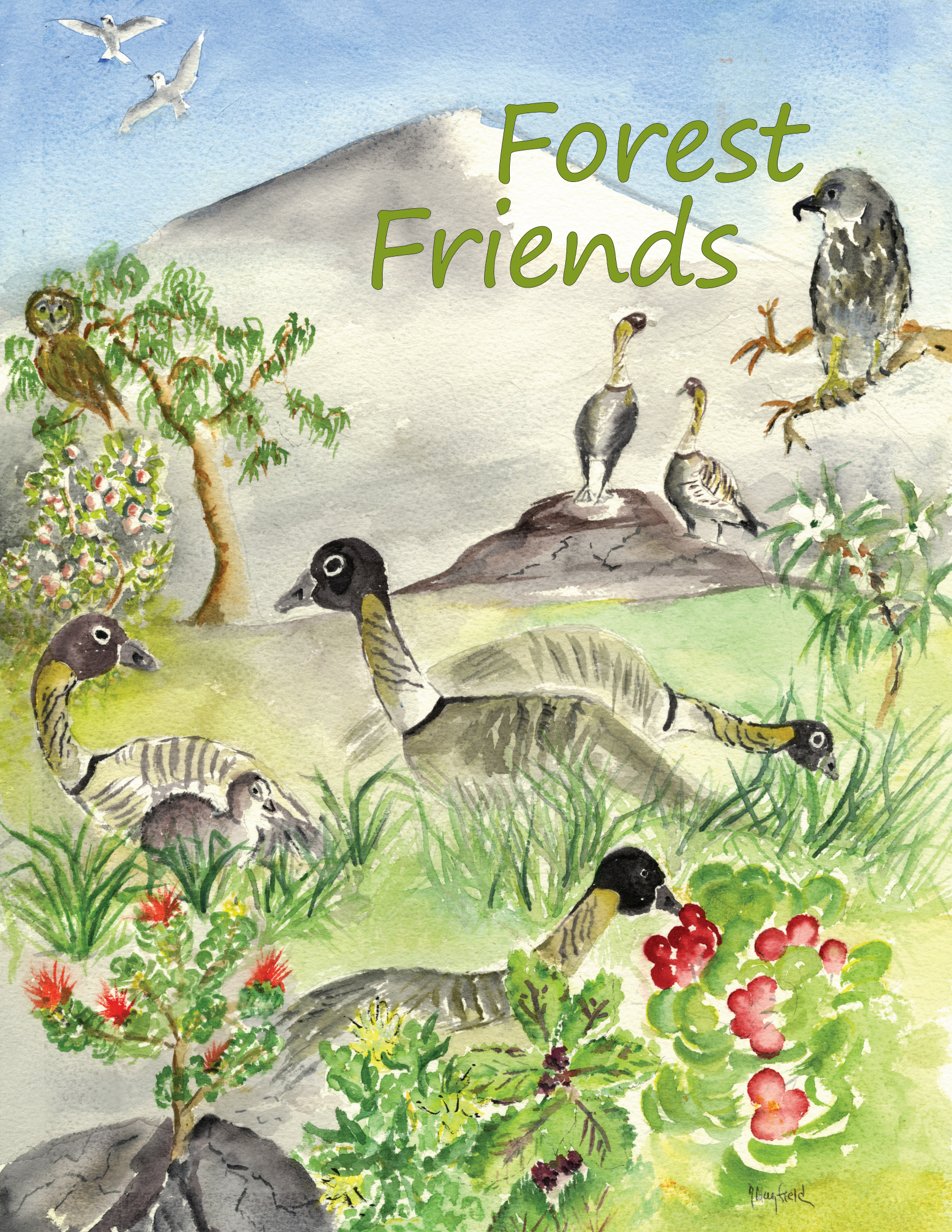

Forest
Friends

Kupuna (our elders) teach us that we are all *ʻohana* (family)-- trees of the forest, plants of the seashore, and all critters that live on our islands, including us humans. And as humans, we have a responsibility to care for our *ʻohana*.

Hawaiʻi's location in the middle of the ocean makes our plants and animals more special. Each one evolved to uniquely adapt to its environment and created microenvironments on which other species depend. This interdependence between species and their small area of habitat makes them vulnerable.

Some of our native plants and animals need more help from us humans than others. Many are endangered or have disappeared in recent times

What are native plants and animals you ask?

Well, natives are species that live in a specific area without the help of humans. They started existence a really long time ago, maybe thousands or millions of years ago and became unique to a specific place. in Hawaiʻi, most got here by wind or wave before the ancient Polynesians arrived in their voyaging canoes.

There are two kinds of native species: endemic and indigenous.

Endemic species are found only in one place in the world. They could live on all our islands or in only one valley on one of our islands and adapted to living only in one isolated location, like our islands. Endemic species are unique to one place.

Indigenous species are found in more places throughout the world but have adapted special characteristics for each location they find themselves in. They are more adaptable and can live in a variety of places at the same time. Indigenous species are unique to several places.

In Hawaiʻi we have another category of native species called Canoe Plants and Animals brought here by ancient Polynesians. Although these introduced and cultivated plants are not truly endemic or indigenous, they are important to our culture.

Let's meet some of our native birds and their friends.

ʻIʻiwi

Scarlet Hawaiian Honeycreeper

- I'm mostly scarlet, with black wings and tail and a long, curved, salmon-colored beak.
- I live in the mesic (moderately moist) and wet forest canopy where *ʻōhiʻa lehua* blossoms (my favorite food) are plentiful. I often fly long distances in search of *ʻōhiʻa lehua*.
- My long, curved beak evolved over many generations so I can better sip nectar from tubular flowers and pollinate them. It's part of what makes me unique.
- Hawaiians used my feathers to make traditional *ʻahuʻula* (capes) worn by the *aliʻi* (royalty)*, mahiole* (helmets), *nā lei hulu* (feather leis), and god-images.
- I'm a threatened species because of a warming climate, avian malaria carried by mosquitoes, predators and the Rapid ʻŌhiʻa Death tree fungus that's damaging my favorite food, *ʻōhiʻa lehua.*

- I’m smaller and darker red than my friend Ikaika the *ʻIʻiwi*, with a shorter black beak and cool white feathers under my tail and on my lower stomach that I like to show off.
- Like *ʻIʻiwi,* I live on all the big main islands in canopies of *ʻōhiʻa* trees, drinking nectar from the flowers and pollinating them, and my feathers were sometimes also used by Hawaiians.
- I have a tubular, brush-tipped tongue well-suited for slurping up nectar and in addition to *ōhiʻa lehua*, I like to sip from *māmane, koa, koki'o ke'oke'o, 'ōlapa* and other native flowers.
- I’m becoming more common in low-elevation forests again, a hopeful sign that like another friend *ʻAmakihi* (another Hawaiʻi honeycreeper), I might be developing a resistance to mosquito-borne diseases.

