



"E Lanalana E" Dietrich Varez

LISTEN INTO THE FOREST

"The forest is crying out. We need to listen. . . I don't just mean the beautiful sounds of the birds and the wind in the 'ōhi'a but the message the old Hawaiians who lived close to the earth can still hear and remember." - Eddie Kamae

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A Film by Eddie & Myrna Kamae

produced under the non-profit fiscal sponsorship of
The Asian/Pacific Foundation of Hawai'i

RESOURCE UNIT

A Flexible Curriculum Guide
covering concepts in

Hawaiian Studies • Guidance and Values Clarification
Environmental Education • Science
Language Arts • Music • Art

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INTRODUCTION

I grew up in the city of Honolulu. Though I would sometimes spend summers in Lahaina, I never really knew the rest of Hawai'i. I mostly wanted to be a musician. In a strange way it was music that led me to the forest.

When I finally started out in search of old Hawaiian songs, this took me to the outer islands and the back country. The people who knew the songs I wanted to hear were old-timers still living close to nature. As they taught me the words and melodies they also taught me to remember many things my ancestors used to know.

*Thanks to these old-timers, these kūpuna, I started listening to something else. Underneath the wind in the 'ōhi'a trees and the beautiful call of the 'i'iwi bird, I began to hear again the rhythms of the earth. Before long I was working on this film that we now call *Listen to the Forest*. It is a film I hope to share with everyone, but especially I want to share it with the young people, because they are the future.*

Aloha pumehana,



Eddie Kamae

ABOUT THE FILM

The film, *Listen to the Forest*, tells us about the disappearing world of Hawai'i's forests through the recollections, words, and songs of those who remember and celebrate the natural environment of these special islands. Each section of the film takes us to visit a different elder, healer, scientist, or tiny forest creature who teaches us about the concept of *mālama 'āina*--to take care of the earth that provides us with a home and spiritual nourishment.

INTRODUCTION

The film begins with the formation of the earth and the Hawaiian islands and tells how plants and animals might have come to Hawai'i.

HULA

Kumu hula Pualani Kanahale asks permission to enter the forest and take what is needed for her dancers to use as they perform. Kanahale tells of her feelings for the forest. She explains how respect for the plants and gratitude for what the earth gives us are part of the dancers' ritual of making their leis and returning them to the forest.

HAWAIIAN MEDICINE

Kahuna lā'au lapa'au Henry Auwae speaks of the traditional ways of gathering Hawaiian medicine and of his respect for the forest that provides us with plants for healing. Beatrice Krauss shows us how to use simple, natural tools to extract traditional Hawaiian medicine from a common plant.

THE HAWAIIAN HAPPY-FACE SPIDER

Following a delightful hula by young students of Kumu hula Johnny Lum Ho's hālau, we become part of the discovery of a "real Kama'āina"--the Hawaiian Happy-Face Spider. Conservation biologist Steven Montgomery and Naturalist William Mull tell the story of this tiny appealing creature with the help of students from Mountain View Elementary school.

THE HAWAIIAN TREE SNAIL

Hirini Melbourne, a scholar from New Zealand, speaks of the singing snails of Hawai'i and Aotearoa (New Zealand). Melbourne and scientist Dr. Michael Hadfield tell about these colorful creatures and how their plight relates to the fragile balance of life in the forest. The story of the song of the snails is also presented in hula by the youthful students of Kumu hula Johnny Lum Ho's hālau.

NATIVE HAWAIIAN BIRDS

Beautiful descriptions of Hawaiian birds, taken from a 140-year-old book, introduce us to the bright, colorful world of birds and flowers that were plentiful in Hawaiian forests a century ago. Eddie Kamae, Malia Craver, and William Kuwalu relate stories and songs that make this disappearing world come alive once again. Kumu hula Johnny Lum Ho's students end this section with a lively number.

KALO (TARO)

Pualani Kanahale, Rubellite Kawena Johnson, and Ruth Kaholoaa tell us about the importance of taro, a staple food of the Hawaiian people which is also a symbol of their strong tie to the land that supports them and gives them nourishment.

CONCLUSION

Pualani Kanahale summarizes the message of the film by telling us how all the things that we see, hear, and touch are important to support the continuation of our own lives. She challenges all who live and work in Hawai'i to be sensitive to the creatures and plants around us. Eddie Kamae, Henry Auwae, David Ka'alakea, and Kanahale leave us with thoughts and messages about our vital and fragile relationship to the earth. An ancient chant by Ke'āulumoku ends the film with an eloquent plea that he hears from the trees themselves.

HOW TO USE THIS RESOURCE UNIT

The lessons in this Resource Unit can be presented in the order listed in the table of contents, one per period, or one each week; or individual lessons can be selected and used independently. All lessons develop one or more of the concepts in the film *Listen to the Forest*.

Each individual lesson consists of a cover sheet with a quote from the film and space for student writing, followed by activity sheets with information and directions. These sheets are designed to be duplicated and distributed to students. Activities can be discussed by the entire class, reviewed in small groups, or undertaken as individual assignments.

LESSON FLEXIBILITY

- Each lesson is an independent unit that can be used separately or with other lessons.
- Units can be used at random or in sequence according to teacher and classroom needs.

ADAPTATION FOR GRADE LEVELS

- Lessons are written for grades 4-6, but can be adapted for younger or older students.
- For younger students, the teacher may need to review questions and examples prior to activities.
- Older students may be encouraged to do independent work that expands on lesson concepts.

CLASSROOM AND CURRICULUM NEEDS

- Independent Work
Lesson sheets are designed to be duplicated and handed out to students as a classroom or homework assignment.
Review and discussion of the material prior to independent work may be helpful.
- Small Groups
To promote peer interaction and cooperative learning, organize students into small groups.
Have each group make a report or present a team project to the class.
- Class Projects
To encourage sharing and participation, lessons may be discussed by the entire class.
Group murals, skits or other projects may be substituted for individual art or writing.
- Language Arts is stressed in every lesson as a basic skill essential to all learning.
- Science and Art complement each other. Art projects enable students to become more sensitive to scientific observation of critical details essential to the study of living things.
- Culture and Values are central to the message of the film and the content of most lessons.
Values are presented as choices with logical consequences, not as right or wrong answers.

VALUES

- Open-Ended Questions
There is no right answer to many of the questions, although some answers may be more appropriate.
Each student is encouraged to respond according to personal experience and conviction.
- Individual Choice
Free choice is essential to the development of personal values.
Discussing options and consequences can help students make choices that are right for them.

Finding the Forest

Defining forests and their importance to the environment



"MAMA, WHAT'S A FOREST?..."

"A forest is _____

This lesson is helpful to prepare for viewing the film, but can also be undertaken after viewing.

What is a forest?

What does a forest look like? How is a forest different from a beach? A desert? A swamp? In the space below, write your answers to the above questions.

The parts of a typical forest

There are at least three canopies or layers of trees and other plants in a typical forest. The unique characteristics of the trees and plants that make up these canopies and layers are pictured and described below:



1. Canopy

Tall trees with thick interlocking branches and leaves create the upper canopy. This canopy shades and protects the plants below.

2. Sub Canopy

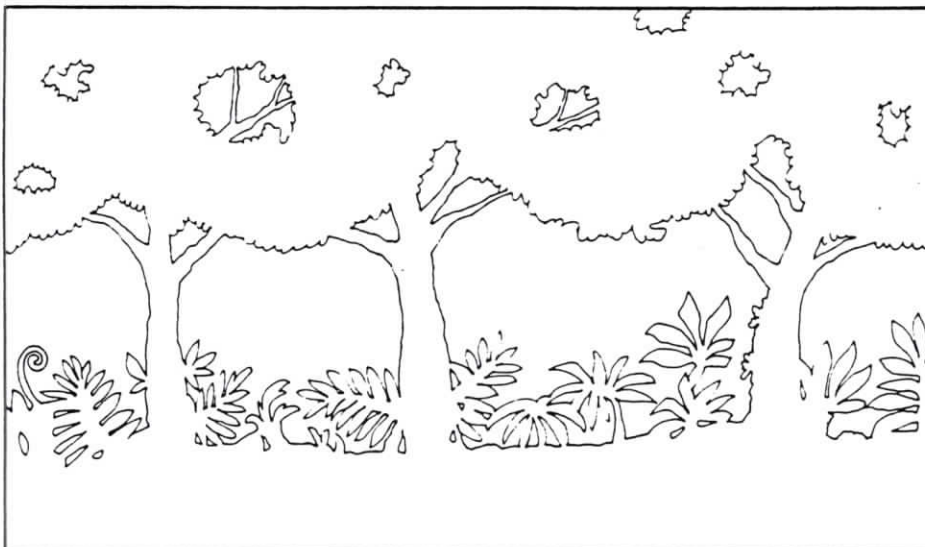
Small trees, saplings, vines, and tree ferns that like to live in the shade make up a sub canopy. These plants live under the tall trees.

3. Ground Cover

Herbs, mosses, and lower ferns make up the ground cover of a forest. These plants thrive in the deep shade and protection of the layers above.

Creating a forest diagram

Study the pictures and information above and use what you have learned to draw in the details of the layers of trees and plants to complete the diagram of the forest below.



1. Canopy

Draw in the interlocking branches of the canopy.

2. Sub Canopy

Draw in the tree ferns and other sub canopy plants.

3. Ground Cover

Draw in the ground cover of herbs, mosses, and ferns.

Hawaiian forests

Long ago, all of the islands in the Hawaiian chain were covered with forests. The information below will help you to better understand the special nature and status of a Hawaiian forest:

- The only tropical rainforests in our nation's 50 states are found in Hawai'i.
- Hawai'i is home to over 10,000 life forms that are found nowhere else on earth.
- Scientists estimate that there are more than 5,000 species of insects and other tiny creatures in Hawai'i that are yet to be discovered.

Where have all the forests gone?

The arrival of the Polynesians, Europeans, and other people to Hawai'i has caused a drastic decrease in the numbers of native Hawaiian plants and animals. People have cleared land for housing, ranching, and farming and have introduced alien plants and animals which escaped into the Hawaiian environment. The information below documents some of the alarming results of certain human activities:

- Nearly two-thirds of Hawai'i's original forests are gone.
- Hawai'i has only one-fifth of one percent of the land area of the United States, yet nearly 75% of documented plant and bird extinctions are from Hawai'i.
- Of the 209 plants on the U.S. endangered species list, 18% are found only in Hawai'i.
- Within the next two years, 152 more plants found only in Hawai'i are expected to be added to the U. S. Endangered Species list due to their rarity and needs for protection.
- Of all the birds that are currently endangered in North America, 40% are from Hawai'i.
- Hawai'i was the home of 140 species of native birds. Seventy species are now extinct and 30 species are endangered.

A forest is...

Using what you have learned about forests, write your answer to the question, "What is a forest?" under the cartoon on the first page of this lesson.

Searching the Film

Learning and retaining information

*"The Hawaiian word pūpū kani oe means 'whistling shell.'
A more poetic name is kāhuli which means to turn or to go
under, as to slide under a leaf."*

--Ka'upena Wong

"

"

--

This lesson is helpful to prepare students for viewing the film. For best results, students should review the material before viewing and complete the questions after viewing. Students should be encouraged to be attentive during viewing and to remember what they have seen and heard. Taking notes or using this lesson sheet during viewing time is not recommended.

SPECIAL NOTE: The last page of this lesson must be photocopied on two-sides.

Searching the film...

Listen to the Forest features many people, animals, and plants. How many can you remember? Review the items below before watching the film. Be alert during the film to find and remember answers. After the film, complete the information.

People

As you watch the film, you will be introduced to many people. Sometimes you will see their names written at the bottom of the screen. These people play important roles in telling the story of the film. Watch for them and remember who they are. On the line before each person's name, write the letter that best describes them.

- | | |
|------------------------------|---|
| ___ Eddie Kamae | a. Kumu hula (master of hula and chant) |
| ___ Pualani Kanahale | b. Hawaiian musician and filmmaker |
| ___ Steven Montgomery, Ph.D. | c. Ethnobotanist (studies native plants) |
| ___ Beatrice Krauss, Ph.D. | d. Conservation biologist (scientist who protects plants and animals) |

Animals

Tiny forest creatures play important roles in the film. Each one reminds us how all living things depend on each other. Draw lines to match the animals below with their correct descriptions.

- | | |
|-----------------------|---------------------------------------|
| The Happy-Face Spider | Native Hawaiian red bird |
| 'Iwi | Eight legs and sixteen knees |
| Hawaiian Tree Snail | Eats mold off the underside of leaves |

Plants

Plants give food and protection to the creatures of the forest. They also provide us with medicine, leis, and many other things that are important in our lives. Write the name of the correct plant in the blanks below to complete each sentence. Check the information on the next page of this lesson for clues that may help.

palapalai

'ōhi'a

'awapuhi

- Hula dancers weave and wear leis made from the _____ fern.
Shampoo and medicine can be made from the _____ plant.
Spiders can sometimes be found under the leaves of the _____ tree.

Hawaiian words

Write a brief poem or statement, using at least one of the Hawaiian words above or on the next page, under the quote by the narrator on the previous page of this lesson.

Hawaiian Flash Cards

Some of the words and speeches in the film are in Hawaiian. Printed below are *Listen to the Forest* Hawaiian flash cards. The meaning of each word is printed on the back of this page. Cut on the dotted lines below to make your own set of flash cards. You and a friend can make a game of asking each other the meaning and spelling of these words. Turn the cards over to check your answers.

