



Douglas W. Domenech
Assistant Secretary Insular and International Affairs
U.S. Department of the Interior
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April 30, 2020

Dear Mr. Domenech,

Thank you for considering our proposal to safeguard tourism and subsistence fishing in Palau by eliminating the threat of invasive species to marine and terrestrial biodiversity. In 2019, Island Conservation secured support from the Office of Insular Affairs Coral Reef and Natural Resources Initiative to remove rats from part of the UNESCO-designated Rock Island Southern Lagoon (RISL) of Palau (Grant Agreement D19AP00146). During preliminary research for this project, we identified that feral cats are also present at the site. Consequently, we are seeking further support from the OIA to ensure full restoration of Ulong Island. Removal of rats alone will not permit full recovery of ecosystem services and protection of endemic and threatened species. Only the removal of both invasive species will generate the sought-after improvements to reef health and human livelihoods that this project promises to deliver.

Listed as a UNESCO World Heritage Site, the RISL supports an incredible diversity of plants, birds and marine life. The area is a major attraction for Palau's tourism industry, contributing significantly to the country's economy and supporting a large percentage of Palau's population. However, invasive species are negatively affecting its coral reefs and terrestrial habitats by interrupting ecosystem processes and contributing to biodiversity decline. The impacts of invasive species are expected to compound the anticipated effects of climate change to Palau, which paint a grim picture of increased food insecurity, decreased tourism, and a loss of coral reefs and marine resources.

This project specifically aims to remove invasive cats from Ulong Island within Palau's RISL, build capacity in local partner institutions and confidence in the methods, leading to a formal strategy to manage feral cat populations elsewhere in the RISL and Palau. The impacts of both cats and rats on Ulong have resulted in a massive decline in the island's seabird populations, disrupting the critical function that former bird colonies played in bringing nutrients from sea to land. In turn, this will have impacted adjacent coral reefs by removing an essential nutrient subsidy. Consequently, the site is not meeting its full potential as a tourist destination nor are subsistence fishers able to reap the rewards of a healthy coral reef.

While this project will address the immediate threat to the marine and terrestrial resources of Ulong, it will also serve as a stepping-stone for more and greater conservation interventions of this nature by creating additional capacity and appetite within Palau for invasive species management. As a consequence, increased economic resilience and benefits to reef health and threatened terrestrial and marine biodiversity are expected to extend well beyond the geography that is the focus of this project.

Sincerely,

Richard Griffiths
Project Director

Project Narrative

Eliminating invasive species threats to coral reefs, biodiversity, and human livelihoods in Palau

Project Summary:

This project aims to work with local partners to plan and implement an urgent cat eradication on Ulong Island, Palau, with far-reaching benefits for reef health, threatened terrestrial and marine biodiversity, and local Palauan communities that depend on functional ecosystems. The urgency of our request stems from a pressing need to build Palau's capacity for the management of feral cats to protect its natural resources. Palau supports a myriad of plant, bird and marine species, many of which are found nowhere else. These natural resources directly provide the food and materials that many Palauans depend upon for their livelihoods, while also serving as a critical attraction for tourists, a sector that underpins Palau's developing economy. Invasive species, such as feral cats, are eroding Palau's natural wealth by interrupting ecosystem processes and contributing to biodiversity decline. Climate change threatens to exacerbate these impacts and poses a direct threat to food security, coral reefs, and terrestrial and marine ecosystem services.

Island Conservation intends to tackle these threats by undertaking a project to remove feral cats from Ulong Island, a key tourist destination and subsistence fishing location within Palau's Rock Island Southern Lagoon (RISL) UNESCO World Heritage Site. In addition to protecting threatened endemic species on land, the project will promote the recovery of seabird populations, a restorative action that is anticipated to directly and indirectly promote the health and resilience of corals and coral reefs within the vicinity of Ulong. These include some of Palau's most popular dive sites such as the Ulong Channel. The project will be planned and implemented in close collaboration with the Koror State Government's Department of Conservation and Law Enforcement (DCLE) and other key stakeholders, with the intention of developing local capacity for the planning and implementation of complex invasive species eradication projects on other islands in the RISL and elsewhere in Palau. Developing these skills and demonstrating the return on investment for reef health and biodiversity are considered essential to catalyzing further restoration efforts within the RISL and Palau.

