



The Invaders - Volume 6, Issue 1 Summer 2022

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About TWS Invasive Species Working Group

The Invasive Species Working Group (ISWG) is composed of scientists engaged in invasive species research and management. The goals of the ISWG are to:

1. Facilitate communication and the exchange of information among members of The Wildlife Society interested in invasive species management.

Local Volunteers Playing a Major Role in Invasive Snake Eradication

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The night of 4 September 2021 was remarkable for the Friends of Islan Dãno volunteers. Despite a rainy start to the night, by 8pm they already were in the process of capturing a second invasive brown treesnake on Islan Dãno (Cocos Island), an atoll islet just south of Guam, equaling their previous record with a couple of hours still left in the search. With the 6'4" specimen safely in the hands of 10-year-old Ma'ase De Oro, they couldn't quite believe it when they looked up and spotted *another* snake. Unfortunately, it was 35 feet up in the canopy of a gâgu (ironwood) tree and, despite having long telescoping poles on hand, it was just out of reach. A snake in the upper canopy had already avoided capture earlier in the night, and the group was not keen on losing another. Fortunately, they still had a few tricks up their sleeve.

Three volunteers began drumming on the massive tree trunk, using the vibrations to startle the snake (a classic snake-catching manoeuvre on Guam that, ideally, prompts the snake to descend). Meanwhile, Nathan Sablan and his *ñao* (brother-in-law) Josh Camacho took turns skillfully launching poles at the snake, eventually making contact. The snake, evidently sensing it was under assault, froze into a defensive strike position. And then, to everyone's amazement, a fâhang (black noddy, a native seabird) began dive-bombing the

2. Enhance knowledge and technical capabilities of wildlife professionals in the area of invasive species management.
3. Increase public awareness and understanding of invasive species management issues and decision-making processes.

Membership

To renew your ISWG membership for only \$5/year, log in to the TWS member portal and click Membership. <https://wildlife.secure.force.com/customlogin>

Connect with TWS ISWG

Website:
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[TWS Invasive Species Working Group](#)

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snake, finally causing it to descend. It was knocked to the ground and captured, and the Friends of Dãno let out a collective cheer.

About a year earlier in August and September 2020, local fishers Rob Quintanilla, Tatiana Talavera, and Josh Aguon had spotted 5 snakes on two trips to Dãno, killing several of them. To be clear, there should not be snakes on Dãno: it is the gem in Guam's conservation crown, and home to Critically Endangered species such as the ko'ko' (Guam rail) and guali'ek halomtano (Mariana skink). It has the most diverse reptile community and some of the largest seabird populations in the entire Mariana Islands, and has long been considered a snake-free haven for native wildlife. Quintanilla and friends promptly reported their sightings to the Guam Department of Agriculture's Division of Aquatic and Wildlife Resources (DAWR), who in turn alerted the USGS Brown Tree Snake Rapid Response Team (RRT). RRT coordinator Patrick Barnhart found a snake on his team's first deployment to the island, and they quickly confirmed an incipient population. By January 2021, they had removed 28 snakes of all sizes from across Dãno.

Given how challenging brown treesnakes are to spot and capture, particularly in densely forested areas like Dãno, it was clear at this point that the road to eradicating snakes from the island, albeit only 33.6 ha in area, would be long and difficult. Long-time Guam residents Martin Kastner (a PhD student with Iowa State University's Ecology of Bird Loss project) and Olympia Terral (a research associate at University of Guam) independently contacted DAWR in January 2021 offering to assist with the snake searches. DAWR biologist Suzanne Medina put the two in touch and they immediately began working together to organize a volunteer group. Although there were several months of delays in obtaining permission to search on Dãno, they made the best of it by holding training events on Guam and launching an online fundraiser for boat services to Dãno. The enthusiasm of potential volunteers and the generosity of donors were more than enough to keep spirits high, and in late June 2021, Friends of Dãno were finally able to hold their first search on the island.