'āina	'i'iwi
kama'āina	lā'au
huli	kāhuli
mālama 'āina	'ōhi'a
palapalai	pūpū kani oe
'atatane* ('apapane)	'amatihi* ('amakihi)

NOTE: Page must be photocopied on both sides.

a bird with a long curved bill,
orangy-red color, and black wings

land

plant, tree, forest or medicine

child of the land

to turn or go under
another name for tree snail

to turn
taro stalk used for planting

native tree

to take care of the land

a Hawaiian tree snail
which is believed to make
a high-pitched sound

same as palai
a fern

yellowish green bird with a
dark down-curved bill
*Older spoken and spelled form

bird with a red body and
black beak, legs, wings and tail
*Older spoken and spelled form

Listening

An exercise in concentration and creative writing

"The forest is crying out. We need to listen. I don't just mean the beautiful sounds of the birds and the wind in the 'ōhi'a but the message that the old Hawaiians who lived close to the earth can still hear and remember."

--Eddie Kamae

"

"

--

This lesson might be used to prepare students before viewing the film or could also be used as a follow-up activity.

Listen...

What do you hear? Listen deeper than the noises and sounds. Can you hear anything else?

Eddie Kamae hears a special message when he listens to the forest. He is listening not only with his ears but also with his mind and heart. You too can learn to listen that way.

Listening for more...

Turn off the television. Turn off the radio, the fans, and everything else that you can safely do without.

Listen for one minute. What do you hear?

Example:	The hum of the refrigerator	A car outside
	Television coming from a neighbor's house	The sound of my pencil on the paper

Write down everything you hear. Make *your own* list like the one above.

_____	_____
_____	_____
_____	_____
_____	_____

Listening with your mind

Use your mind to create a brief story about any of the things you have listed above. What is the story behind the sounds you hear and *think* you hear? Write the story on the back of this paper.

Example:	The car had just settled down for a quiet night when it heard the children and parents coming across the pavement. The family piled onto its seats once again asking, "Where to now?" The little car sighed, as it...
----------	---

Listening with your heart

Use your heart as well as your mind to create another story. Write how one or more of the things on your list *feels* or *makes you feel*. Write the story on a separate sheet of paper and attach it to this sheet.

Example:	The refrigerator was bored and very tired. Day after day it struggled and groaned trying to do its best to freeze and cool and...
----------	---

Listening for a message

Are any of the things you have heard sending you a special message? Read Eddie Kamae's quote about the forest on the previous page of this lesson. Write your own statement or poem below it.

Respect

Examining one's culture and values

"It's always nice to ask."

--Pualani Kanahele

"May we borrow your leaf, 'ōhi'a?"

--William P. Mull

Eia nō, eia nō, e palapalai
Here indeed is palapalai

He kia'i nō keia kumu lā'au nui.
A guardian for this large tree.

E pale aku, e pale mai, e kumu lā'au nui
Protect, protect (us), O large tree.

--Huihui Kanehele Mossman
Hawaiian hula dancer

"

"

--

A follow-up activity to undertake after viewing the film. Questions concern personal values and may be more appropriate for older students. There are no right or wrong answers; however, each decision and answer has its consequences. If the film is shown in two segments, this lesson could be used after viewing the first half of the film which includes hula.

Asking permission

Why is it nice to ask? Read the following stories and complete the sentence beginning with "May I." In the space at the end of each story, write what the other people involved might think or feel if the person did not ask permission.

It was the usual big family Christmas dinner. Everyone was sitting around the table stuffing their faces. I couldn't stand it! I wanted to leave and go out with my friends. I cleared my throat and said, "May I _____?" I knew that if I didn't ask permission they would think "_____."

I was walking home with Laurie. We were talking about all the fun we had at the big football game. Laurie said, "Come by my house and we can have some more laughs!" I wondered if my mom would mind. I could call her and ask, "May I _____?" Or I could just stay for a little while and mom wouldn't know, although she might "_____."

Asking permission from the forest

Using the same thinking process as above, fill in the blanks to complete the story below. This time, you are asking permission from the forest. To personalize your story, choose one of the words in parentheses and cross out the rest.

*I am a successful (**contractor**, ~~landscape architect~~, ~~engineer~~). I would like to build a (~~housing development~~, ~~tourist attraction~~, ~~road~~) that would benefit Hawai'i's economy, however, it will destroy miles of forest. I have been advised by the government of ways that I can repair some of the damage or pay for improvements to a nearby forest. This is called "mitigation." Someone whom I respect has also recommended that I ask permission from the forest before I start.*

Tomorrow, I will go to the forest and make my request. I am not accustomed to talking to a forest, but I will try to explain why I want to do this work. I will also promise to make up for any damage I might cause to the forest plants and creatures. I plan to say something like, "May I _____"

To show my gratitude for being allowed to use this forest area, I promise to _____"

Asking permission to take what we need

The examples below represent ways you could ask for permission to use things from a plant. Think of a request you might make to take and use something you need. Write your request in the space under the quotes on the first page of this lesson.

Examples: May I eat some of your mangoes?
May I look for snails on your leaves?

May we sit on your nice grassy lawn?
Could I take some of your flowers for my hair?

Discovery

Exploring the world around us

"It was up on Mt. Ka'ala, the highest point on O'ahu, that I found the first Happy-Face Spider. I could hardly believe it! I saw a smiling face down there--eye spots and a mouth. But everyone knows that spiders' eyes are on their head, not on their belly.

"After that, we found that they were on almost every island, even the smaller islands in Hawai'i. Haven't found them yet on Kaua'i, but we just have to look a little harder.

"There's a lot more out there for the young, curious naturalist to discover..."

--Steven Lee Montgomery, Ph.D.

"

"

--

If the film is shown in two segments, this lesson could be used after viewing the first half which includes the section that begins with the song *Look At Me* and tells about the Hawaiian Happy-Face Spider.

Scientific observation

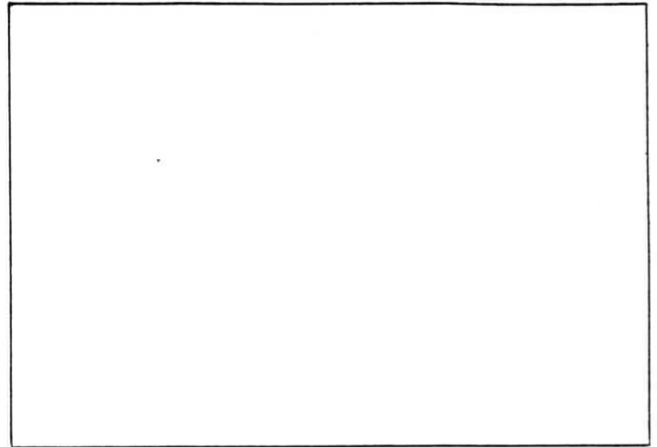
In order to find out more about the world we live in, scientists like Dr. Montgomery study nature in great detail. Dr. Montgomery recommends using a magnifying disk, magnifying glass, or film loop to help make accurate, detailed observations.

Logging your observation

Find an outdoor plant or small tree that you would like to observe. Sit comfortably in front of the subject you have chosen, far enough away so that you can easily see the entire plant or tree without moving your head up or down. Fill in the blanks below and sketch the overall shape of your subject in the area to the right.

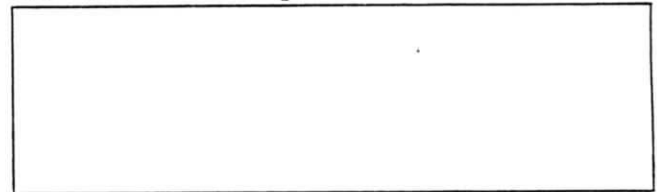
Location:

Approximate height: ____ ft. ____ inches
General description: Include color and shape of leaves, bark, stems, veins.



Closer examination

Using a magnifying lens, closely examine one part of the subject (a leaf, section of bark, flower petal, stamen). Draw what you see and write a description.



Research and documentation

Try to find out the name of the subject. It may be known by more than one name--a common name, a scientific name and perhaps even a nickname. 1) Ask people who live or work near the area. 2) Ask a gardener or someone who works with plants. 3) Look for a picture of the subject in books on plants. 4) Ask the librarian. Write the names and any other information you have gathered in the space below.

Write how you *feel* about what you have discovered, under the quote by Dr. Montgomery on the previous page of this lesson.

Creativity

Communication, personal expression and teamwork

"I saw those eyes looking back and the big lipstick coated mouth and wondered, what is this? What does it mean?"

--Steven Lee Montgomery, Ph.D.

"I wanted to get to know it better and share its story with everyone else."

--Eddie Kamae

*"I'm a spider. Look at me.
I'm Hawaiian as can be.
I'm a spider. Look at me.
I'm as happy as can be.*

*In the forest where I live,
There's aloha I can give.
All the secrets I can tell,
If you get to know me well."*

--Eddie and Myrna Kamae

This section is especially effective after learning the song *Nānā Mai (Look At Me)* which is featured in the film. If the film is shown in two segments, this lesson could be used after viewing the first section which tells about the Happy-Face Spider.

Serendipity

The word serendipity means "finding something that you were not looking for." Discoveries are often the result of serendipity. Dr. Montgomery was not aware of the importance of his discovery on the day he first noticed the Hawaiian Happy-Face Spider. Some of the notes in his scientific log for that day read:

"...Many special plants and small wildlife in this O'ahu dry forest which the State should preserve. Noticed a very colorful and strikingly marked spider with an amazing smile... Many other species..."

Working together

It was only after a great deal of observation and research that Dr. Montgomery's discovery and collection of the spider was identified as the species *Theridion grallator*. One of the scientists, Dr. Sam Gon, wrote a long, detailed paper called a dissertation on the newly rediscovered spider. Part of this dissertation tries to explain how each spider gets his distinctive "happy-face." Study Dr. Gon's "Spot Development and Fusion Patterns" to the left below. Use this information to create different "happy-faces" from the same patterns at the right below.



One idea leads to another

Dr. Montgomery's discovery influenced many people. Dr. Sam Gon earned his Doctor's Degree in Animal Behavior as a result of his dissertation on the spider. Eddie Kamae featured the spider in his film. Eddie and Myrna Kamae wrote a song about the spider called *Nānā Mai* or *Look At Me*. Kumu hula Johnny Lum Ho choreographed a dance to the song and taught it to his students. Naturalist William Mull photographed a series of many different spiders, each with a different smile.

The smiles pictured below represent some of the different happy-faces that have been seen on spiders. Create your own version of the spider's happy-face in the spaces to the right below. On the lines under each happy face, write the name you would like to give to that particular spider. The first three are done as examples.



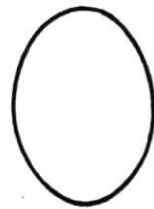
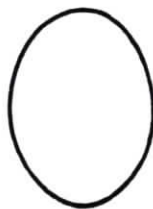
Nani



Ninja



Kissy Lips



Care and Healing

Exploring ones culture, traditions, and values

"I wish to acknowledge the healers--their inspiration, their insight, and their ability to heal."

--Henry Auwae

"Care means _____

"Healing means _____

This lesson is a follow-up activity to be undertaken after viewing the film. The lesson on *Respect* would be helpful to prepare students for this lesson.

Sickness and wellness

What makes people sick? Many ancient people believed that evil spirits and bad food were the causes. Modern science has discovered that *stress* or strong feelings as well as tiny organisms such as bacteria and viruses in food, water or air, often cause illness. Both ancient healers and modern doctors agree that making a sick person well usually takes a combination of medicine, care, attention, and good nutrition.

Respect and care

Henry Auwae was chosen at an early age to be a keeper of the knowledge of Hawaiian medicine. He has a special relationship to the forest and a deep love for all life. Write the number that tells the kind of respect Henry Auwae is talking about in each of his sentences below. The first one is done as an example.

1. Respect for elders 2. Respect for all people 3. Respect for plants
- 1 "I learned to make medicine from my great grandmother."
 "Walk backwards until you are a distance from the tree, then you turn..."
 "Medicine was put on earth for all mankind."
 "Get lā'au only for that person that you are going to cure!"
 "Cover the wound (in the tree) with leaves or soil so the tree will not die."

Helping and healing

Modern doctors, ancient healers and our own family members often do many similar things to help people get well. Write the number of the heading that tells which person would probably do what is described in each sentence below to help make a sick person well. The first one is done as an example.

1. Doctor 2. Hawaiian healer 3. Family member 4. All of these people
- 4 Examine the sick person carefully and think seriously about what to do.
 Go to the forest to ask for permission to take what is needed for medicine.
 Prescribe medicine to be purchased from the drugstore.
 Prepare some food that might make the sick person feel better and get better.
 Cover a wound with a clean dressing and keep it clean.

Care and healing

Henry Auwae learned about Hawaiian medicine from his great grandmother. Beatrice Krauss learned about plants through scientific studies and from Hawaiians. You have learned many things from your family, books, school, and doctor. In the space on the previous page, under the quote by Henry Auwae, use what you have learned from the film and this lesson to write what the words *care* and *healing* mean to you.

Unity and Diversity

A lesson in science and environmental education

"Our snails (in New Zealand) sing in sympathy for the snails of this land (Hawai'i) facing a similar fate."

--Hirini Melbourne

"This particular kind (of snail) occurs nowhere except here on top of Mount Ka'ala. If you go to another mountain top, you find a different snail completely, probably related, but separated from these many, many hundreds of thousands of years ago."

--Michael Hadfield, Ph.D.

"

"

--

This lesson is a follow-up activity to be undertaken after viewing the film.

