

**PUU O HOKU RANCH / PIIHOLO RANCH / HALEAKALA RANCH
SAFE HARBOR AGREEMENT
ANNUAL REPORT**

JULY 1, 2019 – JUNE 30, 2020

MOLOKAI:

PUU O HOKU RANCH:

SIGHTINGS:

Weekly observations and monitoring were accomplished by state personnel throughout the year on Puu O Hoku Ranch. This past year a total of twenty-three (23) total birds were sighted on Molokai, which includes twenty-two (22) banded birds and one (1) unbanded bird. An island-wide nene survey was conducted on September 19, 2019, twelve (12) banded birds were recorded. Calculations from banded birds observed and recorded produced an estimated population of twenty-three (23) birds at Puu O Hoku Ranch.

NESTING:

Two (2) nests were located in the open-top release pen at Puu O Hoku Ranch. One (1) nest was successful, and one (1) nest was depredated by a mongoose. One (1) gosling successfully fledged the pen.

Nēnē Nesting Summary for 2019-2020 Breeding Season at Puu O Hoku Ranch, Molokai

Total Number of Nests	
Located in open-top pen	2
Successful	1
Abandoned	0
Depredated	1
Failed (other reason)	0
Renests	0
Total Number of Eggs	
Known	5
Depredated	2
Abandoned	0
Salvaged	2
Hatched	1
Total Number of Goslings/Fledglings	
Known goslings	1
Goslings depredated	0
Goslings died	0

BANDING:

One (1) gosling was banded in the Puu O Hoku Ranch open-top release pen before fledging.

PEN MAINTENANCE:

The fences and watering units were checked and maintained monthly. Forty (40) feet of electric fence line was replaced this year. A five (5) foot section of damaged fence was repaired, and one hundred (100) feet of iron roof paneling was replaced. A damaged portion of the inner dividing fence was removed. Waterlines and water troughs were checked weekly.

HABITAT MANAGEMENT:

A half-acre (0.5) of alien vegetation (lantana and haole koa) was removed from the pen. Thirty (30) acres were mowed this year by DOFAW staff to maintain short grass habitat for nene. Ranch personnel mowed an additional eight hundred (800) acres within the ranch.

TRAPPING:

Sixteen (16) live traps are baited and checked regularly at the pen. A total of forty-four (44) mongoose were removed this year through predator trapping.

Traps Deployed and Predators Removed during 2019-2020 at Puu O Hoku Ranch, Molokai

Predator Type Removed	Trap Type
	Tomahawk Live Trap (16)
Cats	0
Dogs	0
Mongoose	44
Rats	0
Mice	0

DEATHS:

There were no deaths this year at Puu O Hoku Ranch.

MAUI:**PIIHOLO RANCH:****SIGHTINGS:**

Observations of banded and unbanded birds were recorded at Pi'iholo Ranch to monitor movements, distribution, and survival of nēnē. This year twenty-seven (27) banded birds were sighted at the ranch. Twenty-six (26) were wild Maui nēnē, and one (1) was from

the original Olinda released birds. An island-wide annual nene survey was conducted on August 28, 2019. During this survey, no birds were seen at Pi'iholo Ranch. The population for the ranch is estimated at 31 birds. However, these birds only frequent the pen during certain times of the year and are also seen throughout the entire island of Maui.

NESTING:

During nesting season, records were kept on mated pairs and the gravid levels of females found at the ranch. Nests found on the ranch were marked using GPS and checked weekly to determine their status. Nesting activities, nest outcomes, hatching, and fledgling success were recorded for the nesting season.

Fifteen (15) nests, which included six (6) renests, were located within the Piiholo Ranch open-top release pen this year. Five (5) of these nests successfully hatched eight (8) goslings. Six (6) goslings died before fledging, including three (3) from unknown causes and three (3) from inclement weather factors. Two (2) nēnē fledged from Pi'iholo Ranch open-top release pen this season.

Nēnē Nesting Summary for 2019-2020 Breeding Season at Piiholo Ranch, Maui

Total Number of Nests	
Located in open-top pen	15
Successful	5
Abandoned	10
Depredated	0
Failed (other reason)	0
Renests	6
Total Number of Eggs	
Known	41
Destroyed naturally (parent stepped on)	1
Depredated	0
Abandoned (later scavenged)	23
Rats	23
Salvaged	9
Hatched	8
Total Number of Goslings/Fledglings	
Known goslings	8
Goslings depredated	0
Goslings died (weather)	3
Goslings died (unknown cause, bodies not found)	3
Fledglings fledged from pen	2

BANDING:

Two (2) fledglings were banded in the pen.

PEN MAINTENANCE:

The open-top pen’s fence line was continuously checked and maintained throughout the year. Five (5) holes along ten (10) feet of fence were repaired. A new electric fence unit was installed this year. A two-foot perimeter along the fence line for a total of six (6) acres was weedeated around the pen. Repairs were done to a broken water line in the pen. The pond and automatic waterers were cleaned and maintained weekly.