Snake-hunting volunteers, waiting for their boat with poles, hooks and broom handles in hand, have become regular fixtures among the (initially bemused) Saturday evening crowd at the Malesso' pier. To date, over 100 individual volunteers have joined the effort on Dãno, around a third of which have returned for multiple searches. Volunteers have ranged in age from young children to septuagenarians, and indeed the group's most faithful member is

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Submitting an Article to The Invaders

Our goal with The Invaders is to share interesting stories and recent findings in invasive species ecology, research, and management. If you have a story you would like to share, please email The Invaders editor Tessie Offner at Tessie.Offner@gmail.com

Invasive Species Working Group Meeting at TWS Annual Meeting

The Invasive Species Working Group will be hosting a symposium at the 29th Annual TWS Conference on November 9th 2022. This symposium will include talks on EDRR programs and strategies to disseminate information and ideas on this important topic.

74-year-old Malessos' legend Linda Tatreau. Opportunities for the public to engage in snake management on Guam have been virtually non-existent over the years, and many doubted whether volunteers, the majority of which have no previous snake-searching experience, would be capable of successfully finding snakes in a low-density population such as the one on Dãno. It is safe to say, therefore, that the Friends of Dãno volunteers have exceeded expectations in removing 15 hard-fought brown treesnakes from the island in 28 outings. Most importantly, however, they have demonstrated that there is great enthusiasm among Guam's communities to actively engage in invasive species removal and help restore native wildlife. Excitingly, there is already talk of expanding volunteer efforts toward snake control on the main island of Guam. Have Friends of Dãno helped usher in a new era of community-driven brown treesnake control?

The Parakeet Problem

C. Jane Anderson, Ph.D.

Assistant Professor of Research, Caesar Kleberg Wildlife Research Institute,
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Beautiful, cunning, and at times deadly, rose-ringed parakeets (*Psittacula krameri*) have been affectionately dubbed nature's mean girls.

In their native range of equatorial Asia and Africa, this species has long been an enemy of fruit and seed farmers. Clever and impervious to most mitigation attempts, flocks of rose-ringed parakeets can decimate fields in a matter of days. As this species has spread around the world over the past 75 years, their impacts have diversified along with their occupied habitats.

Although the climatic conditions of their native range are relatively consistent, rose-ringed parakeets have proven capable of establishing populations in tropical and temperate areas. They are one of the most popular bird species in the pet trade, which has led to (accidental and intentional) introductions as folks ship these birds from country to country. Today, there are invasive populations on every continent other than Antarctica.

Impacts of these invasive populations on native species are varied, but those most notable derive from their nesting behavior. Rose-ringed parakeets are secondary cavity nesters, using holes that naturally occur or stealing them from the animals that created them. They are remarkably aggressive in claiming and defending cavities, maiming or killing other species they perceive as a threat. In Spain, researchers documented the decline of a population of imperiled greater noctules (*Nyctalus lasiopterus*) as an invasive population of rose-ringed parakeets claimed cavities, both killing and tearing holes in the wings of the bats.

Session Title:

Early Detection and Rapid Response
in Invasive Species Management

Speakers and Topics:

EDRR in the Columbia River Basin:
20 Years of Lessons Learned
Theresa Thom
USFWS
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From Discovery to Present: A Look at
California's Progress Toward Nutria
Eradication
Valerie K. Cook
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Wildlife
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Early Detection & Rapid Response in
Action: Managing Invasive Species on
Alaska's Kenai Peninsula through
Partnership and Public Engagement
Katherine Schake
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Early Detection and Rapid Response
in Alaska; Finding Little Infestations
in a Big State
Gino Graziano
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New Zealand's wallaby problem: First
steps toward the eradication of an
invasive species.
Pete Caldwell
Boffa Miskell
Pete.Caldwell@boffamiskell.co.nz

Learn more about this year's in-person
conference at
<https://twconference.org/>

We hope to see you all there!