Unity

Snails belong to a special group of animals called mollusks. Most mollusks have **hard shells and no bones**. Circle the animals below that also are mollusks:

clam
eel

cockroach
goldfish

chambered nautilus
oyster

Diversity

All snails have hard shells made of calcium and move their soft bodies by using their one foot like a suction cup. However, there are many different types of snails. Two of these different types are listed below. Write the number of the type of snail being described in the space at the left below. The first one is done as a sample.

1. Terrestrial snail

- 1 Large snails sometimes called African snails can be destructive to gardens.
 Tiny snails can be used to help keep small aquariums clean.
 Tree snails crawl under leaves and use their rough tongues to eat mold.

2. Aquatic snail

Scientists estimate that there may be 25,000 different species of tree snails. In Hawai'i alone there are approximately 1,000 different species. Ninety-nine percent (99%) of these species are found only in Hawai'i.

Endangered species

There are many things that can threaten the continuing survival of a particular species. Sometimes these things cause such great danger to the plant or animal that people must try to protect it from becoming extinct. The pūpū kani oe (tree snail; also known in Hawaiian as kāhuli) was the first invertebrate in Hawai'i to be listed as endangered. Some things that make survival difficult for the Hawaiian tree snails are:

1. Some Hawaiian tree snails give live birth to fewer young during their lifetime than other kinds of snails.
2. Snail shells are pretty and people like to collect them.
3. Predators introduced to Hawai'i, such as the snail named euglandina and the rat, eat tree snails.

In the space on the previous page, under the two quotes by Hirini Melbourne and Michael Hadfield, write about something that you think could be done to help protect Hawaiian tree snails and ensure their survival.

Paying Attention

Recording and preserving detailed images of what we observe

*"Every part of the bird, he described.
Every sound of the bird, he described.
And every movement, action, and behavior
He described to the fullest...!"*

--Malia Craver

"Some of the birds described in this book can no longer be heard."

--Eddie Kamae

"

"

--

This lesson is a follow-up activity to be undertaken after viewing the film. It might require close supervision and support of language arts activities. The lesson on *Listening* might be helpful to prepare students for this lesson.

Visualizing images and ideas

"The 'I'iwi is a cheerfully-voiced bird. When it sounds, its head rises and its throat fills out. (It) searches here and there for its food with great interest, bustling about without thought of the enormity of its task.

"'Amatihi--its appearance is small and is characterized by a dark-eyed tininess.... Ri Ri Ri...i...i...i is the sound of the 'Amatihi.

*"'Atatane is a handsome and distinguished bird. Its manner is exceptional to view...atop the lehua or the wiliwili or other flower..."
--Kepelino*

The words underlined above do more than just describe these birds--they create images in the mind. Some of them even give these birds human qualities which help us to better picture and understand their appearance, sound, and movements. In the space to the right above, create *your own picture or cartoon* of one of these birds showing *your idea* of their human-like qualities as described by Kepelino.

Using words to capture detail

Because Kepelino wrote careful, detailed descriptions of these Hawaiian birds more than 140 years ago, we can still picture how they looked, how they moved, and even how they might have sounded. Some of them are now extinct, but the birds in this film are still in our forests. Learning to write this way allows us to share our unique observations and experiences.

To practice this kind of descriptive writing, you must first select a subject to describe. Choose an animal that you can easily observe continuously for 5 to 10 minutes. It could be your pet, a pet that you know, or an insect that you keep in a bottle with air holes in the lid and release after the observation is over.

Sit comfortably where you can easily see the animal. Use the back of this sheet to write everything you observe about its appearance, movements, sounds, and manner. Like Kepelino, add images, ideas, and possibly human qualities. Do not be concerned about spelling or sentences, just write down all the details, ideas, and images you observe. Take about 10 minutes to do this.

Creating a picture with words

Look at everything you have written and carefully select the right words and images to create a clear description and impression of the subject. When you are satisfied with each word and image of your description, write it in the space on the previous page of this lesson, below the two quotations by Malia Craver and Eddie Kamae.

Mālama ‘Āina

Examining one's culture and values as related to care and respect for the environment

"The Hawaiians think the earth is our mother. It is our mother because it nurtures us. It not only gives us a place to plant and things to eat, but it also gives us comfort."

--Pualani Kanahele

"As the grandfolks would say, the land will take care of you if you take care of the land. The land is the only thing you have."

--Kahu David Ka'alakea

"

"

--

An important follow-up activity to be undertaken after viewing the film. The lesson on *Respect* also is related to the concepts covered in this lesson.

Mālama ‘Āina

The Hawaiian word *mālama* means "to take care of, preserve, keep, and honor." The Hawaiian word *‘āina* means "the land." The people in the film take care of, preserve, and honor the land or earth in many ways. Draw lines to connect the following people with the ways that they take care of the earth:

Michael Hadfield (scientist)	Uses a macro lens to study tiny forest creatures.
Eddie Kamae (director)	Studies native Hawaiian snails.
Ruth Kaholoaa (farmer)	Makes music and films about Hawai‘i.
William Mull (photographer)	Lovingly raises and cares for taro plants.
Henry Auwae (healer)	Prepares medicine from plants for one person at a time.

All of the people above have different occupations and each of them contributes to the care of the earth as part of what they do. You are a student preparing for your future. In the space below, write one thing you can do to take care of the earth.

Giving and giving back

The earth has given us many of the things that we see, use, and depend on every day. We enjoy fresh air, cool water, nourishing food, beautiful weather, and things to make and do with our hands and our minds. As conditions on the earth change and plants and animals begin to die out, all of these experiences will also change.

Think about some of the ways that we can start giving back to the earth in order to help preserve our lives and our future. Cut out or photocopy at least two articles that you feel are important and attach them to the back of this paper. Use the back of previous sheets in this lesson to write two things you learned from your research. Then use another sheet of paper to write a letter to the editor of the newspaper. In your letter, share some of the reasons why you feel we must begin giving back to the earth. Look in the *Letters to the Editor* section of the newspaper for information on how to address and mail your letter.

To take care of the earth...

Think carefully about what you have learned about the Hawaiian way of *mālama ‘āina* in the film and in this lesson. In the space on the previous page, under the quotes by Pualani Kanahale and David Ka‘alakea, write your feelings about how the earth takes care of you and how you can take care of the earth.

ANSWERS FOR LESSONS IN THE RESOURCE UNIT

People (page 9)

- | | |
|-----------------------------------|--|
| <u>b</u> Eddie Kamae | a. Kumu hula (master of hula and chant) |
| <u>a</u> Pualani Kanahale | b. Hawaiian musician and filmmaker |
| <u>d</u> Steven Montgomery, Ph.D. | c. Ethnobotanist (studies native plants) |
| <u>c</u> Beatrice Krauss, Ph.D. | d. Conservation biologist (scientist who protects plants and animal) |

Animals (page 9)

- | | |
|-----------------------|---------------------------------------|
| The Happy-Face Spider | Native Hawaiian red bird |
| 'I'iwi | Eight legs and sixteen knees |
| Hawaiian Tree Snail | Eats mold off the underside of leaves |

Plants (page 9)

Hula dancers weave and wear leis made from the palapalai fern.
Shampoo and medicine can be made from the 'awapuhi plant.
Spiders can sometimes be found under the leaves of the 'ohia tree.

Respect and care (page 20)

1. Respect for elders 2. Respect for all people 3. Respect for plants

- | | |
|-------------|---|
| <u>1</u> | "I learned to make medicine from my great grandmother." |
| <u>3</u> | "Walk backwards until you are a distance from the tree, then you turn..." |
| <u>2</u> | "Medicine was put on earth for all mankind." |
| <u>2, 3</u> | "Get lä'au only for that person that you are going to cure!" |
| <u>3</u> | "Cover the wound (in the tree) with leaves or soil so the tree will not die." |

Helping and healing (page 20)

1. Doctor 2. Hawaiian healer 3. Family member 4. All of these people

- | | |
|----------|---|
| <u>4</u> | Examine the sick person carefully and think seriously about what to do. |
| <u>2</u> | Go to the forest to ask for permission to take what is needed for medicine. |
| <u>1</u> | Prescribe medicine to be purchased from the drugstore. |
| <u>3</u> | Prepare some food that might make the sick person feel better and get better. |
| <u>4</u> | Cover a wound with a clean dressing and keep it clean. |

Diversity (page 22)

1. Terrestrial snail 2. Aquatic snail

- | | |
|----------|---|
| <u>1</u> | Large snails sometimes called African snails can be destructive to gardens. |
| <u>2</u> | Tiny snails can be used to help keep small aquariums clean. |
| <u>1</u> | Tree snails crawl under leaves and use their rough tongues to eat mold. |

Mälama 'Äina (page 26)

- | | |
|------------------------------|---|
| Michael Hadfield (scientist) | Uses a macro lens to study tiny forest creatures. |
| Eddie Kamae (director) | Studies native Hawaiian snails. |
| Ruth Kaholoaa (farmer) | Makes music and films about Hawai'i. |
| William Mull (photographer) | Lovingly raises and cares for taro plants. |
| Henry Auwae (healer) | Prepares medicine from plants for one person at a time. |

LISTEN TO THE FOREST

A Film by Eddie & Myrna Kamae

HAWAIIAN ANIMALS AND PLANTS

Detailed, accurate drawings
of Hawaiian animals and plants
in the film
by
Sheryl Ives Boynton



These intricate drawings capture some of the Hawaiian animals and plants featured in the film. The drawings can be used for a variety of activities.

CONTENTS

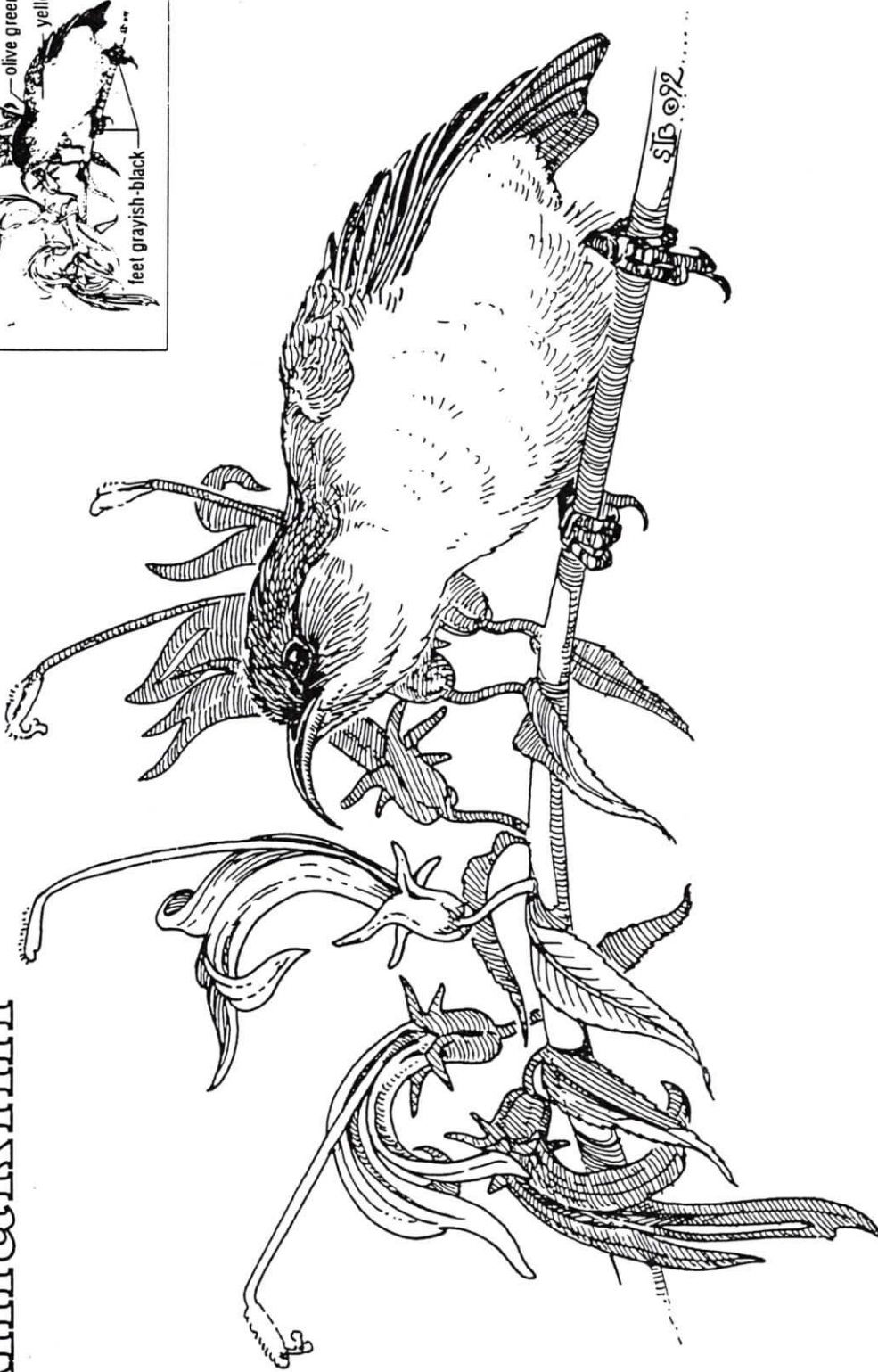
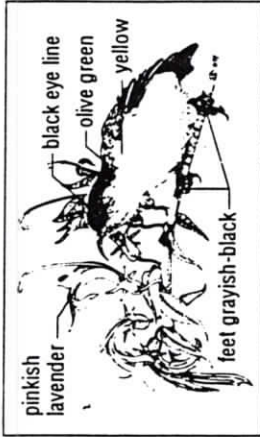
Hawaiian Birds