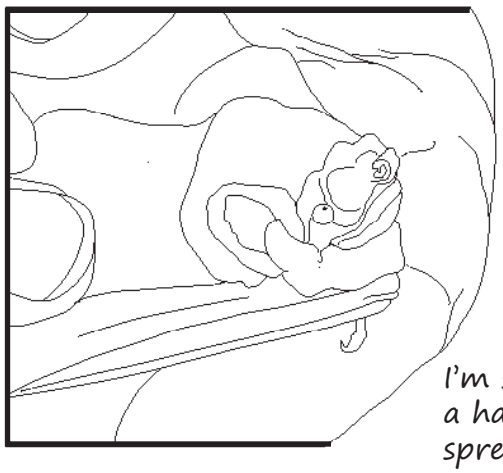
ʻApapane

Hawaiian Honeycreeper

Pueo

Hawaiian Short Eared Owl

- I'm endangered on O'ahu and my population is thought to be declining.
- You can tell me from a Barn Owl by my piercing yellow eyes, round face ringed with white, black beak, small ears, longer wings and tail, and I'm active during the day unlike most owls.
- I live in variety of habitats on all Main Hawaiian Islands, including wet and dry forests but am usually found in open areas like grasslands up to 8,000 ft., and higher.
- My brown and white feathers were prized and used to make *kāhili (*feather standards) for Hawaiian *ali'i* (royalty).
- Hawaiians considered me an *'aumākua* (ancestral guardian/protector) especially skilled in battle and thought of as the ultimate protector .
- Visit my friend *Makamai* who came from Kauai with a damaged eye and now lives at the Honolulu Zoo.
- There's still a lot that is not known about me, and the University of Hawai'i's Pueo Project is coming to my aid. Citizen scientists can help me by going to **pueoproject.com/.**



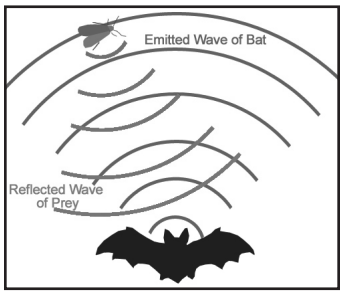
ʻŌpeʻapeʻa

Hawaiian Hoary Bat

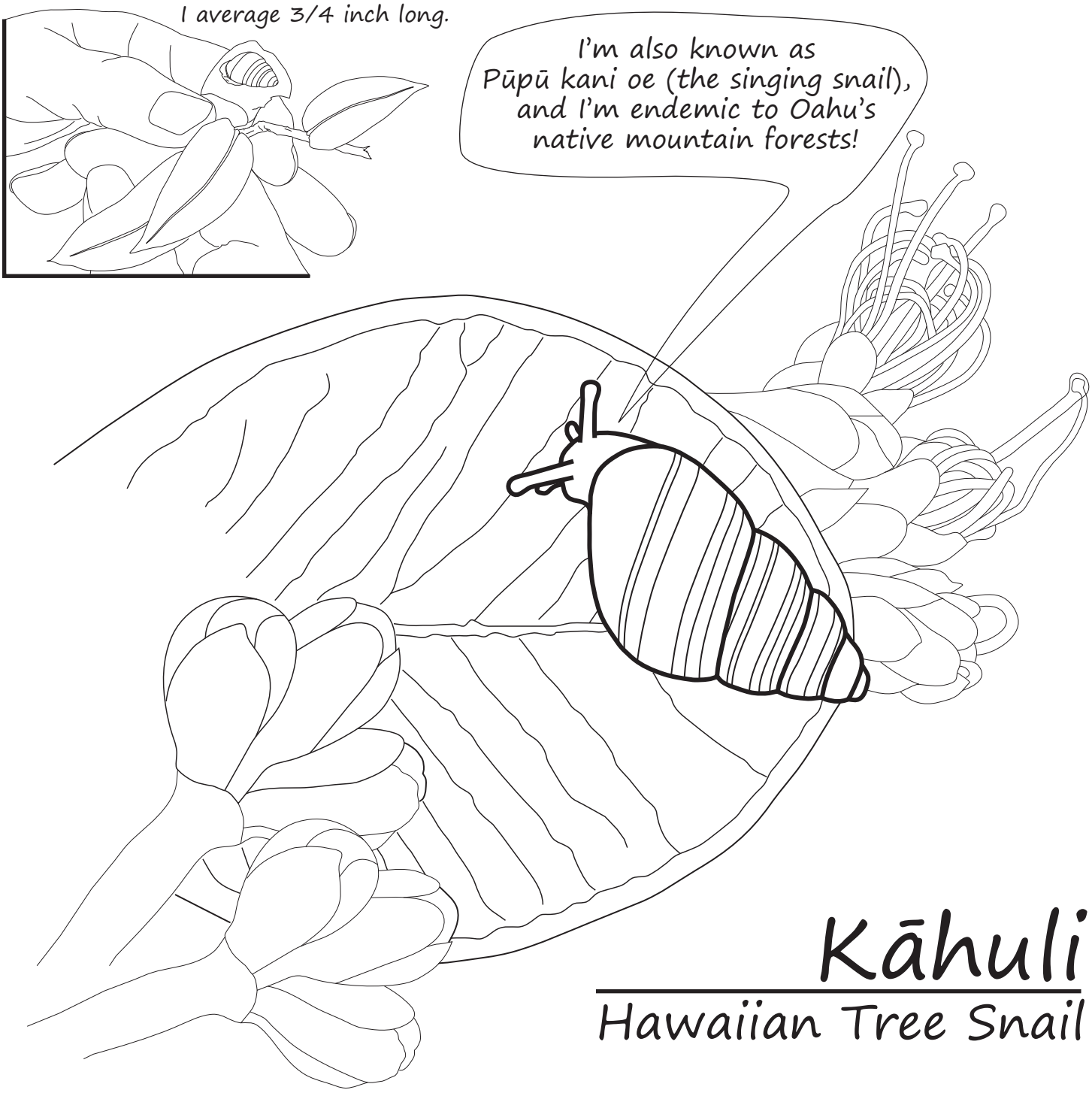
I'm so small I fit in the palm of a hand, but when I fly my wings spread 13.5 inches wide

I'm ʻŌpeʻapeʻa, the Official Land Mammal of Hawaiʻi and only native land mammal.