Reference Links

The Wildlife Society Homepage:
<https://wildlife.org/>

TWS Annual Conference:
<https://wildlife.org/network/conferences-network/>

TWS Working Groups:
<https://wildlife.org/network/tws-local/working-groups/>

Join TWS:
<https://wildlife.org/join/>



Rose-ringed parakeet eats papaya on Kauai, Hawaii
Photo credit: Martin Knott, Kipu Ranch Adventures

One of the traits believed to be responsible for the spread and survivorship of rose-ringed parakeets is their propensity to thrive in human-modified environments, namely urban and agricultural areas. Like their native range, rose-ringed parakeets in invaded habitats have become loathed agricultural pests. While formal economic assessments are limited, one estimate suggested they have caused over US \$1 million in losses on the island of Kauai, Hawaii, alone. Rose-ringed parakeets have been the cause of at least three bird strikes at London's Heathrow Airport. On Kauai, they congregate by the thousands to roost at night in urban areas. The massive piles of droppings damage property and, because they contain seeds, attract rodents.

Managers around the world are working to find sustainable and long-term tools to reduce rose-ringed parakeet populations, but outsmarting these shrewd adversaries is tricky; they are quick to learn where danger lies and alter their behavior to avoid it. To date, there have been two successful eradications of invasive rose-ringed parakeet populations – the first on the island of Mahé in the Seychelles and the second on La Palma Biosphere Reserve in the Canary Islands. In the Seychelles, managers removed 545 rose-ringed parakeets over three years using shotguns along flight lines. In the Canary Islands, 175 parakeets were removed predominately through trapping, with the final 34 individuals killed by air rifle. In both cases, success was attributed to rapid response to relatively small populations, consistent multi-year efforts, and public support.



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While managers are working to share success stories and incorporate one another's findings, there appears to be no silver bullet in managing this pest. Their behaviors vary regionally, making it difficult to predict what will work in each area. Mist nets have been successfully used to capture rose-ringed parakeets in Belgium and Britain, but the parakeets aptly avoided them in the Seychelles and Rome. While trapping was successful in the Canary Islands - as well as other efforts in Pakistan, Spain, and Italy - a year-long effort to trap parakeets on Kauai was deemed an abject failure. Chemical control such as toxicants or contraceptive may be a viable tool in many places, however, will require mechanisms to deliver chemicals to the parakeets while excluding native species. Further complicating this option, rose-ringed parakeets are quick to eat from bird feeders in much of their range and fervently avoid them in other places.



Rose-ringed parakeet flock over cornfield in Kauai, Hawaii
Photo credit: Jane Anderson, Texas A&M University-Kingsville

Beyond the biological and logistical challenges, rose-ringed parakeets have a further advantage in avoiding management: people love them. Their bright green plumage, intellect, impressive flight patterns and diversity of calls collectively attribute to their popularity in the pet trade; some reports suggest captive rose-ringed parakeets can be taught over 100 words. This affection towards the species extends to wild populations as well; in many places, locals welcome the addition of this novel tropical bird. In London's Kensington Garden, visitors regularly hand-feed the parakeets. Public affection for the parrots makes work difficult for managers to control this very-visible species. Restaurants and resorts on Kauai have refused property access to government-funded parakeet hunters, concerned about the optics to bird-loving tourists. Culling programs have been shut down in the UK and Spain due to animal rights activists.

As one of the most rapidly spreading species on the planet, rose-ringed parakeets and their associated problems show no signs of slowing anytime soon. Advancing technologies and coordinated communication among managers will hopefully help develop and share new ideas. In the meantime, we remain outwitted by this impressive invader.

Wallaby Management: A Collaborative Approach to Protecting New Zealand's Indigenous and Production Environments

Pete Caldwell
Biosecurity Consultant
Associate Principal

Introduced for hunting and fur around 1870, without natural predators wallabies have flourished to near plague proportions eating their way through New Zealand's iconic native forests and high-country landscapes, impacting its indigenous biodiversity, and environmental, agricultural, economic, and socio-cultural values.

If allowed to spread from current known populations in the North and South Islands (containment areas) wallabies could cover one third of the country over the next 50 years and cost New Zealanders \$84 million each year in lost farm production and ecosystem services.

In 2020 the National Wallaby Eradication Programme (NWEPE) was launched to help stop the spread of wallabies and to protect New Zealand's native and production environments via a collaborative national partnership of regional councils, iwi, central government, farmers, and landowners, under Biosecurity New Zealand's leadership.