Other Hawaiian Animals

Hawaiian Plants

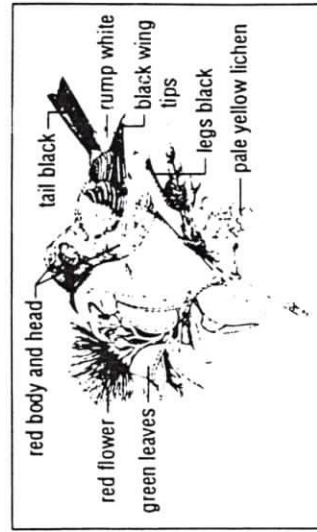
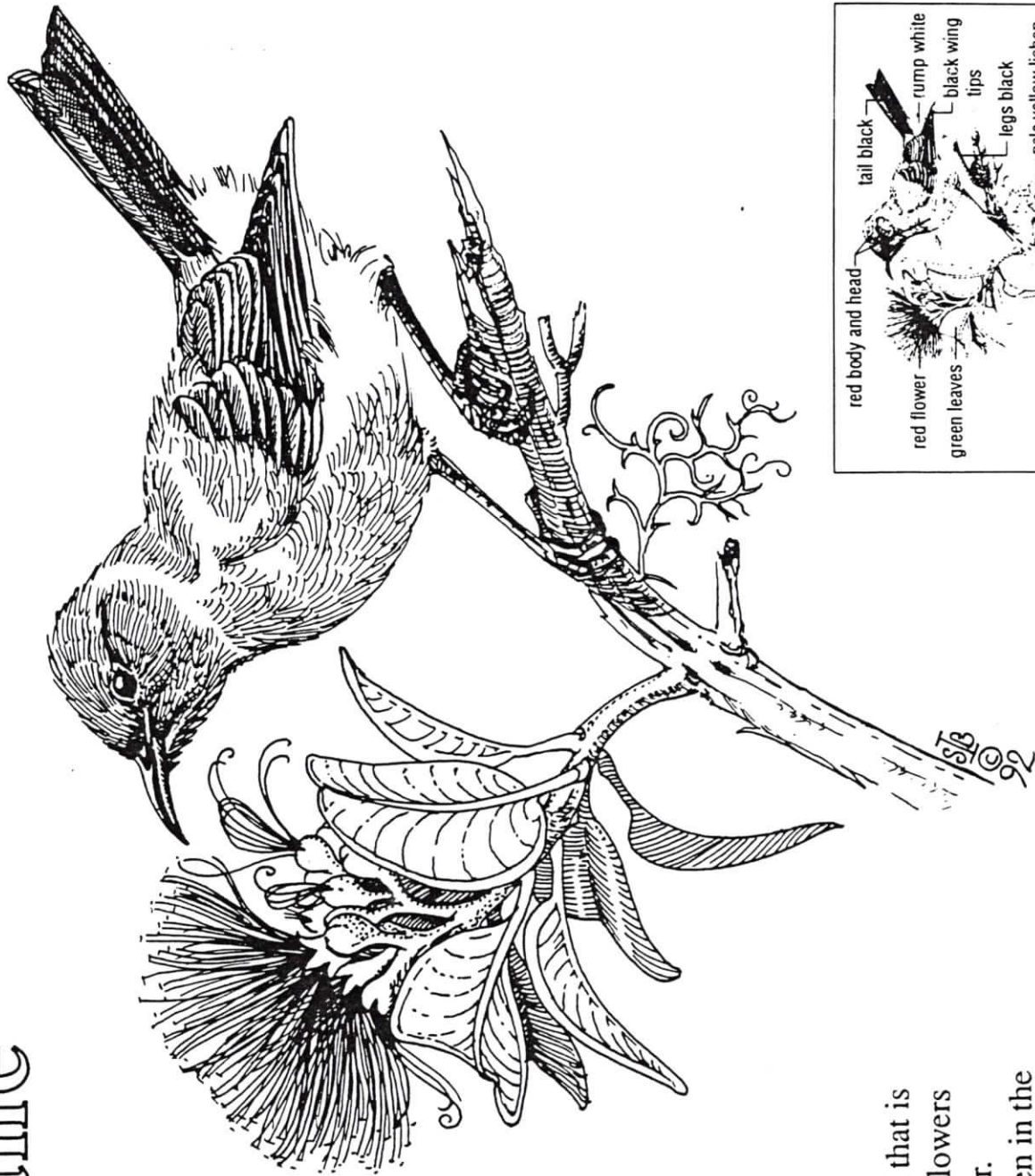
printed courtesy of
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'Amakihi



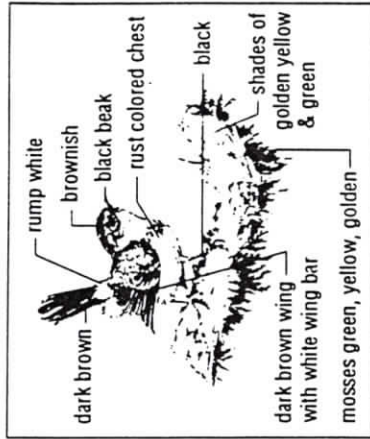
'Amakihi looks like a hard worker. With a beak that's too short to fit into the flower from the front, this greenish-yellow forest bird is getting ready to take nectar from the back of the flower.

'Apapane



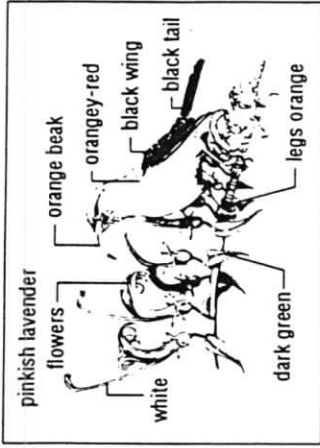
'Apapane is a forest bird that is bright red like the lehua flowers from which it takes nectar. 'Apapane may still be seen in the mountains where native forests are found on six Hawaiian Islands.

'Elepaio



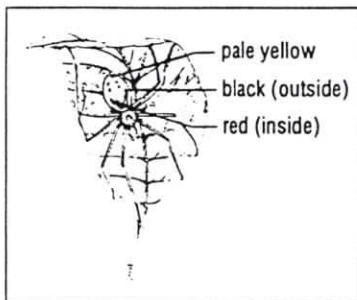
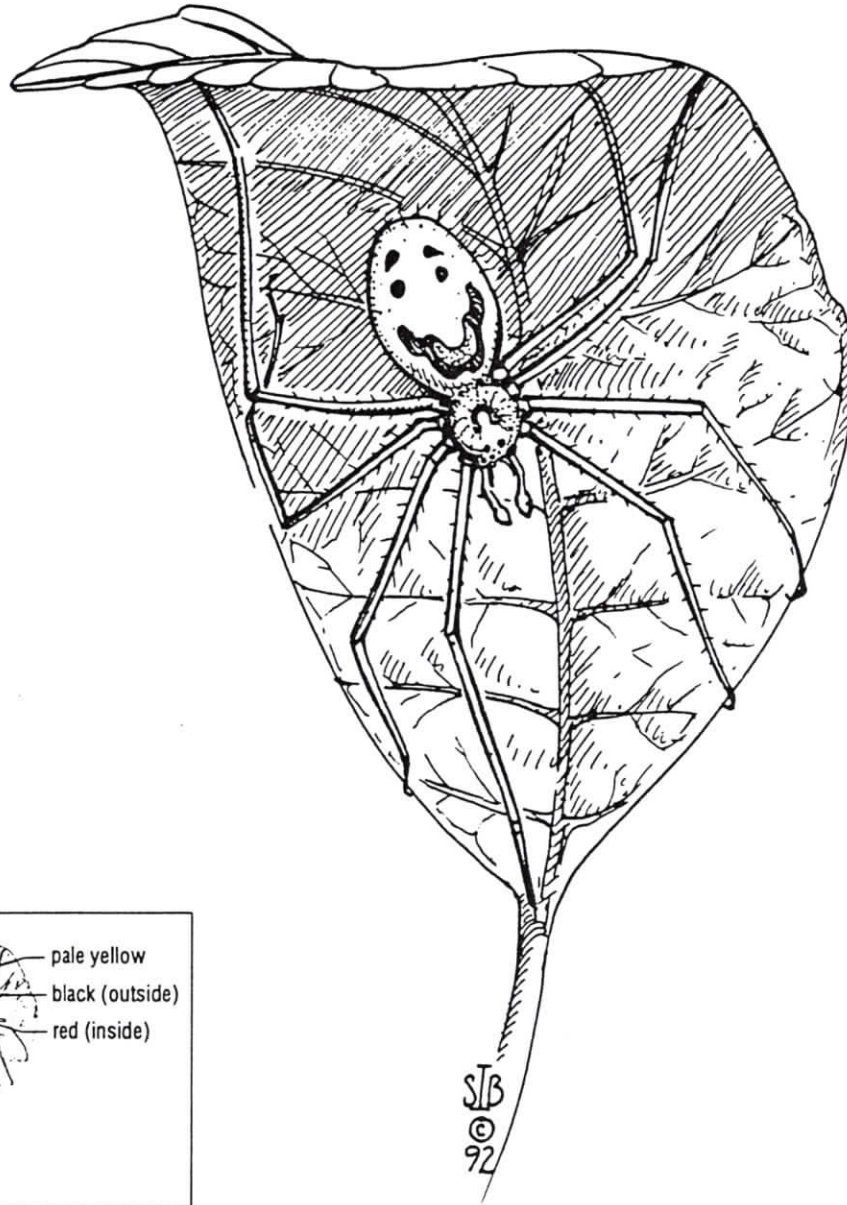
'Elepaio is a brave little bird with a perky tail. Ancient Hawaiians had great respect for the 'Elepaio, for this little insect eater was the protector of tall koa trees that were carved into canoes.

‘I‘iwi



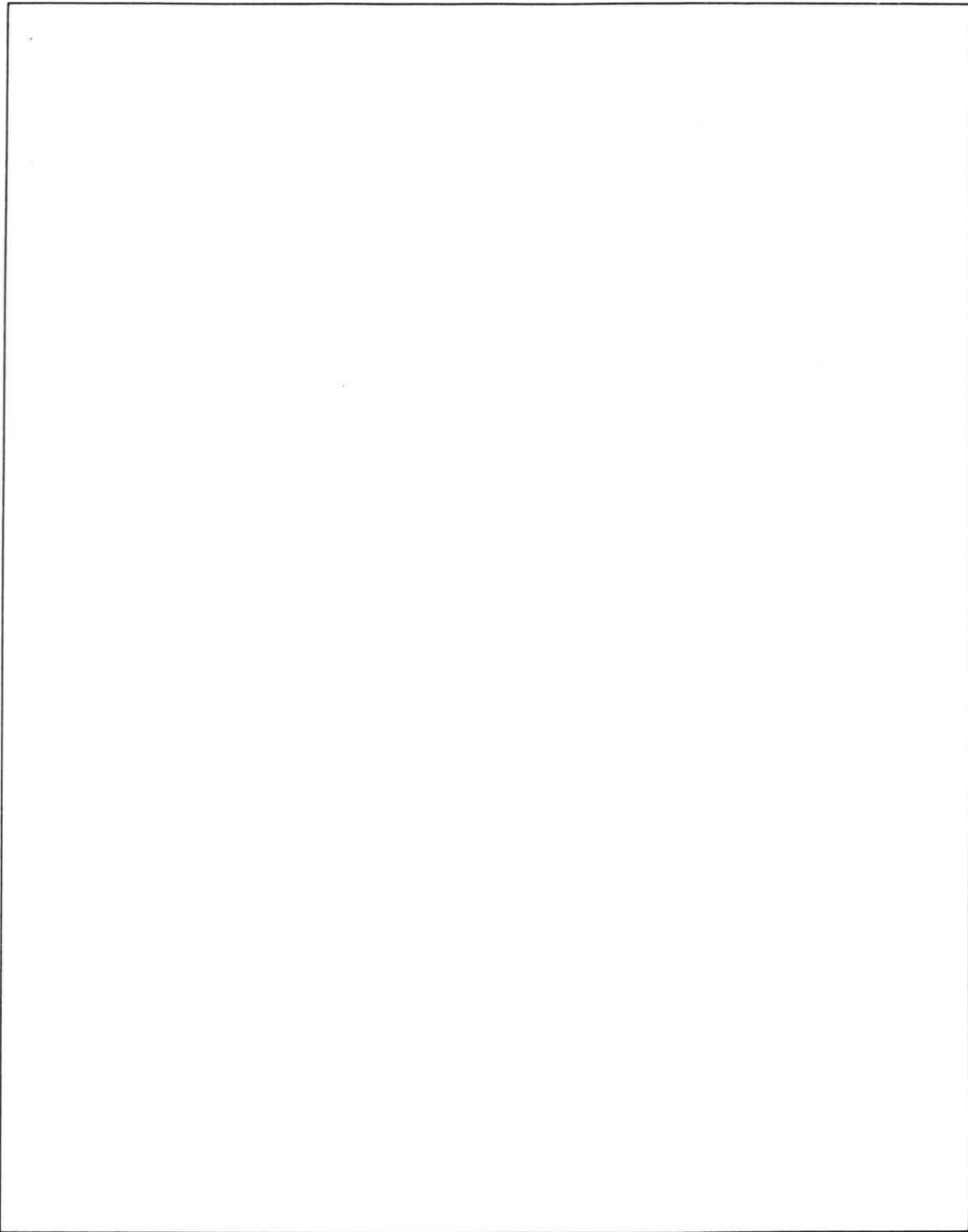
‘I‘iwi is a forest beauty, bright orangey-red with a curved beak that fits just right into the curved flowers of many native plants. The feathers of ‘I‘iwi were prized by Hawaiian chiefs for making feather cloaks.