Echolocation



- About 10,000 years ago I flew on a long adventure, started a new life here, and developed into a unique endemic species.
- My adventurous flight, probably from being blown off course by strong winds migrating in California, was 2,200 miles and would have taken four days and nights of of non stop flying traveling at 30mph to get here.
- I eat moths, beetles, termites and other bugs and live in forest trees.
- I fly at night and use sound waves and echoes to determine where objects are in space to catch my food. Very high tech!
- In 1981 scientists discovered a cousin bat that came at a different time, but my species is the only one left and is endangered.



Kāhuli

Hawaiian Tree Snail

- Scientists put my 41 Hawaiian species in the genus Achatinella, and all are endangered.
- My cousins and I are small but have important jobs for forest ecology. We increase nutrients in forest litter and feed on fungus and algae that grow on leaves.
- It takes 3-5 years to be a grown up, and I live 10 years.
- Plenty mele and hula talk about my singing, although actually it was my tiny cricket friends singing. I'm so small they didn't see me.
- I like to sleep inside my shell during the day to conserve moisture.
- I'm very colorful and my colors can vary even within the same valley. My shells were called tree jewels and in the old days were made into *lei.*
- Not very much is known about me so the Snail Extinction Prevention Program and the Honolulu Zoo are studying snails to find out more. dlnr.hawaii.gov/ecosystems/hip/sep/

• I am also very tiny, less than ¼ inch in length and live on the underside of leaves in forests from 1,000 to 6,000 feet.

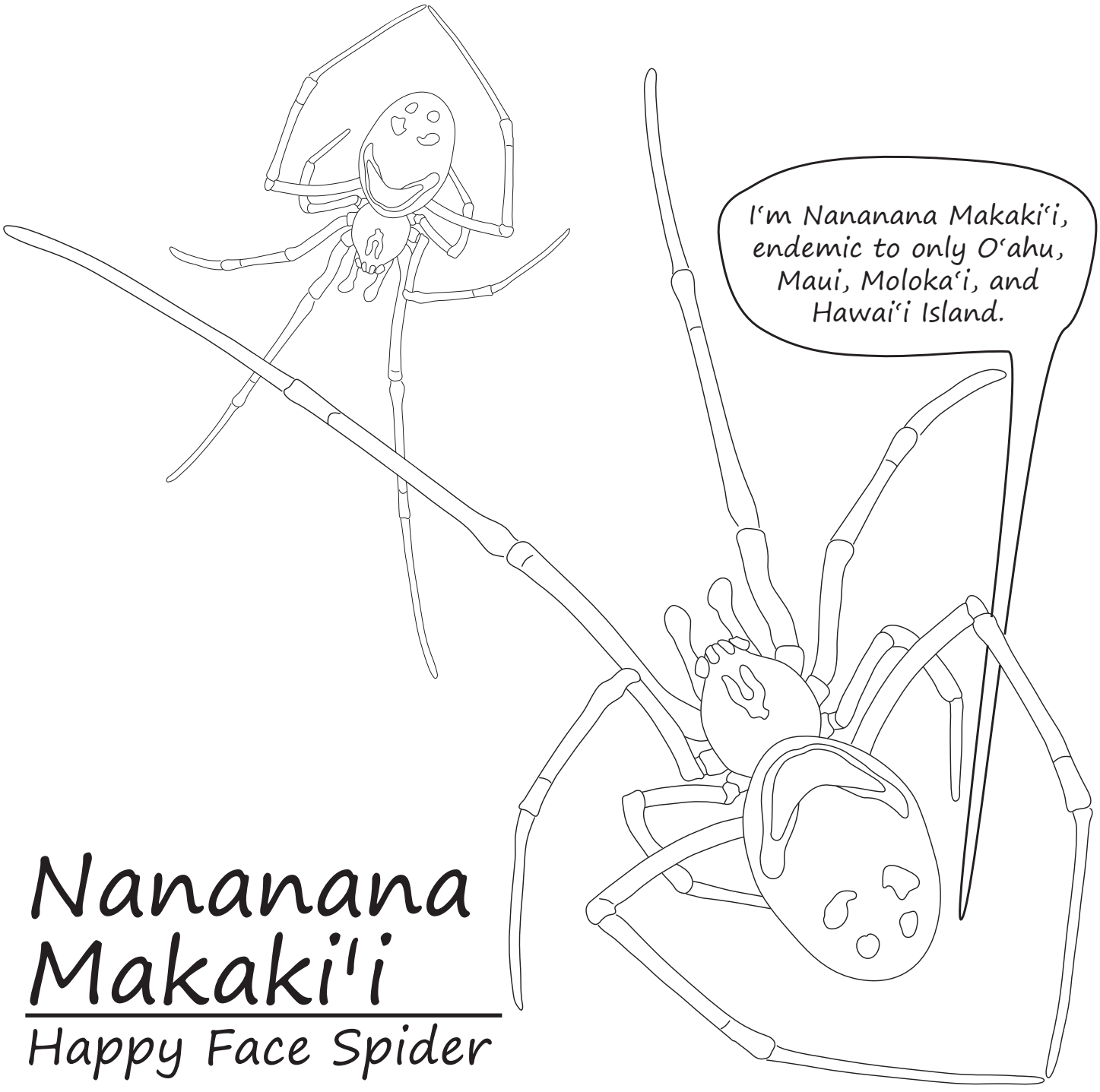
• My body is yellow with decorative red smiling marks and two pairs of dots that resemble two eyes with eyebrows. We're not sure why they're there, but they are fun to see.

• I'm not poisonous to humans, nor am I prone to bite.

• I live on and blend in to the bottom of leaves, and unlike many other spiders, I don't use webs but detect prey through vibrations transmitted through the leaf.