Eradication is the long-term aspirational goal that will take time, and not all the tools for eradication are available just yet, but they will come. Thus, with large numbers of pest wallabies inhabiting vast, challenging environments, operationally the first stage focuses on bringing wallabies back within containment.

Right now, control methods are tailored to situations, for example using baits and toxins in areas with large populations, and dog and gun teams in low population, open country areas. Infra-red, thermal, drone, sound-modified, and other technologies all support wallaby surveillance, detection, and control, together with detector dogs, helicopters, and public reporting of sightings.

This operational work sits alongside a significant research programme into better wallaby controls using traditional western, indigenous Mātauranga Māori, and social science approaches. Trials of new 'double-tap' wallaby control toxins and deer repellent baits, as well as new surveillance tools are underway. More will follow.

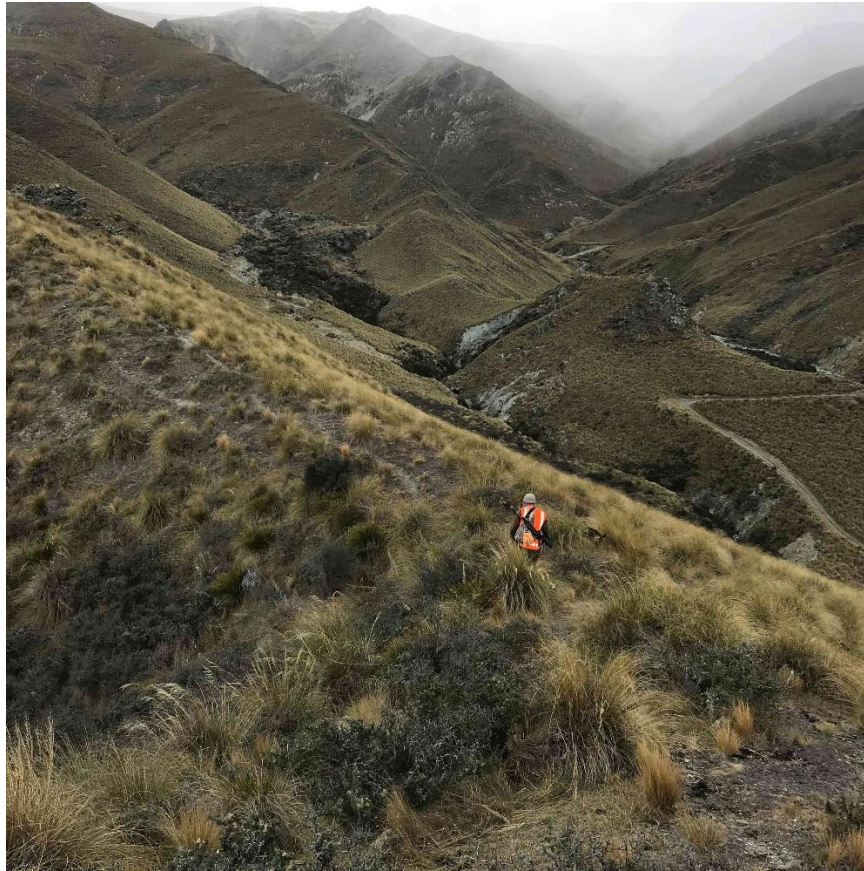
Once reined in, the focus will be on wallaby populations within the containment areas.

Wallabies prevent native forest regeneration by eating the young plants, changing its ecology, water quality and ability to support indigenous flora and fauna, including our iconic native birds. They eat and foul pasture and

production forests, damage fences, and compete for livestock food. Their removal is another step in helping protect and preserve New Zealand's unique environments.