Nananana-maka-‘aka ‘aka

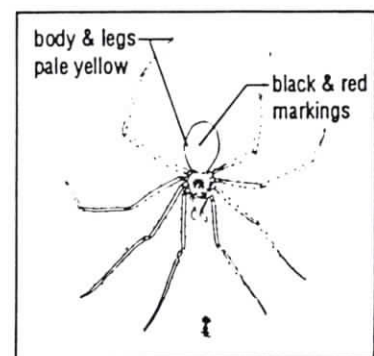


Nananana-maka-‘aka ‘aka, (The Happy-Face Spider) has a big smile but it's not on the spider's face. It's on the back! You have to be a good observer to find one of these tiny spiders, because they're not much bigger than ants and they hide under leaves in native forests.

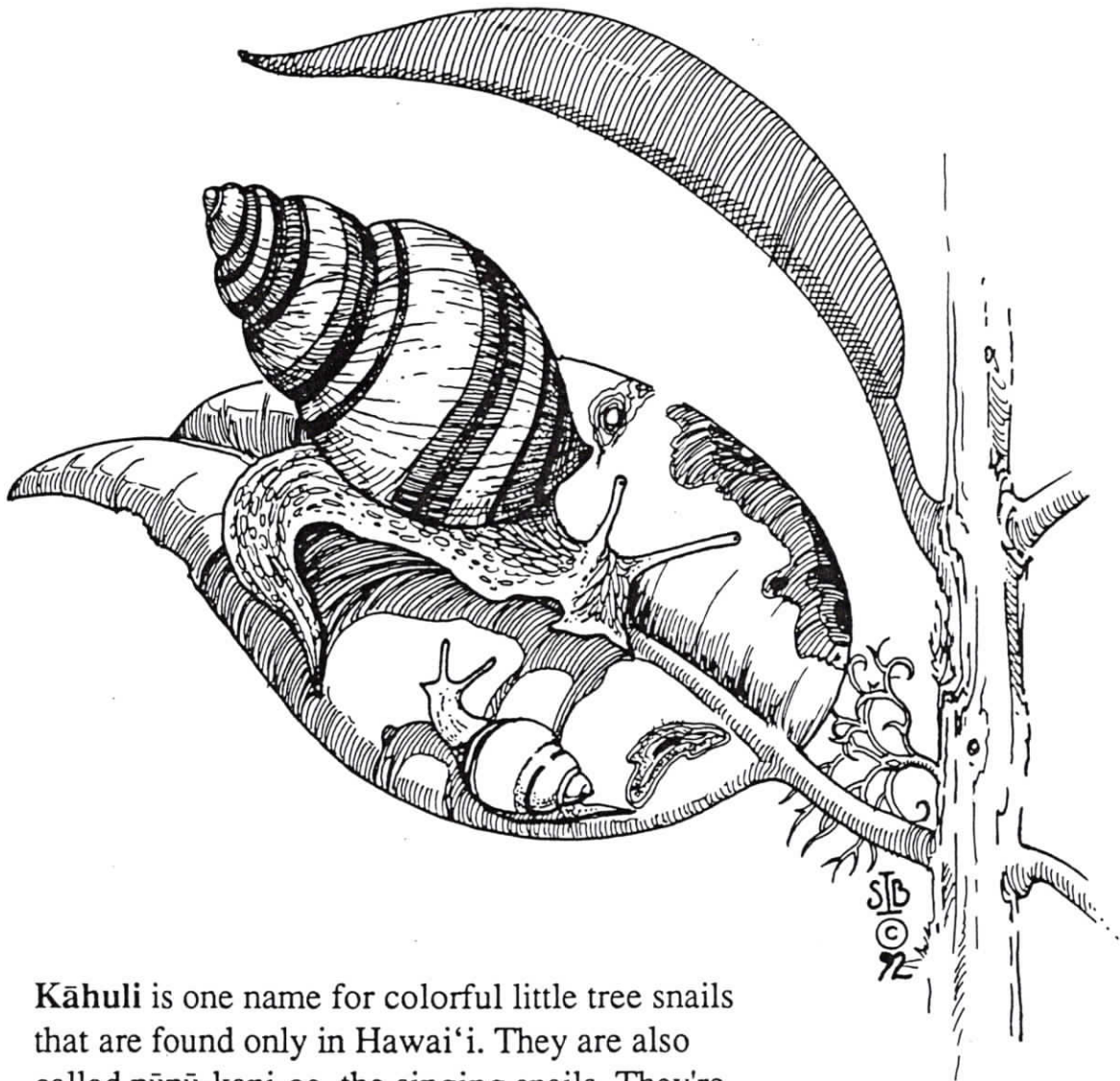
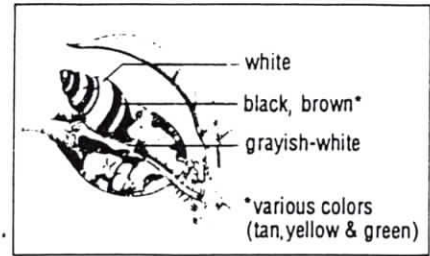
Draw a Happy-Face Spider



Look at all the different faces around you; notice the many ways we look alike and also how each one of us is different. Happy face-spiders also have similarities and differences in the "faces" on their back. DRAW A SPIDER to fill the space above, and color in its happy face!

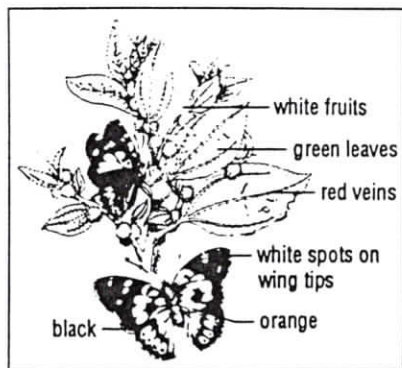


Kāhuli



Kāhuli is one name for colorful little tree snails that are found only in Hawai'i. They are also called pūpū-kani-oe, the singing snails. They're very rare and endangered, and survive only up in the mountain forests. Next time you're in the mountains, be very still and quiet and listen to the forest...who knows what you'll hear!

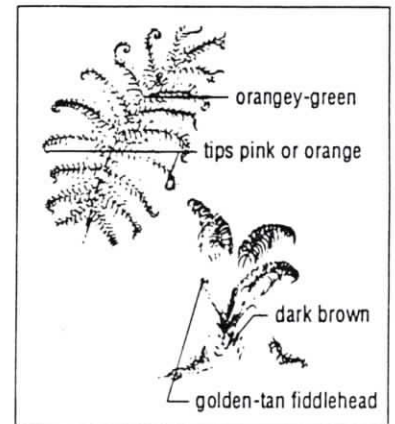
Pulelehua



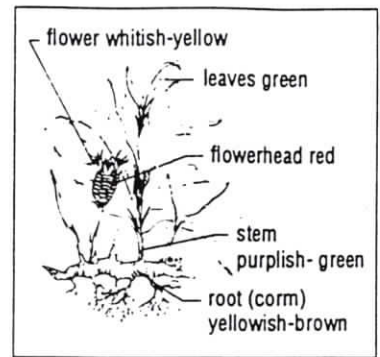
Pulelehua is the Hawaiian name for the Kamehameha butterfly, one of only two butterflies native to Hawai'i. These butterflies are shown with their favorite plant, mamaki. They lay their eggs on the leaves, and when the caterpillars hatch, they have lots of mamaki salad to eat.

'Ama'u

'Ama'u fern grows like a small tree fern, with young leaves that are often orange or bronze in color. A reddish dye comes from the 'ama'u fern trunk, and its leaves were made into medicine by a Kahuna Lā'au Lapa'au (Hawaiian medicine maker).



ʻAwapuhi



ʻAwapuhi, the beautiful little ginger plant with a red flower stalk, was one of the many plants brought to the islands by early Polynesian voyagers. People call it shampoo ginger because the sweet-smelling sap from the flower head can be used to wash your hair, just like shampoo. The root is used as a medicine for stomach aches.

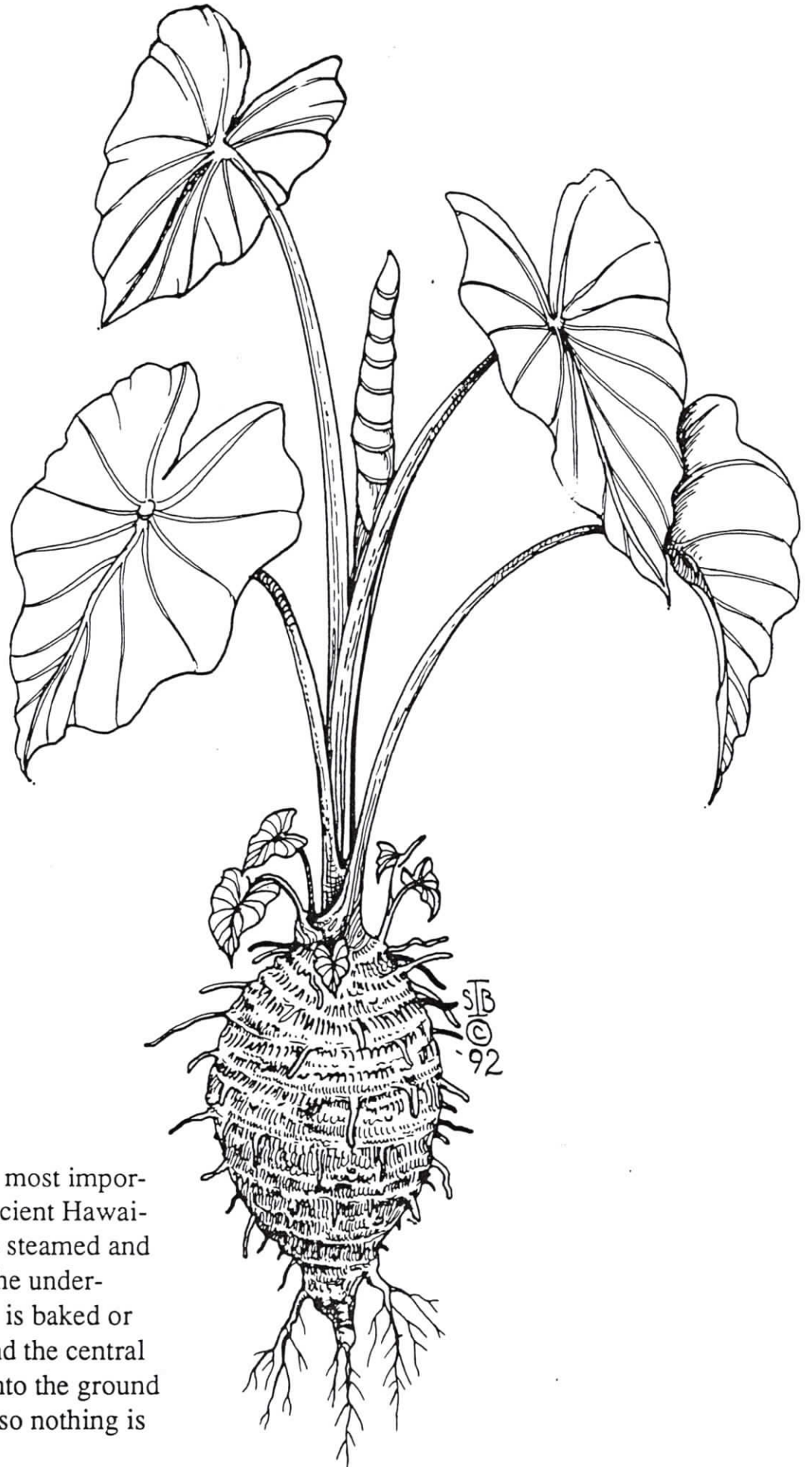
Niu



Niu, the coconut tree, had more uses than any other Hawaiian plant. All parts of the coconut tree were used: the husk around the nut was twisted into rope, matted fibers were used as strainers, and there were many other uses. How many can you think of?