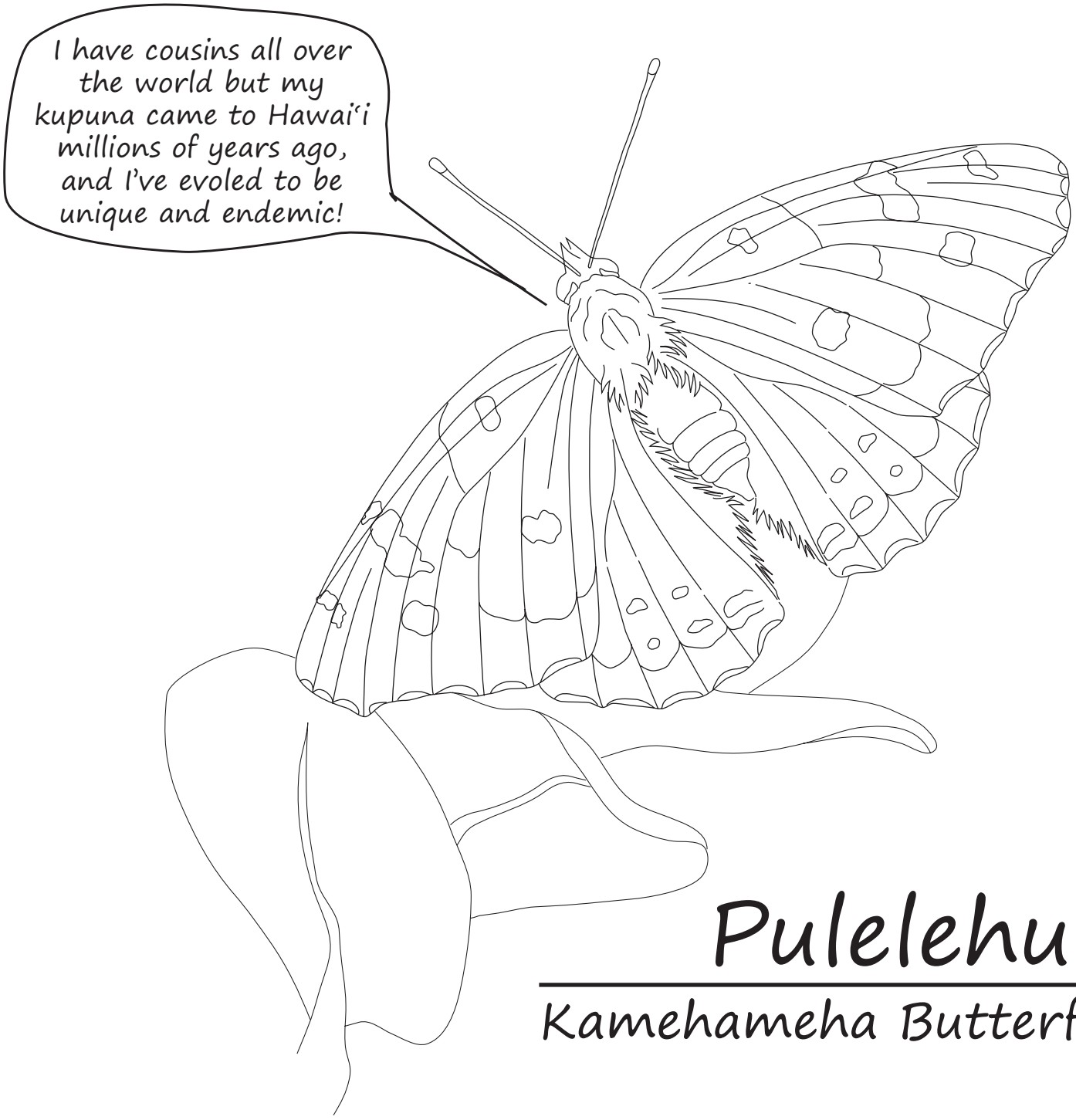
• Scientists have discovered that genes controlling my color pattern are unique to each island, and sometimes to specific valleys, making us important subjects for studying the evolution of species.

• Our population is rapidly decreasing, and we may soon become endangered. So, scientific study of us is really important.