Project Description:

The project "Eliminating invasive species threats to coral reefs, biodiversity, and human livelihoods in Palau" aims to achieve concrete wins for marine and terrestrial resources while strengthening in-country capacity for feral cat management and creating a road map for future endeavors of this nature. The project is expected to span 30 months, from January 1, 2021 to June 30, 2023 and will closely complement ongoing planning and implementation of a rat eradication at the same site, also funded by the Office of Insular Affairs Coral Reef and Natural Resources Initiative (Grant Agreement D19AP00146).

At the behest of Koror State Government, our targeted site for restoration was moved from Ngemelis to the biologically similar Ulong island. However, upon completing our first site visit to Ulong, feral cats were identified on the island. In order to fully realize the potential of Ulong, its natural resources and adjacent coral reefs, cats must be removed along with rats.

Consequently, we are requesting additional funding to meet this goal. The need also coincides with Palau's requests to increase its invasive species management capacity, particularly of feral cats. We anticipate that this project will allow government agencies in Palau to: experience first-hand the successful implementation of a cat eradication, witness resulting ecosystem recovery, and develop strategies to tackle the problem of invasive feral cats on Palau's islands as they threaten human livelihoods and unique biodiversity.

Similar to Ngemelis, Ulong Island, within the Rock Island Southern Lagoon (RISL) World Heritage Site (Figures 1 & 2), is an excellent place to demonstrate proof-of-concept and cultivate further capacity for the management of feral cats in Palau. The island is closely managed by Koror State's Department of Conservation and Law Enforcement (DCLE). Because of its protected status and the presence of remnant seabird colonies, Ulong also offers the perfect location to document and demonstrate the recovery of ecosystem processes and biodiversity benefits as a result of feral cat removal.

This project will leverage previously awarded CRNRI project funding to remove rats from Ulong by implementing the removal of cats immediately afterwards, capitalizing on the disappearance of rats, a prey item for this invasive species. Working closely with DCLE rangers, we will develop new methods and protocols for trapping feral cats that are specific to Palau's unique environment. We will also improve biosecurity, one of the core responsibilities of DCLE rangers within the RISL. Both before and after the removal of cats, we will measure the responses of native wildlife (both terrestrial and marine) to illustrate the clear benefits of this conservation intervention.

As we collaboratively plan and implement the removal of feral cats from Ulong, we will strengthen our ties to state and government organizations throughout all phases of the project. With the eradication spanning many months, partner staff will have ample opportunity to become versed in the planning and implementation of adaptively managed eradications as experienced Island Conservation staff work alongside them to ensure project success.

Looking towards catalyzing future initiatives, we will work with partners to position Koror State and other national agencies to undertake future feral cat management initiatives elsewhere within the RISL and beyond. We will convene stakeholders in a workshop to review project success, lessons learned, skills acquired, and establish next steps for the restoration of RISL islands through the removal of feral cats. As part of a prioritization exercise, we will support partners in developing an action plan for managing feral cats in the RISL.

Statement of Need:

The Republic of Palau comprises nearly 600 islands (only 11 of which are inhabited) and forms part of the Micronesia/Polynesia biodiversity hotspot. Its terrestrial biota is characterized by high levels of endemism, with many species found nowhere else. Palau's geologically complex marine environment supports a broad assortment of marine communities and is inhabited by a diverse range of species. Invasive alien species, one of the primary causes of biodiversity loss in island ecosystems worldwide (Medina et al. 2011), are prevalent throughout much of the archipelago and pose a direct threat to Palau's biodiversity. Affected are most of Palau's nearly 22,000 human inhabitants that depend directly on tourism and subsistence fishing and agriculture for financial stability. According to the Palau National Invasive Species Strategy (2007), rats, feral cats, macaques, smothering vines, snails, algae, agricultural pests, and pathogens have invaded Palau, impacted the environment, the economy, human health, and even the traditional Palauan way of life. Furthermore, current climate change models predict that there will be as much as a 30% loss of reefs, reduced fish biomass, and decreased food production (NEPC 2017). The Government of Palau has identified in their 2015 Palau Climate Change Policy that conserving natural resources and biodiversity through the management of invasive species will be crucial in adapting to a changing climate.