HABITAT MANAGMENT:

Short grass habitat was maintained at the open-top release pen. The one (1) acre open-top pen was mowed once a week and the area around the outside of the pen was maintained as needed. Approximately, thirty-seven (36.75) acres were mowed this year to maintain nēnē short grass habitat. In addition, four (4) acres of fireweed were removed from the pen.

TRAPPING:

Predator traps are used to control rats, mongoose, feral cats, and dogs that may pose a threat to nēnē and their nesting sites. Year-round traplines were baited and checked at Pi’iholo Ranch using Tomahawk live traps (30), Sherman traps (30), and A24s (10).

This year at Pi’iholo Ranch, fifty-three (53) mongoose, seven (7) rats, two (2) mice were removed through predator trapping. No avian predators were controlled this season on the ranch.

Traps Deployed and Predators Removed during 2019-2020 at Piihola Ranch

Predator Type Removed	Trap Type		
	Tomahawk Live Trap (30)	Sherman Trap (30)	A24 Traps (10)
Cats	0	0	0
Dogs	0	0	0
Mongoosees	50	0	3
Rats	0	0	2
Mice	0	2	5

DEATHS:

The only nēnē deaths that occurred this season at Pi’iholo Ranch were of six goslings. Three (3) gosling deaths were attributed to inclement weather factors and three (3) deaths were from unknown factors.

HALEAKALA RANCH:

SIGHTINGS:

Haleakala Ranch was continuously surveyed and birds observed were recorded. Thirty-seven (37) banded birds were recorded this season at the pen. Of these, twenty-seven (27) were wild Maui birds, one (1) was an original Olinda released bird, eight (8) were Kauai translocated birds, and one (1) was a Big Island translocated bird from 2013. During the August 2019 survey, four (4) nene were seen. The population for the ranch is estimated at 57 birds. However, these birds only frequent the pen during certain times of the year and are also seen throughout the entire island of Maui.

NESTING:

Nine (9) nests were found on Haleakala Ranch this season with eight (8) inside the pen and one (1) outside the pen. Six (6) nests were successful this season, which produced twelve (12) goslings. Of the three (3) unsuccessful nests, two (2) were abandoned by the parents. The other unsuccessful nest was located outside of the pen and was depredated by mongoose. A total of ten (10) goslings fledged from Haleakala Ranch open-top release pen.

Nēnē Nesting Summary for 2019-2020 Breeding Season at Haleakala Ranch, Maui

Total Number of Nests	
Located in open-top pen	8
Located outside open-top pen (on Ranch)	1
Successful	6
Abandoned	2
Depredated	1
Failed (other reason)	0
Renests	0
Total Number of Eggs	
Known	23
Destroyed naturally	0
Depredated	1
Mongoose	1
Abandoned (later scavenged)	8
Rats	8
Salvaged	2
Hatched	12
Total Number of Goslings/Fledglings	
Known goslings	12
Goslings depredated	0
Goslings died (drowned)	1
Goslings died (unknown reason, body scavenged in lines with avian predators)	1
Fledglings fledged from pen (credited for mitigation)	10

BANDING:

No birds were banded this year.

ROAD MAINTENANCE:

Due to erosion from storms, five hundred feet of road leading up to the open-top pen was repaired by backfilling with dirt and rocks.

PEN MAINTENANCE:

The fence line and electric fence were checked monthly and repaired as needed. A total of eight (8) feet of fence was repaired along the pen. A new electric fence unit was installed this year. The entire fence line was weeded each month for a total of one thousand two hundred (1,200) feet for the year. Two (2) acres along the pen’s boundary fence was treated this year, and an additional two (2) acres along the inner fence line was sprayed with herbicide for weed control. The water unit was checked and maintained monthly. The water catchment was repaired after being damaged by high winds. The pond was cleaned and flushed twice a month, and the automatic waters were cleaned and maintained weekly.

HABITAT MANAGEMENT:

Approximately, thirty-five (34.75) acres were mowed in and around the pen to maintain short grass habitat. An additional eight and a quarter (8.25) acres of alien vegetation, including lantana, guava, tomato, fireweed, and glycine, were removed from the pen.

TRAPPING:

Predator trapping occurs year-round at Haleakala Ranch open-top release pen with thirty-three (33) Tomahawk live traps and eight (8) A24s traps. Six (6) mongoose and one (1) mouse were removed from the pen through predator trapping this year. No cats or cat sign have ever seen at the ranch. Rats may likely be more abundant and wild dogs have been seen on the ranch, but not specifically near the pen.

Traps Deployed and Predators Removed during 2019-2020 at Haleakalā Ranch, Maui

Predator Type Removed	Trap Type		
	Tomahawk Live Trap (33)	Sherman Trap (0)	A24 Traps (8)
Cats	0	0	0
Dogs	0	0	0
Mongoose	6	0	0
Rats	0	0	0
Mice	0	0	1

RELOCATIONS:

No relocations occurred this year.

DEATHS:

Two (2) nene goslings died this year at the pen. This included one (1) gosling that drowned in the water trough and one (1) gosling that was found dead and scavenged by an avian predator.