Learn more about Controlling Wallabies in New Zealand at [Ministry for Primary Industries](#)

Wallabies and their impacts in the Canterbury <https://youtu.be/INKw0EKcyj0> and Bay of Plenty <https://youtu.be/GM0IOvEt0UI> regions of New Zealand



Invasive Pike Eradication on the Kenai Peninsula

Ben Wishnek
US Fish and Wildlife Service
Alaska Region Invasive Species Program

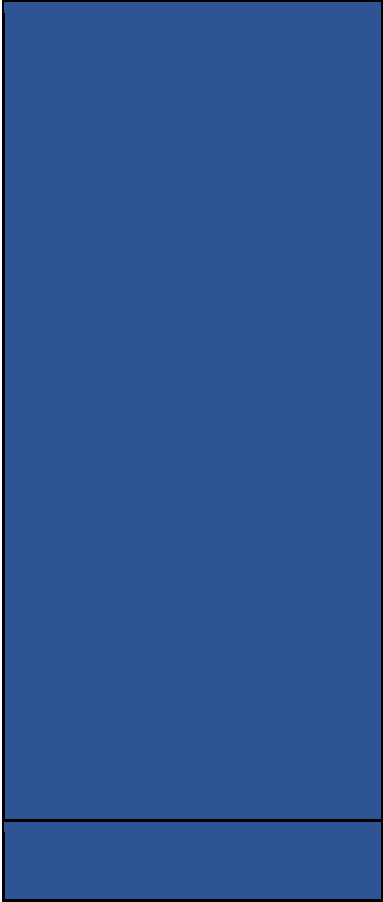
Southcentral Alaska's waters are renowned for their abundance of salmon that both drive ecosystem processes, support Alaska Native cultures, and valuable recreational and commercial fishing activities. The Miller Creek Watershed (MCW) on the northern end of the Kenai Peninsula (peninsula) supported both salmon runs and other native fisheries that were healthy until Northern pike (pike) were detected in 2019 in Vogel Lake at the top of the watershed. Northern pike are native north of the Alaska Range but were introduced to many places south of the Alaska Range where they prey upon native fish species like salmon. The MCW is relatively small and includes a few lakes and

the 4 miles of Miller Creek connecting Vogel Lake and Cook Inlet. Despite the small size of the MCW watershed, eradication of Northern pike from this watershed was important because it was the last waterbody on the peninsula still infested by Northern pikes. Between 2008 and 2018, Northern pike had been eradicated from five areas on the peninsula by Alaska Department of Fish and Game (ADF&G). Completing this eradication in the early stages of invasion was necessary to prevent further spread of Northern pike into adjacent watersheds.

The MCW covers multiple jurisdictional boundaries with Federal (Kenai National Wildlife Refuge), State, and Local government and private ownership despite being in a relatively remote area of the peninsula. A project team consisting of ADF&G, US Fish and Wildlife Service (Service) from three offices, and Kenai Watershed Forum (KWF), a local non-profit began meeting in 2019 to formulate a plan to eradicate Northern pike and restore the native fish community to the MCW. After multiple meetings and going through the NEPA Environmental Assessment process, a course of action consisting of native fish rescue, rotenone application, and native fish reintroduction was chosen for implementation.



The project team worked on preparation of logistics throughout summer 2021, which was not an easy task, as all of the materials had to be flown in via float



plane due to the remote location of the site. Native fish rescue and rotenone application were scheduled for the last week of September and first week of October. A week prior to initiation of field work, Service team members had to unexpectedly withdraw from project participation due to concerns over rising COVID numbers and capacity of local medical facilities to absorb any more patients. Luckily, ADF&G and KWF were still able to conduct field work and obtain backup assistance from another local partner, Cook Inlet Aquaculture Association. A total of 833 native fish, mostly rainbow trout and coho salmon, were captured and placed into holding in a pond outside of the treatment area. Treatment commenced after the native fish were captured. The project team treated a total of 225 acres of lakes, stream and wetland combined in the project area via boat, backpack sprayer, helicopter, and drip station.

Water quality monitoring throughout the winter has shown the rotenone to have completely degraded. Gill nets were placed under the ice to fish all winter to ensure that no pike are left in the treatment area. The project team will collect the gill nets immediately after ice-out, and if no pike are captured, begin to formulate plans to reintroduce native fish. Vogel Lake and the MCW had a robust native fish population before pike arrived. We are looking forward to seeing that fish community return soon for the benefit of the watershed.



Edited by Tessie Offner

ISWG is a working group of The Wildlife Society that promotes the control, mitigation, and prevention of invasive species' introduction to improve natural resources for wildlife.