Introduced cats are responsible for the extinction of many species across the globe. They have been particularly destructive in tropical environments where they extirpate seabird populations and thus disrupt the critical function that these colonies play in bringing nutrients from sea to land, subsequently impacting adjacent coral reefs by removing an essential nutrient subsidy (Russell 2011, Doherty et al. 2016). In Palau, feral cats are widespread and impact biodiversity, disturb ecosystem services, reduce the availability of natural resources, and spread diseases such as toxoplasmosis. The timing of this project is ideal as the feral cat problem in Palau has recently been in the spotlight with feral cats having been reported stealing food from rural communities. Aware of the negative impacts of feral cats and the benefits to be gained by removing this invasive species, the Koror State Government DCLE has requested Island Conservation's technical assistance so that they may grow their capacity to manage this and other invasive species in Palau (see letter of support attached).

The UNESCO-designated RISL is a logical starting point to cultivate invasive species management skills in Palau and demonstrate the feasibility of eradicating feral cats from islands (Figure 1). Conducting the feral cat eradication on Ulong is an important first step to furthering Palau's invasive species management capabilities and showing success before tackling more complex island restorations, such as Ngeruktabel Island. This island, also within the RISL, while identified by the Koror State Government as a priority site for the eradication of feral cats, has much more complex terrain and will require the development of advanced, non-traditional methods for a cat eradication to be successful.

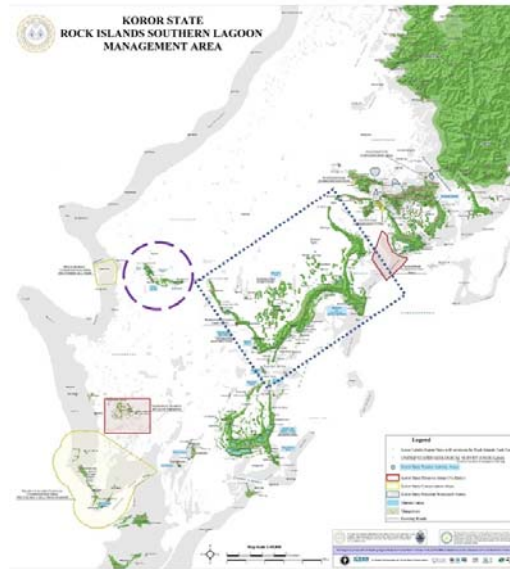


Figure 1. The Rock Island Southern Lagoon World Heritage Site is located within Koror State of Palau. Ulong island is circled with a dashed line and Ngeruktabel is shown with a dotted line.



Figure 2. Ulong Island is an important eco-tourism destination and the surrounding coral reefs provide fish for subsistence fishers and support the scuba diving industry.

Ulong Island (Figure 2) is home to an assemblage of indigenous plants and animals including the Endangered Micronesian Megapode, Endangered Pacific sheath-tailed bat, Endangered Mariana fruit bat, Near threatened Nicobar Pigeon, endemic and Endangered Palau Ground-dove, Near threatened Micronesian Pigeon, endemic Near threatened Giant White-eye, Endangered Green sea turtles, Critically Endangered Hawksbill sea turtles, and hundreds of endemic land snail species. A remnant population of Tropical Shearwaters also still persists on a part of the island most likely inaccessible to cats. The nutrients that these seabirds deposit on islands increase nearshore phytoplankton abundance, allowing corals to grow faster, store more energy, and resist and recover from thermal stress (Savage, 2019; Graham et al. 2018). Seabird-derived nutrients also increase benthic algal production, leading to higher fish biomass, especially herbivorous fishes that remove harmful algae and facilitate coral recovery after

disturbances. There is only one solution to recovering the vital ecosystem services and resources that sustain local tourism economies and subsistence fishing: the eradication of feral cats from Ulong Island.