Nananana Makaki'i

Happy Face Spider

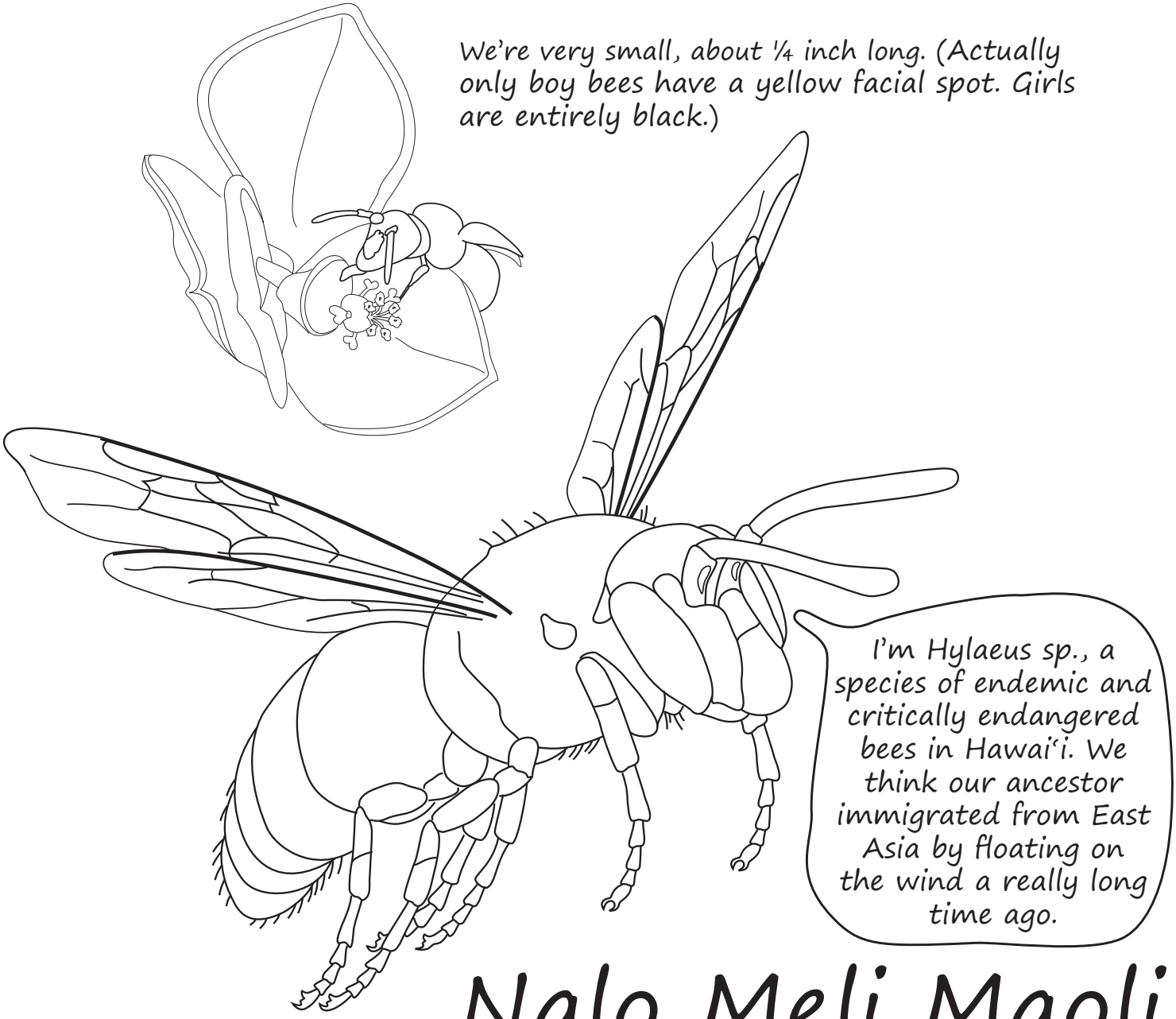


Pulelehua

Kamehameha Butterfly

- I'm the official Hawai'i State Insect, thanks to the efforts of students from Pearl Ridge Elementary School in 2009.
- I'm one of only two native Hawaiian butterflies.
- I start life as a tiny (less than 1/16 inch) egg on a leaf and grow into a caterpillar. Sometimes I wrap myself in a leaf to hide during the day. Then, I spend time in a very clever chrysalis (a hard exoskeleton covering that looks like a dead leaf) and hang from a twig. My chrysalis protects me while I metamorphize into an adult. In about 45 days, I emerge as a beautiful butterfly.
- My habitat is getting smaller, and now I live in high-elevation forests away from people and predators. I particularly like to hang out with Hawai'i's native nettles, especially *māmaki.*
- The Pulelehua Project is reestablishing habitat for me and raising generations of new Pulelehua to release. So far it looks like this is a difficult task. The Honolulu Zoo is helping. You can too. cms.ctahr.hawaii.edu/pulelehua/

- We are the most important native ecosystem pollinators but not much is known about us.
- We sip nectar and transfer pollen from flower to flower pollinating trees in the process.
- We're unique, because we carry the pollen back to our nests in a special part of our stomach.
- We tend to be solitary fliers and hard to find as we've developed many localized species with unique characteristics in habitats from the coast to above 10,000 feet.
- In the 1800's we were very common and studied a lot. Then we were ignored until 1999.
- In 2013 there were a lot fewer of us. We're happy a new species was found in the Waianae Mountains but sad that the largest O'ahu population, at Ka'ena Point, appears to have completely disappeared.
- We need your help to survive. Although we can live in areas of with lots of people, we face problems like climate change, the severe drought ongoing since 2010, invasive species like naio thrips (insects that destroy the naio plant), and ants. Nine of our 63 species have not been spotted in 80 years.