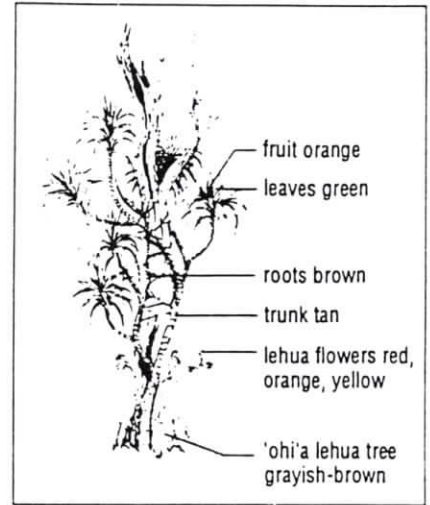
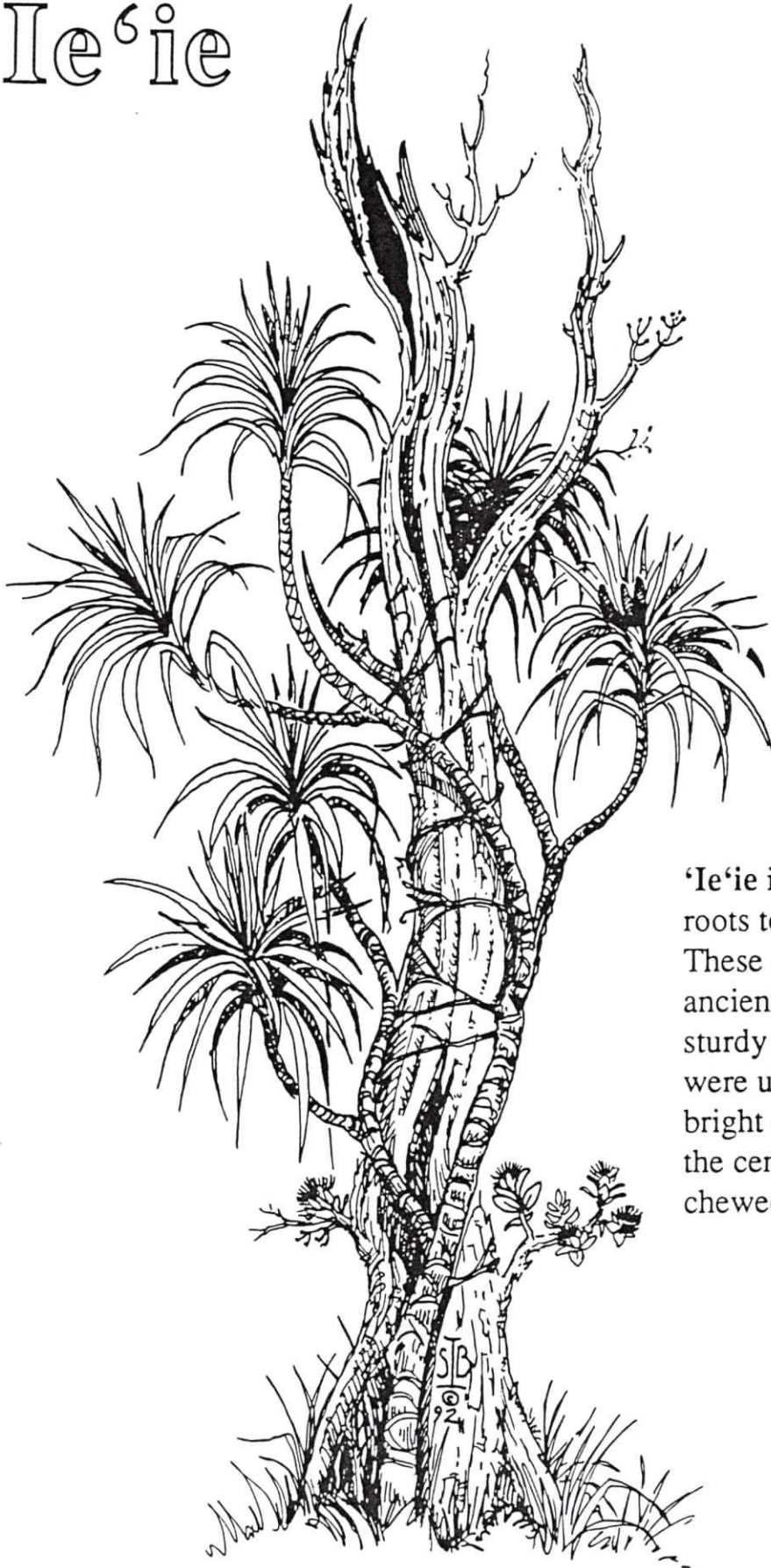


Kalo



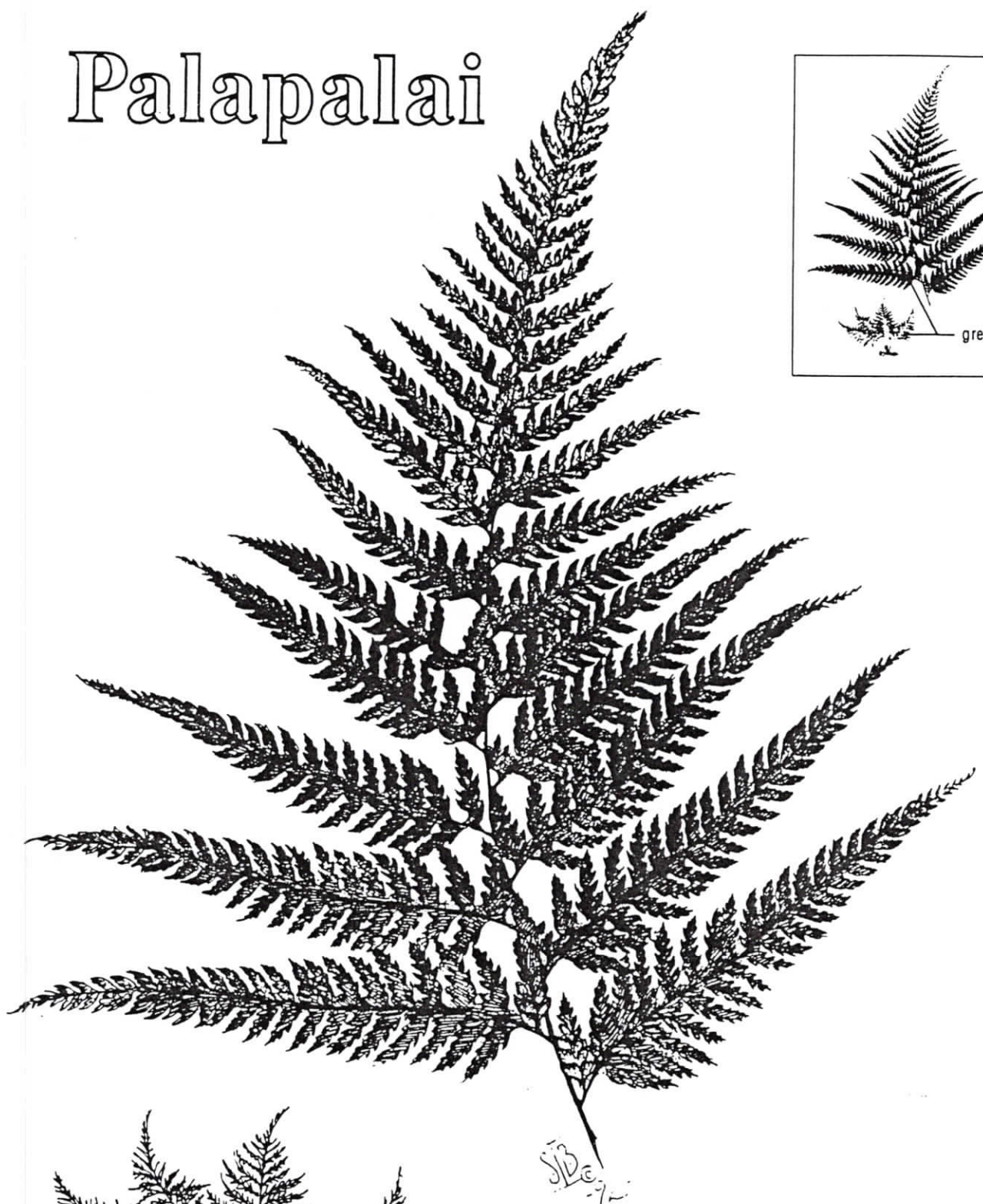
Kalo (taro) was the most important food plant of ancient Hawaiians. The leaves are steamed and eaten like spinach, the underground root or corm is baked or pounded into poi, and the central stem is stuck back into the ground to grow more Kalo, so nothing is wasted.

'Ie'ie



'Ie'ie is a climber that uses its roots to hold onto tree trunks. These roots were collected by ancient Hawaiians to weave into sturdy fish traps, and 'ie'ie shoots were used for medicine. The bright orange fruit that grows from the center of 'ie'ie plants are often chewed by rats.

Palapalai



Palapalai fern is one of the plants sacred to Laka, goddess of hula, and is often used during hula performances. Palapalai is collected in the forest and made into lei hili, a lei made by weaving or braiding the leaves together.

LISTEN TO THE FOREST

A Film by Eddie & Myrna Kamae

ABOUT THE FILM

Background information on the film
and the people who made it possible



A review of the film provides information to help teachers and parents prepare children for viewing. Learning how and why this film was made and background on its cast and crew will also increase understanding and appreciation of the final product.

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by James D. Houston

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Listen to the Forest Film Sponsors

Mahalo A Nui Loa to
Governor John Waihee
and the
Hawaii State Legislature

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Introduction

Listen to the Forest is an environmental documentary speaking to the widespread concern about rainforest preservation. It is a film for all ages.

The subject is both Hawaii and a Hawaiian way of feeling. It conveys an attitude toward these islands, summed up in the phrase *Mālama 'āina*—to care for the earth, which is both a physical habitat and a source of spiritual nourishment.

In the face of impending environmental crisis, the urgent question before us all these days is, 'What are we going to do?' Part of the solution is to move toward a higher level of consciousness. And getting wiser often means remembering the older forms of ecological wisdom worked out over the centuries by indigenous peoples world wide.

In *Listen to the Forest*, Eddie Kamae is reminding us of traditional Hawaiian ways of living on the earth and in harmony with the earth, while his film looks again at some of the ways cultural life has been integrated and intertwined with Hawaii's unique natural history.

—James D. Houston

REVIEW OF FILM SEGMENTS

Eddie Kamae discovered many different things while making the *Listen to the Forest* film and wanted to share what he learned with everyone so that we can all understand the forest better.

It is important to tell the students that this film is about the Hawaiian culture's approach to nature. (This is how another culture feels about nature.) That is why they ask permission to enter the forest, they talk to their plants and they take only what they need.

The film covers the following ideas in sections: (timing is approximate)

INTRODUCTION TO THE FILM (4 minutes)

The earth begins to form. We see native plants and animals that inhabit the earth.

HULA (6 minutes)

Kumu hula Pualani Kanahela asks permission to enter the forest (with a chant). Hula dancers from her Hālau O Kekuhi make leis of palapalai and dance in the forest. After they are finished with their leis they return them to the forest so that the spores will help the palapalai to grow again.

HAWAIIAN MEDICINE (8 minutes)

Kahuna lā'au lapa'au Henry Auwae speaks of the traditional ways of gathering Hawaiian medicine and the need to respect the forest so that we may always have a source of healing herbs. Beatrice Krauss shows us how to make a simple, but effective remedy for a stomach ache from the root of the shampoo ginger.

HAWAIIAN HAPPY-FACE SPIDERS (6 minutes)

The hula by Johnny Lum Ho's Hālau O Ka Ua Kani Lehua danced to a Hawaiian song about the spiders by Eddie & Myrna Kamae and Mary Kawena Pukui. Johnny Lum Ho was always afraid of spiders, but when Eddie Kamae showed him a picture of a Hawaiian Happy-Face Spider he said he would create a hula for this spider.

The Hawaiian lyrics are *Nānā Mai* and the English lyrics are *Look at Me*. The lyrics to *Look at Me* are included in this guide as one of the songs for the students to learn.

The students from Mountain View Elementary School go into the forest with Naturalist William Mull to discover the Hawaiian happy-face spider. We also see Dr. Steven Montgomery, the person who discovered the first Hawaiian Happy-Face Spider, looking around in the same place where he found the first spider in 1972. These spiders are very tiny — they are no bigger than the tip of your little finger — and very fragile. They wouldn't live long outside of their natural habitat.

HAWAIIAN TREE SNAILS (8 minutes)

Hirini Melbourne and Richard Nunns from the University of Waikato, New Zealand, tell us of the similarities between their forest and our forest here in Hawai'i. They share with us their stories. Dr. Michael Hadfield from the University of Hawai'i tells us about the Hawaiian tree snails. He shows us where the Hawaiian tree snails (pūpū kani oe) live, and makes close-up shots of the tree snails. Johnny Lum Ho's dancers do a hula about the Hawaiian tree snails. It is from an old Hawaiian chant and the words are included for the students to learn. They might already know it. It is called *Kāhuli Aku*.

NATIVE HAWAIIAN BIRDS (6 minutes)

Malia Craver reads from a book written by Hawaiian scholar Kepelino¹ more than 140 years ago. There are wonderful close-up shots of the native Hawaiian birds mentioned in the book and subtitles so that the beautiful melodic Hawaiian language can be enjoyed. Then, William Kuwalu shares stories of when he was a boy and went to the forest with his father. He tells us about the song, *Sweet Hāhā 'Ai A Ka Manu*. Johnny Lum Ho and his young group of dancers created another beautiful hula to celebrate the birds and the sweet lobelia plant that provides the native Hawaiian birds with food.

TARO (KALO) (6 minutes)

Professor Rubellite Kawena Johnson shares the Hawaiian mythology of the taro plant. Kupuna Ruth Kaholoaa shares her deep feelings for Waipi'o Valley and the taro she grows in her backyard in Hilo. Pualani Kanahale and her Hālau O Kekuhi are in Waipi'o Valley helping Kia Fronda with his taro fields. Rev. Roy Toko pounds poi in Waipi'o Valley in the traditional Hawaiian manner.

MONTAGE OF PEOPLE AND PLACES (7 minutes)

In this sequence, Pualani Kanahale speaks to us from her heart about the forest and all living things. Dave Boynton takes the children from the Forestwise program into the Forest at Kōke'e on Kaua'i so they can learn by observing the birds and the plants. Kahu David Ka'alakea speaks to us in Hawaiian about the feelings of the Hawaiians for their land.

ENDING (1 minute)

The last voice we hear in the film is narrator Ka'upena Wong chanting a poem composed two centuries ago by the Hawai'i Island prophet or Hawaiian seer Ke'āulumoku². Two hundred years ago he was reminding us all to listen.