The eradication of invasive mammals is a proven conservation tool for terrestrial habitats to restore native species and ecosystem function. Island Conservation is a non-profit organization that specializes in the eradication of invasive species on islands and has restored more than 64 islands since 1997. We have been collaborating with partners in Palau since 2012, completed our first successful rodent eradication in 2016, our second in 2018, and have steadily been building local capacity for biosecurity and invasive species management. Building on these successes, our partners at the Koror State Department of Conservation, Ministry of Natural Resources, Environment and Tourism, Palau Bureau of Agriculture, and Office of the Palau Automated Land and Resource Information System have expressed interest in expanding their track record of invasive species eradications in Palau. Our vision and that of our partners is a Rock Islands World Heritage Site free of invasive vertebrates, protecting those natural resources that sustain a vital tourism industry and subsistence fishery. That vision starts with the removal of invasive species from Ulong Island to put in place the skills and strategies needed to take on more significant projects of this nature.

Project Partners and Stakeholders:

Island Conservation (IC): IC is the only global environmental, non-profit organization dedicated to removing invasive vertebrates from islands. In conjunction with its partners, IC has successfully restored 64 islands worldwide, benefiting 1195 populations of 487 species and subspecies. IC will ultimately be responsible for executing and reporting on project deliverables and providing technical assistance to DCLE and other key partners.

Koror State Department of Conservation: Mandated with the management of Koror's Protected Area Network and Biosecurity, the Department of Conservation and Law Enforcement (DCLE) is directly responsible for the management of invasive species but does not currently have the technical skills and expertise to undertake cat eradications. DCLE is a primary project partner and will lead the work locally, facilitate regulatory approvals, engage stakeholders, and support project logistics.

Ministry of Natural Resources, Environment and Tourism (MNRET): Agency responsible for preserving the biodiversity of Palau and ensuring the sustainable use of the country's natural resources. MNRET will contribute to the project's planning and support regulatory approvals.

Bureau of Agriculture (BOA): Responsible for the management of invasive species that impact agriculture and the economy. Also responsible for border biosecurity. BOA will contribute to biosecurity planning and implementation.

Office of the Palau Automated Land and Resource Information System (PALARIS): Responsible for geographic surveys and the management of geospatial data for Palau. PALARIS will assist in mapping Ulong and by providing critical geospatial data.

Palau Island Coral Reef Center (PICRC): Leads monitoring and research on Palau’s coral reefs. Will assist with the monitoring of marine indicators.

Project Goals and Objectives:

Goal 1. By 2023, feral cats are eradicated from Ulong Island, permitting the recovery of native species and key resources needed by local communities.

Objective 1. With partners, provide proof-of-concept that cat eradication can be successfully achieved using humane, safe and cost-effective methods within Palau by 2023.

The island—representative of the terrain and technical challenges we anticipate facing elsewhere in the RISL—provides an excellent opportunity to collaboratively refine and adaptively manage the approach, while building the specific skillsets needed to expand the use of these methods beyond Ulong. Using our joint knowledge of the site, IC and DCLE will develop a detailed operational plan that will outline the methods, logistics, timeline and resources required to remove cats from Ulong. Cats will be detected across the island using trail cameras and through direct field observations by IC and DCLE staff. All feral cats will be humanely dispatched using traps and air rifles. Adaptive management will be used to refine and improve protocols for each subsequent stage of the operation. The eradication will require significant planning, logistics, GIS analysis, on-the-ground monitoring and post-operational monitoring. A communications plan will be jointly developed and acted upon to ensure project outcomes are widely shared and publicized.

Objective 2. By 2023, and through the monitoring of key indicator species before and after the eradication, showcase the benefits of cat removal and seabird recovery to marine and terrestrial biodiversity and the communities that rely on them.

Island Conservation and DCLE will identify indicators and develop monitoring protocols to measure the impacts of the project. Terrestrial and marine species, including species that utilize both marine and terrestrial environments such as sea turtles and seabirds, will be monitored to provide an indication of the direct and indirect benefits of removing feral cats. A control site where no management is to occur will also be established to ensure clear interpretation of data. Once indicator species have been identified and suitable monitoring protocols established, surveys will be conducted to collect baseline data. These measures will be repeated at the end of the performance period and potentially longer (outside the scope of this grant) to document ecosystem response. We will generate opportunities for stakeholders to visit Ulong and witness the anticipated biodiversity responses upon the completion of the

eradication. To gauge the impact on the experience of tourists, commercial guides will be consulted both before and after the project's implementation.