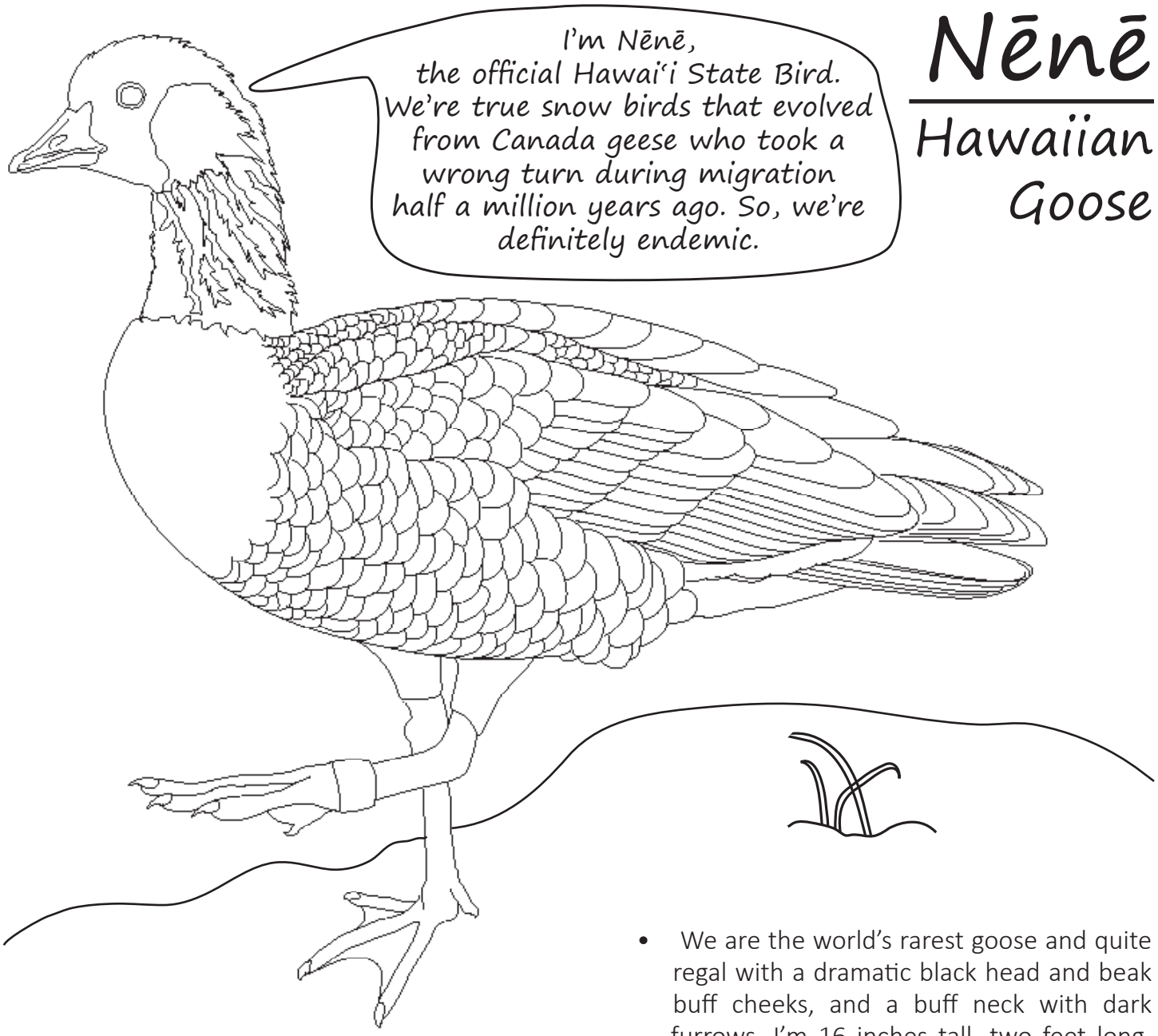


Nalo Meli Maoli

Hawaiian Yellow-faced Bee

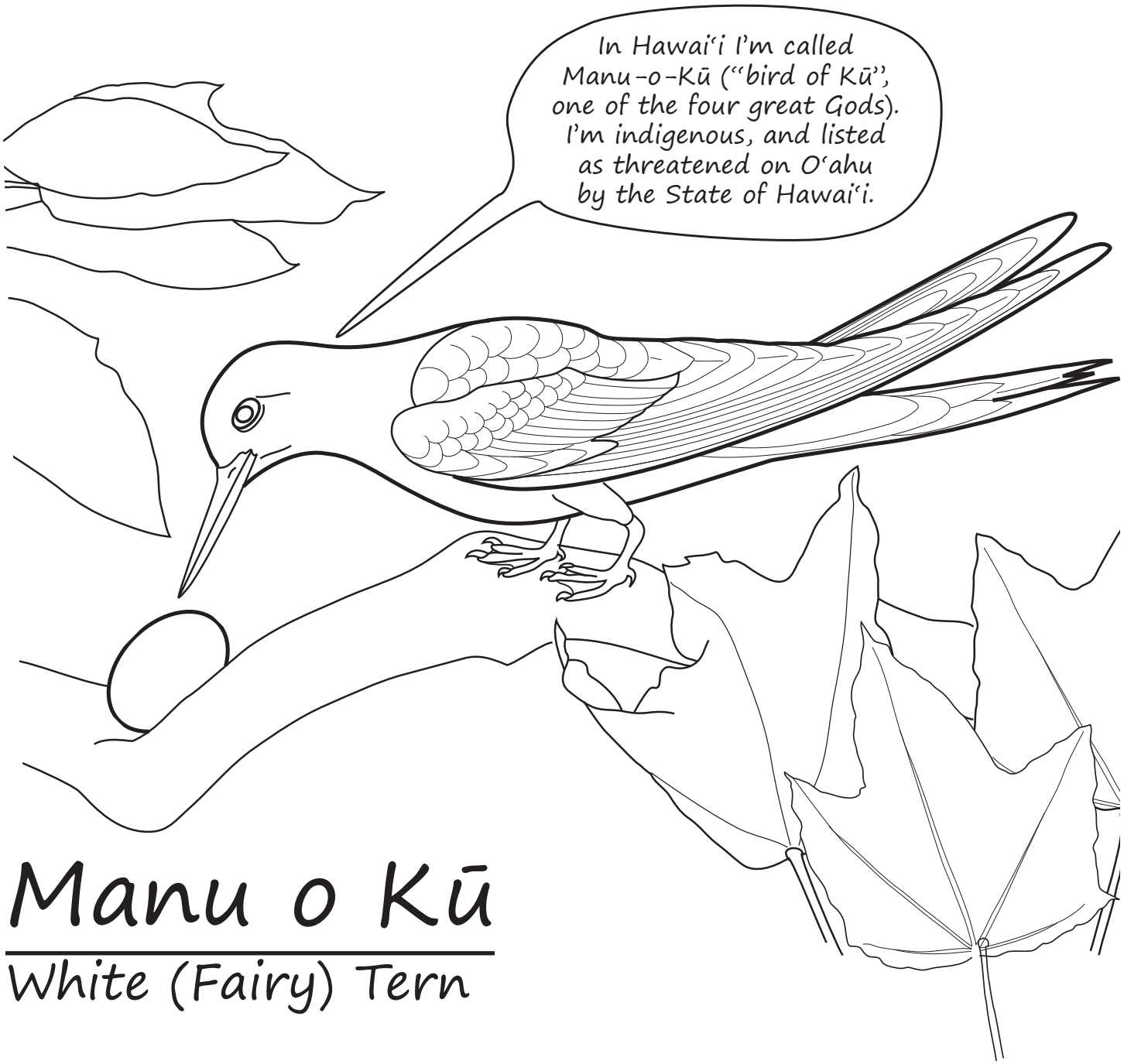
Nēnē

Hawaiian Goose



- We are the world's rarest goose and quite regal with a dramatic black head and beak buff cheeks, and a buff neck with dark furrows. I'm 16 inches tall, two feet long, and weigh 3.5 to 6.5 pounds.
- We are homebodies and not migratory. We can fly but do not often fly between islands and spend most of our time waddling around on the ground. Our feet evolved to be not completely webbed like other geese and have longer toes and extra padding to help us walk on lava fields.
- Before Europeans arrived in the 1770s our population was about 25,000. By the mid-1900s, only about 30 of us were left, all on Hawai'i Island. In the 1950s, conservation programs in Hawai'i and at the Wildfowl and Wetlands Trust Nature Reserve in Slimbridge, England successfully bred Nēnē in captivity. wwt.org.uk/ There are still Hawaiian geese in England today.
- Since we've been reintroduced into the wild, we frequent sparsely vegetated areas from sea level to 8,000 feet. We especially like golf courses and pastures, where fresh grass is abundant and still nest on the slopes of volcanoes, often beneath shrubs surrounded by barren lava.
- Reintroducing us to natural habitats has been difficult, but our population is now 2,500 and growing.
- After 51 years on the endangered species list, we are no longer in immediate danger of extinction. Among other organizations, the Honolulu Zoo continues to breed Nēnē. A success story! honoluluzoo.org/animals/hawaiian-goose-nene/