'Squealing and whistling like a human sighing.
The wood of that forest sounds like a human voice.
From Mo'olau all the way to Kawaihae.
Oh my friend of the land where the trees speak
Like humans really, calling, crying out to me for help.

CREDITS (3 minutes)

¹ **Kepelino Keauokalani** (1830?-1876) was born in Keauhou, Kona, Hawai'i, a descendant of both the high priest/king-maker Pā'ao (=Pā'oa) and Kamehameha I (1758-1819).

Kepelino was formally educated by Catholic clergy at Āhuimanu Seminary, Ko'olaupoko, O'ahu, where his studies included Latin, Greek and Hebrew. He served briefly as a Catholic missionary to Tahiti (1847).

Kepelino is remembered as an insightful observer and recorder of Hawaiian history and culture. His legacy includes *Kepelino's Traditions of Hawai'i*, published by Bishop Museum, 1934.

² **Ke'āulumoku** was a gifted chanter, composer and prophet of Kohala. In 1782, he foretold the rise of Kamehameha, the advent of white foreigners and their takeover of these Hawaiian Islands.

About the Filmmakers

Director - Eddie Kamae

Kamae is a native Hawaiian singer, ukulele virtuoso, composer, researcher, co-founder of the legendary *Sons of Hawaii* music group, filmmaker, and key figure in the Hawaiian cultural renaissance. In 1979 the Hawaii State Legislature recognized Kamae for his contributions to Hawaiian music. He was also designated a Living Treasure of Hawaii by the Honpa Honwanji Mission of Hawaii.

Kamae's award-winning documentary film, *LI'A — The Legacy of a Hawaiian Man*, had its world premiere in 1988 as the opening film at the Hawaii International Film Festival. The film received special mention in the documentary category in 1988 and in 1990 was honored as one of the ten best documentaries in the ten years of the festival. This film was also shown on prime time television and has been presented at the Seattle International Film Festival, the Pacific Rim Film Festival, and the Palm Springs International Film Festival. Kamae and the *Sons of Hawaii* also performed live in conjunction with special showings of the film to more than 20,000 students in Hawaii's public schools.

Producer - Myrna J. Kamae

As a lyricist, Myrna Kamae has collaborated with her husband on eight published songs including three songs for the television special, *Christmas Time with Eddie Kamae and the Sons of Hawaii*. Together they have produced seven albums of traditional Hawaiian music. She has also worked as Production Assistant for the Department of Education in Educational Television, producing a program called *High Voltage*.

Myrna Kamae is the producer of *LI'A — The Legacy of a Hawaiian Man*, and co-writer of the study guide for the *Children of the World* television series and the *LI'A* documentary resource unit used in Hawaii public schools. She has also worked with the Hawaii state government in the Lieutenant Governor's office producing television public service announcements and other materials for community service.

Writer - James D. Houston

Houston is the celebrated author of a dozen works of fiction and non-fiction including the novels, *A Native Son of the Golden West*, *Continental Drift*, and *Love Life*. With his wife, Jeanne Wakatsuki Houston, he co-authored *Farewell to Manzanar*, the true account of her family's experience during and after the World War II internment of Japanese Americans in California. They also wrote the screenplay for the award-winning television drama based on this book, that was first shown as a NBC World Premiere Movie in 1976.

In 1983 Houston was Distinguished Visiting Writer at the University of Hawaii. Currently he is the Visiting Professor in literature at University of California, Santa Cruz. His articles and stories about Hawaii have appeared in the *New Yorker*, the *New York Times*, the *Los Angeles Times Magazine*, *Honolulu Magazine* and *Manoa Magazine*.

Associate Producer, Director of Photography & Off-line Editor - Rodney A. Ohtani

Educated at the University of Hawaii with a degree in Fine Arts, Ohtani is an Asian-American filmmaker who has worked for more than 15 years as a photographer, director and editor of films. He is best known as the editor and co-producer of *The Song of the Imin*, a 90 minute documentary shot in Hawaii and Japan, for which he received special recognition from the Hawaii State Legislature in 1985.

Ohtani has also participated as the editor, photographer, and co-producer of the television specials, *Kilauea, Destruction and Creation*, *The Warth of Iwa*, and *Treasures Volumes I, II, III, IV* (a profile of special people and places in Hawaii). He also served as photographer, editor, and producer of *Treasures Volumes V, VI, VII, and VIII*.

Ohtani has received credits for his work with NBC, ABC, and CNN News and from numerous news stations, advertising agencies and corporations, both nationally and internationally.

Off-line Editor - Ralph Biesemeyer

Biesemeyer is a graduate of the State University of New York, New Paltz, with a degree in Communication Arts. He has numerous credits in commercial, industrial, promotional shows, and is currently working with Panasonic to set up and improve editing system in the United States, Europe and Japan.

In 1991 Biesemeyer completed a series of children's programs for Random House in New York and edited a program about China for Hawaii Public Television. Having worked in all areas of film editing, he brings a unique sensitivity to his art.

On-line Editor - Bryan C. Burgess

Burgess was raised in Hawaii and started in broadcasting in 1974. He has been a technical director/editor for 11 years and has worked on many specials over the past 17 years. His work includes *Rap's Hawaii*; *Island Music*, *Island Hearts*; *Andy Bumatai's High School Daze*, *Checkers and Pogo*, and portions of the *Hawaiian Moving Company*. Recently he has worked on *Celebration of Imagination* for the Honolulu Theater for Youth, and *Best of Delima Too!* for Frank Delima.

Production Consultant - Dennis Mahaffay

Born in Hawaii, Mahaffay has a unique sensitivity to and understanding of Hawaiian culture. He has over 23 years of broadcast experience and has received numerous local and national awards for his programs and commercials.

In 1989 Mahaffay directed Eddie Kamae and the *Sons of Hawaii* in a prime time one hour musical television special and in 1980 he again collaborated with Eddie Kamae on another television musical special. This program, *Christmas Time with Eddie Kamae & The Sons of Hawaii*, directed by Mahaffay and produced by Kamae, won a bronze award at the New York Film Festival.

Mahaffay is currently a director at McHale Videofilm in Honolulu.

Production Credits

Director
Eddie Kamae

Producer
Myrna Kamae

Associate Producer
Rodney A. Ohtani

Writer
James D. Houston

Narrator
Ka'upena Wong

Director of Photography
Rodney A. Ohtani

Location Audio
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Rodney A. Ohtani

On-line Editors
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Dennis Mahaffay

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Alpha Media

Production Facility
McHale Videofilm

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KHPR Radio
Audio Media

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Woodblock Print & Poster Art
Dietrich Varez

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Mary Beth Leary

Cast

Chant

Pualani Kanahela
Ka'upena Wong

Hula

Johnny Lum Ho, Kumu Hula
(Master of Dance & Chant) &
Halau O Ka Ua Kani Lehua
Pualani Kanahela, Kumu Hula &
Halau O Kekuhi

Music

Eddie Kamae & The Sons of Hawaii
Dennis Kamakahi
George Kuo
Joseph Marshall
Hoapili Smith

Slack Key Music

George Kuo
Ledward Kaapana

Henry Auwae
Kahuna La'au Lapa'au
(Master Healer)

David Boynton
Resource Teacher,
Environmental Education

Malia Craver
Kupuna Loea (Honored Elder)

Michael Hadfield, Ph.D.
Professor of Zoology

Rubellite Kawena Johnson
Professor of Hawaiian

Kahu David Ka'alakea
Kupuna Loea

Ruth Kaholoaa
Kupuna Loea

Pualani Kanahela
Kumu Hula

Joseph Kuwalu Kaili
Kupuna (Elder)

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Kupuna Loea

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Hirini Melbourne
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William P. Mull
Naturalist

Richard Nunns
University of Waikato, New Zealand

Rev. Roy Toko
Kupuna Loea

Students
Mountain View Elementary School
Muriel Hughes, *Principal*
Lucia Moreno, *Teacher*

Forestwise Program
Kokee Museum
Marsha Erickson, *Director*

Kawehi Ryder & Na Kamali'i
of Aiea

Na Kamali'i O Koke'e

Special appearances by
The Hawaiian Happy Face Spider
Hawaiian Tree Snails
Native Hawaiian birds

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John Kjargaard

Na Maka O Ka 'Aina
Puhipau
Joan Lander

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Boone Morrison
Joe Mullen
Jeannette Paulson
Paul & Ann Stoudt
Julie Parrish
Norma Jean Trask
Jon Woodhouse
Joanne Lani Yamasaki

Songs

Mauna Loa Blues
© George Kuo

Kahuli Aku
© Music by Winona Beamer

Nana Mai (Look at Me)
© Hawaii Sons, Inc.

Sweet Haha-'Ai-A-Ka-Manu
Traditional

Information in this section has been reprinted from the World Premiere program for the *Listen to the Forest* film. This film was chosen to be the opening documentary for the Hawaii International Film Festival at Varsity Theater, Honolulu, December 1, 1991.

For further information on *Listen to the Forest*, *LI'A - The Legacy of a Hawaiian Man* and other films and educational programs on Hawaiian culture write to:

Eddie & Myrna Kamae
c/o The Asian/Pacific Foundation of Hawaii
P.O. Box 8230
Honolulu, Hawaii 96830

LISTEN TO THE FOREST

A Film by Eddie & Myrna Kamae

INFORMATION & ACTIVITIES

Ideas and background material
to support the film and
Resource Unit



A collection of drawings, lyrics, facts, puzzles, and other material on environmental education and science for teachers and parents to use in creating and adapting activities.

CONTENTS

“Mama, What’s a Forest?”

by Corky Trinidad, Star Bulletin Cartoonist

A Word Game

by Liane M. Kuroda & Donna E. Yamasaki, Pearl City High School

Songs to Sing Along

Basic Facts About Hawai‘i’s Forest Ecosystems

Spider Drawings and Notes

by Dr. Sam Gon, Heritage Science Director/Ecologist

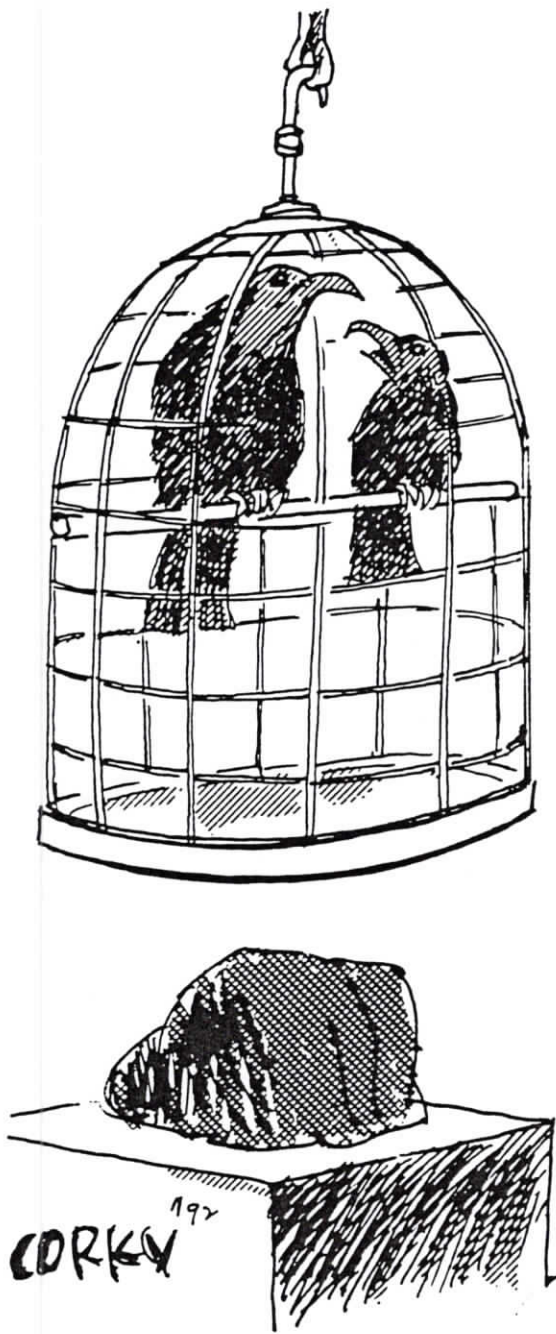
Nature Conservancy of Hawaii

[reprinted from Comparative Behavioral Ecology of the Spider

Theridion grallator (Simon) (Araneae: Theridiidae in the Hawaiian Archipelago)

University of California, Davis - Ph.D. Dissertation 1985]