Goal 2. By 2023, in-country capacity and experience in feral cat management has increased, positioning and inspiring government and local stakeholders to undertake greater and more complex projects.

Objective 1. By 2023, strengthen our current partnership and build a project team that includes staff from national and state government organizations that will lead ongoing work to manage invasive species that threaten terrestrial and marine biodiversity in Palau.

In line with our other eradication work in Palau, we will establish a collaborative project partnership with relevant organizations from within the National and State Governments of Palau, including the MNRET, PALARIS, BOA, and Koror State DCLE. Conservation officers from other states will also be integrated into the project.

Objective 2. By 2023, train and mentor national and state government staff and partners so that they can confidently plan and implement future projects that promote seabird recovery, improve reef health, and foster greater human well-being.

As a close collaborator, DCLE will cultivate skills in the humane and strategic removal of feral cats from Ulong. Staff from within this organization will be selected based on their roles and level of interest and mentored throughout the course of the project's planning and implementation. The project will provide the opportunity for staff to familiarize themselves with the issues that need to be considered when planning feral cat management, the eradication planning process itself, and get hands on experience in cat eradication methods and adaptive management.

Goal 3. By 2023, an action plan for the management of invasive feral cats in the Rock Island Southern Lagoon will be created in conjunction with government and local stakeholders.

Objective 1. In 2023, convene a workshop with stakeholders from the local, state and national levels to record and disseminate success, lessons learned, and prioritize restoration sites within the RISL.

Following the project's implementation, it is envisaged that the project partnership will take additional steps toward planning further restoration of the wider RISL. Partners will convene a workshop to develop a strategy outlining a process that will lead to the eventual removal of feral cats from the RISL. Islands will be prioritized for action and further research needs identified. As a follow-up to the workshop, an action plan will be formalized and promoted by the project partnership.

Detailed Project Timeline:

ULONG CAT ERADICATION TIMELINE			
Project Phase	Activity	Timing	Description
Phase 1: Scoping	Site Visit	Q1 2021	Travel to Palau to establish project partnership with partners. Complete surveys, identify indicators, establish baseline monitoring, and assess risks including biosecurity.
Phase 2: Planning	Operational planning	Q2 2021	Together with partners, develop an operational plan for project implementation, encompassing the operational strategy, logistics, resource management, permitting, GIS monitoring, ground based monitoring, biosecurity, communications, and outreach.
	Staffing and Training	Q3 2021	Identify local team and undertake methods training.
	Logistics	Q4 2021	Source, purchase, and ship equipment and supplies, coordinate logistics with partners to and from project sites.
Phase 3: Implementation	Project orientation	Q4 2021	Complete workshop with all partners to finalize roles and responsibilities and review operational plan.
	Eradication operation	Q4 2021 -Q4 2022	Implement eradication operation.
	After Action Review	Q4 2022	Comprehensive review of project with team.
Phase 4: Reporting and Next Steps	Ecosystem Recovery Analysis	Q4 2022	Analyze data and evaluate impact of the removal of invasive cats on terrestrial and marine ecosystems.
	Next steps	Q1 2023	Host second workshop and develop strategy for the removal of invasive cats from other islands within the RISL.
	Outreach	Q2 2023	Communicate findings to government agencies and the public.