- I was a traditional wayfinder for Polynesian voyagers of ancient times, because I fly out to sea in the morning hunting as far as 120 miles from shore before returning to land in the afternoon.
- I'm the Official City and County of Honolulu Bird! My home is the entire county including O'ahu and the Northwestern Hawaiian Islands. I breed throughout the county but not on other main islands.
- I am most elegant with immaculate all-white feathers and a black beak with blue at the base. My legs are blue to blackish with yellow webs between my toes. My small eyes are surrounded by black rings making them appear larger. I'm 11-13 inches long with a wingspan of around two feet when flying.
- I lay a single egg on any suitable depression generally on tree branches without constructing a nest. Sometimes you can see me with my keiki in the trees in Waikīkī and the Honolulu Zoo.
- I am a great fisher spotting prey before diving headlong toward the water, seizing my targets in my beak, and carrying them back to my chick. When breeding, we return to feed our chick every day. When not breeding, we may travel for weeks over thousands of miles of ocean.
- Hui Manu o Kū is dedicated to observing, protecting and raising awareness of us. Check out their Nest Maps and the Manu o Ku festival. whiteterns.org/



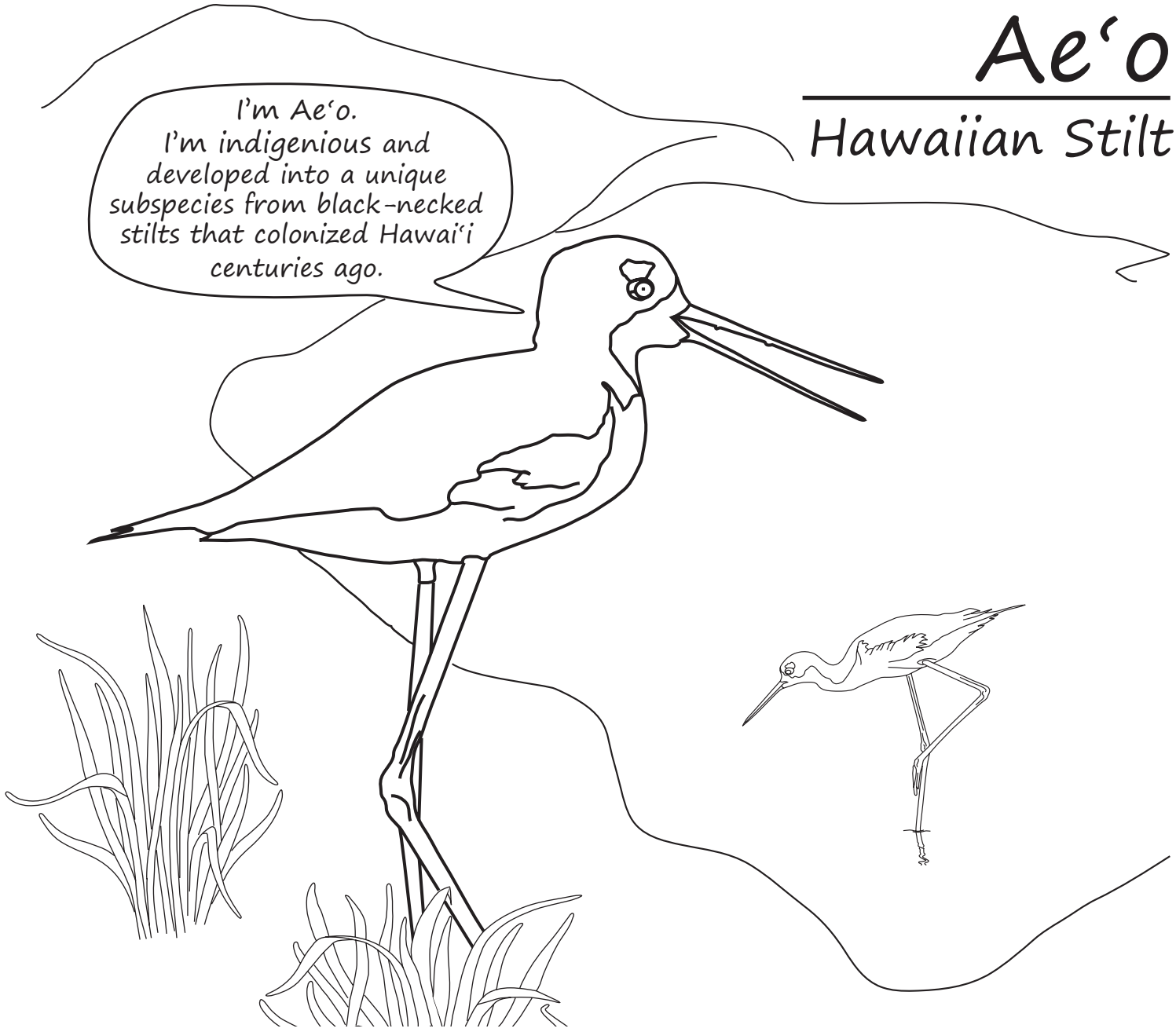
Manu o Kū

White (Fairy) Tern

- I'm called a Hawaiian Stilt because my long legs make me look like I'm walking on stilts – like a clown.
- I'm perfectly adapted to ponds and wetlands with water about 9" deep. I especially like to hang out in wet taro fields. My long legs help me navigate the shifting wetlands and can bend backward to bring my body closer to the water for fishing. My long, slender beak and long, flexible neck are perfect for probing muddy waters for aquatic invertebrates like worms or small crabs, or for having a go at small fish.
- I fly from island to island and live on all main islands except Lana'i and Kaho'olawe, below 500 feet.
- I'm endangered due to illegal hunting, habitat loss, environmental contaminants, and introduced predators like feral cats, rats, mongoose, and bullfrogs.
- We're 16 inches tall with a wingspan of 28 inches. Our black back and white forehead with white fronts, long pink legs, long black beak and red eyes with a variable white dot above make us look sort of comical, like we're wearing little tuxedos.
- Our population declined to about 300 by the 1940s and is about 1,500 today. When our population reaches 2,000 for three consecutive years, U.S. Fish and Wildlife Service will consider reclassifying us from endangered to threatened.

