand flies can be bad at camp so there will be a tradeoff between temperature and insect protection that you will have to decide on.
- Clothes for weekends in Kingston
- Hat
- Water bottle
- Sunscreen
- Repellent
- Sleeping bag or sheet depending on time of year
- Sleeping pad
- Headlamp
- Toiletries
- Computer (there is a camp computer that can be used but it is best for students to have their own as well as an additional data storage device)
- First aid kit (including electrolyte tablets or powder)

### Highly recommended:

- Rain gear
- Water bladder for day pack (you should have the ability to carry 3 L of water into the field with you and I find it easiest to achieve this with a bladder)
- Multi tool/Knife
- Hammock
- Solar charging power bank
- Rechargeable or battery powered fan
- Pillow