**Detailed Project Budget:
Performance Period January 1, 2021 to June 30, 2023**

	2021	2022	2023	Total Grant Request	Budget Narrative Note #
Personnel					
Project Director	\$4,500	\$3,000	\$4,500	\$12,000	1
Project Manager	\$8,000	\$10,000	\$5,900	\$23,900	2
Island Restoration Specialist	\$14,000	\$17,000	\$8,200	\$39,200	3
Island Restoration Specialist	\$10,000	\$10,000		\$20,000	3
Fringe Benefits					
	\$9,855	\$10,800	\$5,022	\$25,677	4
Travel					
Airfare US to Palau	\$10,400	\$10,400	\$5,200	\$26,000	5
Airport transfer	\$700	\$700	\$400	\$1,800	6
Palau Rental Car	\$2,960	\$3,200	\$560	\$6,720	7
Food while in the field/ Koror	\$3,900	\$4,020	\$900	\$8,820	8
Lodging	\$225	\$600	\$225	\$1,050	9
Weekly house rental	\$2,000	\$2,500	\$750	\$5,250	10
Supplies					
Trail camera	\$2,435			\$2,435	11
Batteries for camera traps	\$215	\$258	\$172	\$645	12
Memory cards	\$200			\$200	13
Trapping supplies	\$4,500	\$600		\$5,100	14
Backpacks for the field	\$600			\$600	15
Footwear for the field	\$720			\$720	16
Air rifles		\$2,500		\$2,500	17
Scope for air rifles		\$1,000		\$1,000	18
Contractual					
Analysis of camera trap data		\$2,000	\$2,000	\$4,000	19
Local guide	\$195	\$325	\$130	\$650	20
Other					
Printing outreach materials	\$200	\$200	\$200	\$600	21
Palauan cell phone service	\$145	\$115		\$260	22
Shipping - US to Palau	\$300	\$300	\$100	\$700	23
Direct Charges	\$76,050	\$79,518	\$34,259	\$189,827	
Indirect Charges	\$20,070	\$20,985	\$9,041	\$50,095	24
Total	\$96,120	\$100,503	\$43,300	\$239,922	

Budget Narrative

1. The Project Director oversees all aspects of the project, including providing technical advice and staff supervision. \$115,000 x 10% FTE over 2 years and 6 months.
2. The Project Manager will supervise field staff and will be the primary liaison with project partners for project planning, implementation, and capacity-building. \$78,000 x 31% FTE over 2 years and 6 months.
3. The Island Restoration Specialists (2 positions) will provide support in all planning and field activities, including mentoring and executing field-based activities alongside in-country partner staff. One position at \$64,000 x 61% FTE over 2 years and 6 months. Second position at \$64,000 x 31% FTE over 2 years.
4. Fringe benefits cover medical, dental, vision, and retirement benefits for employees. The fringe benefits rate, based on company records, is 27% of direct labor costs. 27% x \$95,100 (personnel subtotal) = \$25,677.
5. Airfare US to Palau round-trip. \$2,600 round trip x 10 trips = \$26,000
6. Transfers to and from international airport.
7. Car rental to acquire supplies & groceries, attend partner meetings, visit project site.
8. Food while in Koror for partner meetings and planning, groceries while staff are at project site and in the field.
9. Lodging in Koror. \$75/night x 14 nights = \$1,050
10. Rental house in Koror for use as a base for staff working in the field. \$250/week x 21 weeks = \$5,250
11. Cameras for detecting cats on island and demonstrating their absence. \$487/camera x 4 cameras = \$2,435
12. Lithium batteries for powering trail cameras over the life of the project. \$43 to power all cameras with batteries x 15 changes of batteries = \$645
13. Memory cards for recording cat activity on trail cameras. \$25/card x 8 cards = \$200.
14. Traps, hardware, lures and tools. Includes all specialist equipment for humanely catching and removing cats.
15. Sturdy field gear for field staff. \$100/backpack x 6 backpacks = \$600
16. Sturdy field footwear to traverse difficult terrain. \$120/pair of shoes x 6 pairs = \$720
17. High-powered air rifle, case, and accessories for the humane removal of feral cats.
18. High-quality scope for air rifle for precise and humane removals.
19. Contract for the analysis of camera trap data using artificial intelligence.
20. Local guiding service to orient staff and partners to Ulong island. \$65/day x 10 days = \$650
21. Printing materials for workshop, biosecurity information, project factsheets, and other communications products.
22. Cell phone SIM card and minutes to communicate with partners and coordinate logistics.
23. Shipping includes airfreight for all supplies and equipment USA to Palau.
24. NICRA rate is 26.39% (see attachment added to SF 424).

Priority Listing for Multiple Projects:

Not applicable.

Grant Recipient:

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First Time Applicants:

Not applicable.

ASAP ID number:

0604986

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