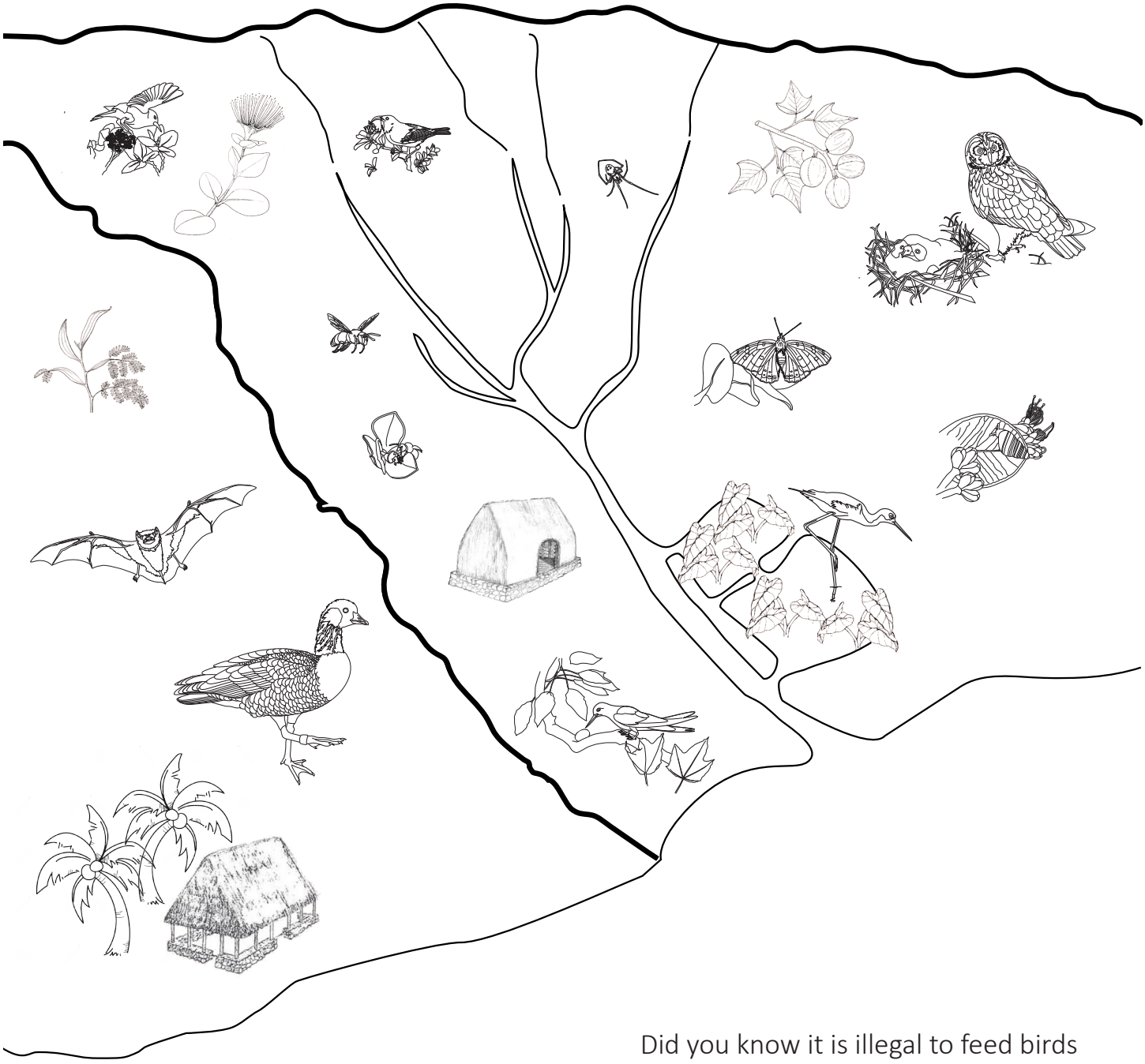
Ae'o

Hawaiian Stilt



from mauka to makai (mountain to ocean) we're all friends

Can you remember our names?



Did you know it is illegal to feed birds
and illegal to hunt or shoot endangered birds
all over Hawaii?

The Hawai`i Forest Institute (HFI) created this coloring book for the enjoyment of children and adults and to raise awareness about the diversity of native animals and habitat in Hawai`i. It is our sincere hope that readers/users of the coloring book will also gain an appreciation of the need to protect these precious creatures. We would like to express our gratitude for the support of the City & County of Honolulu Department of Community Services which funded this effort through their Grants-in-Aid program, as well as our partners the Honolulu Zoo and the Honolulu Zoo Society. Lastly, we would like to thank Diana Tusher for her tireless efforts in creating these beautiful illustrations and researching the fascinating facts presented alongside the illustrations.

Mark Kimura, National Park Service, Haleakalā, nps.gov/hale/learn/kidsyouth/birds-of-summit-district.htm

ʻIʻiwi
Scarlet Hawaiian Honeycreeper
Vestiaria coccinea

Alan Britten

ʻApapane
Hawaiian honeycreeper
Himatione sanguinea

Forest & Kim Starr starrenvironmental.com

Pueo
Hawaiian Short Eared-Owl
Asio flammeus sandwichensis

Forest & Kim Starr starrenvironmental.com

Keiki Pueo
Hawaiian Short Eared-Owl
Asio flammeus sandwichensis

Forest & Kim Starr via Flickr

ʻŌpeʻapeʻa
Hoary Bat
Lasiurus cinereus semotus

David Sischo, Snail Extinction Prevention Program, Division of Forestry and Wildlife, DLNR, Hawai'i, dlnr.hawaii.gov/ecosystems/hip/sep/

Kāhuli
Hawaiian Tree Snail
Achatinella sp.

spideridentifications.com/happy-face.html

Nananana Makakiʻi
Hawaiian Happy Face Spider
Theridion grallator

Forest & Kim Starr starrenvironmental.com

Pulelehua
Kamehameha Butterfly
Vanessa tameamea

Steve Buchanan, Hylaeus spp., fs.fed.us/wildflowers/pollinators/pollinator-of-the-month/yellow-faced-bee.shtml

Nalo Meli Maoli
Hawaiian Yellow-faced Bee
Hylaeus sp.

Jörg Hempel, en.wikipedia.org/wiki/Nene_(bird)#/media/File:Branta_sandvicensis_LC399.jpg

Nēnē
Hawaiian goose
Branta sandvicensis

Duncan Wright, en.wikipedia.org/wiki/White_tern#/media/File:White_tern_with_fish.jpg

Manu o Kū
Common (Fairy) Tern
Gygis alba

Public Domain, commons.wikimedia.org/wiki/File:Black-necked_Stilt.jpg

Ae'o
Hawaiian Stilt
Himantopus mexicanus knudseni

Cover Illustration: Watercolor of Hawaiʻi Forest Birds by Gerald Mayfield

Note: Drawings are generally from a combination of sources. If not, the source is shown on this page. Additional small drawings are based on National Park Service and Hawai'i Department of Land and Natural Reosourses/USWFS Natural Resource Conservation sources. *Mahalo* ā *nui kākou* (thank you) for making information avaialble to the general public.