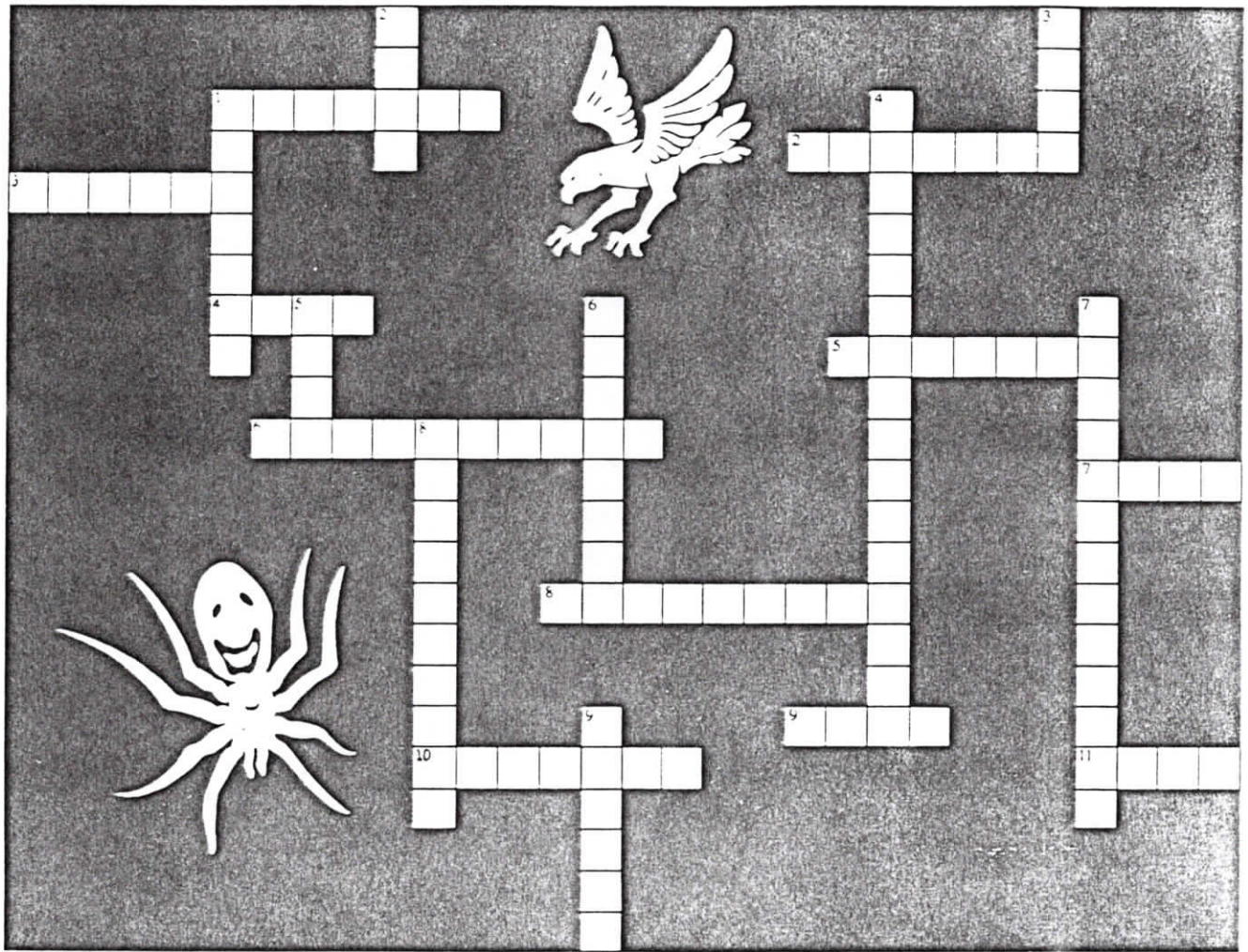
Environmental Education in Hawai‘i



NATIVE HAWAIIAN FOREST ANIMALS



"MAMA, WHAT'S A FOREST?..."

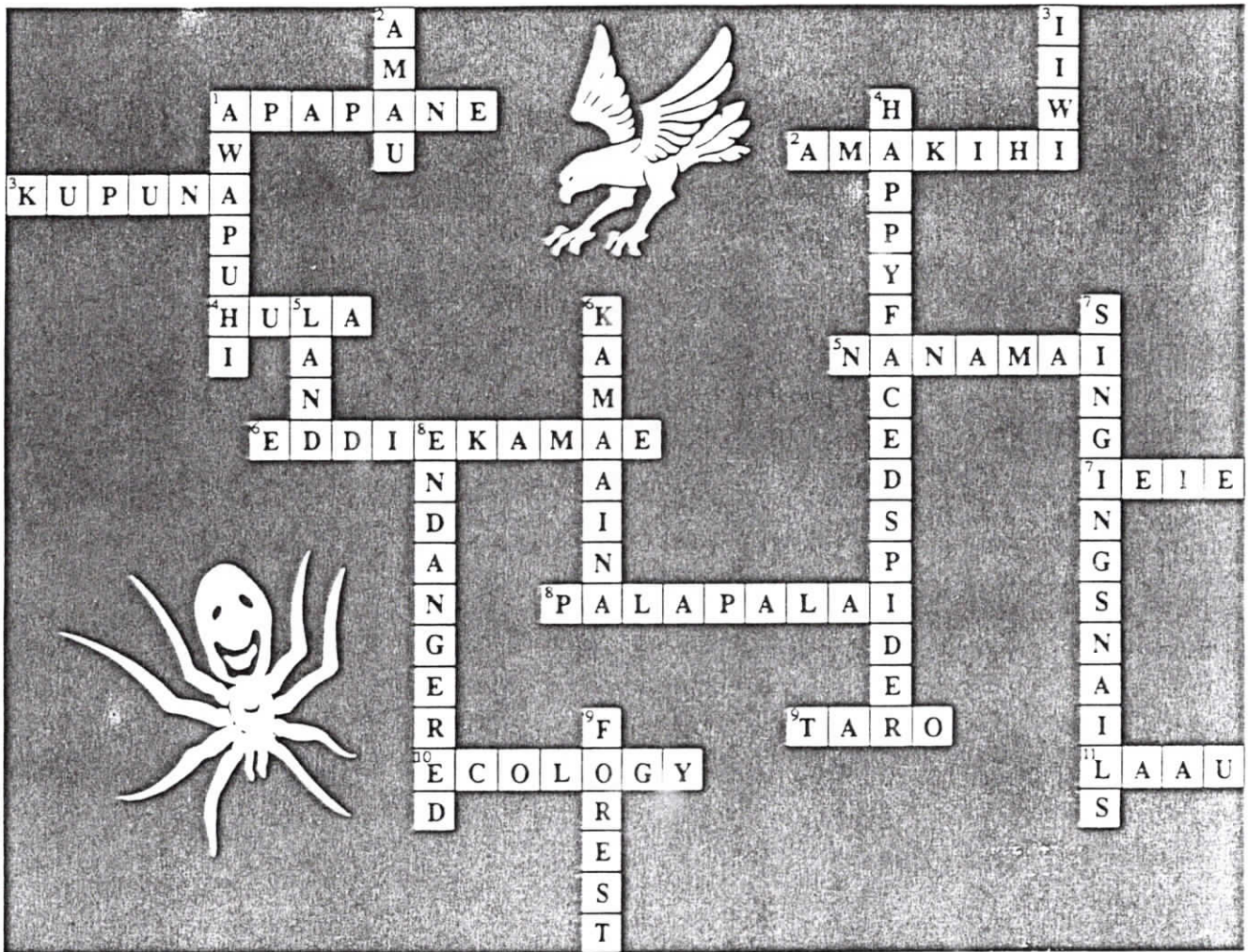


ACROSS

1. Bird that feeds on lehua blossoms
2. Green bird whose name means "small"
3. Elder
4. Hawaiian dance
5. Name of song written by Eddie and Myrna Kamae for the Happy-Face Spider
6. Name of musician who made this video
7. Plant used to make tea given to women when they give birth
8. Plant used to make leis for dancing hula
9. Hawaiian staple food used to make poi
10. Study of living things and their environment
11. Medicinal plant

DOWN

1. Hawaiian name for the "shampoo ginger"
2. Fern used to cure ailments
3. Small red bird
4. Creature with a smile on its body
5. 'Āina
6. Word meaning "one who lives in Hawaii"
7. In Hawaiian legend they speak of creatures that make music when wind blows through their shells
8. Species close to extinction and on a special list
9. Place with many trees



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LISTEN TO THE FOREST

Songs To Sing Along

You may remember these songs from the film. When Eddie Kamae visits your school, he will ask you to sing along with him.

LOOK AT ME

Words & Music - Eddie & Myrna Kamae - Copyright, 1991

C Ami F
I'M A SPIDER LOOK AT ME

C D7 Dmi G7
I'M HAWAIIAN AS CAN BE

C Ami F
I'M A SPIDER LOOK AT ME

C D7 Dmi G7 C
I'M AS HAPPY AS CAN BE.

C Ami F
IN THE FOREST WHERE I LIVE

C D7 Dmi G7
THERE'S ALOHA I CAN GIVE

C Ami F
ALL THE SECRETS I CAN TELL

C D7 Dmi G7 C
IF YOU GET TO KNOW ME WELL.

This is an unpublished copyrighted work owned by Myrna & Eddie Kamae. Copies of this song can be made for use in Hawaii Public Schools in conjunction with the *Listen to the Forest* film and resource unit. No part of this work can be copied for any other purpose. All rights reserved.

LISTEN TO THE FOREST
Songs To Sing Along

KĀHULI AKU

Traditional lyrics
© Music by Winona Beamer
Translated by Kalani Meinecke

Kāhuli Aku, Kāhuli Mai,

Kāhuli Lei 'Ula, Lei 'Ākōlea,

Kōlea, Kōlea, Ki'i i ka wai,

Wai 'Ākōlea, Wai 'Ākōlea.

Kāhuli (tree snail) sliding yon and hither,

Trilling yonder, Trilling hither,
beloved Kāhuli,

Kōlea (Plover), Kōlea (Plover),
fetch some dew,

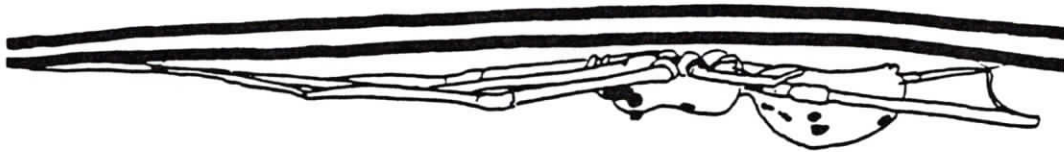
Dew from the 'Ākōlea (fern).

Dew from the 'Ākōlea (fern).

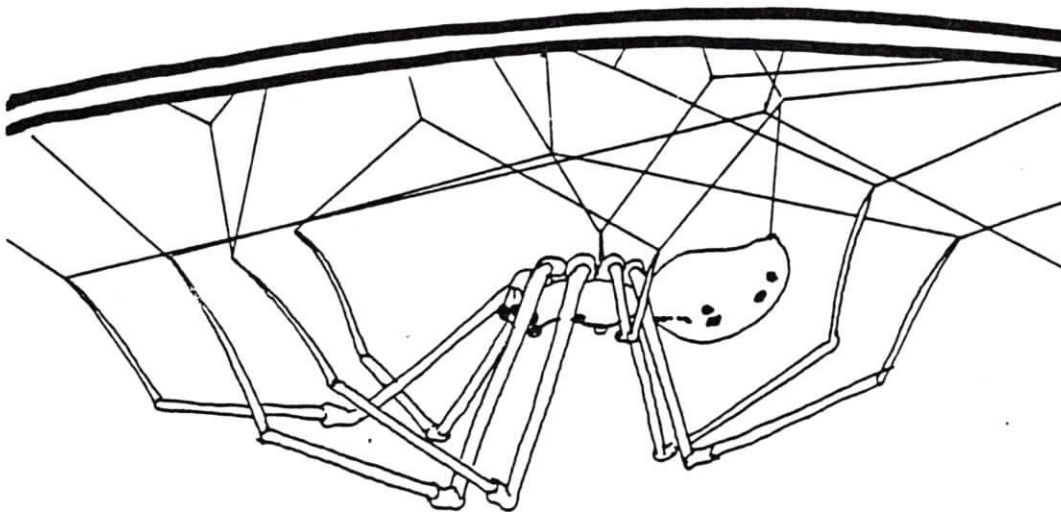
BASIC FACTS ABOUT HAWAI'I'S FOREST ECOSYSTEMS

- 1) The Hawaiian Islands are part of a long chain of islands, some of which are sunken seamounts in the far northern Pacific, which have been forming for at least 70 million years.
- 2) The Hawaiian Islands are very isolated, more than 2,000 miles away from the nearest continent. Only about once every 100,000 years did a new species cross the ocean and become established in the Hawaiian Islands.
- 3) Plant and animal species were dispersed to the islands by the "three W's:" winds (such as the jet stream); wings (migrating birds like the Golden Plover); and waves (floating with the currents).
- 4) Pioneer species that did reach the islands found a great diversity of habitats ranging from dry desert to the rainiest place in the world; from sandy shorelines to valleys with deep, rich soils; from barren lava flows to boggy wetlands; from hot leeward coastlines to freezing mountain summits.
- 5) The pioneer species of plants and animals gradually spread into new habitats, adapted to new and varied conditions, and in doing so, they gradually evolved into new species.
- 6) Native species are those that arrived without human help. Species that are native to Hawai'i but are also found in other places are known as indigenous species; those that are found only in Hawai'i and nowhere else are said to be endemic species. (Taro, kukui, ti and about two dozen other plants are Polynesian introductions and are not native to Hawai'i.)
- 7) Most all of Hawai'i's endemic species evolved here in the islands. When using the term endemic, one should qualify it with a place, i.e. endemic to all the islands, to just one island, or to just one place on an island.
- 8) Hawai'i's forest ecosystems are unique because the great majority of species are endemic to the islands. More than 10,000 forms of life (plants, birds, insects, spiders, snails, etc.) evolved in Hawai'i and occur naturally nowhere else on earth.
- 9) About 90 percent of Hawai'i's flowering plants and more than 90 percent of native land birds are endemic to the islands, and about 99 percent of native insects and land snails are endemic to Hawai'i.
- 10) Many endemic species occur in limited areas and/or in small numbers. There are numerous threats to their survival, and many species have already become extinct.
- 11) Introduced or alien species are currently considered to be the greatest threat to survival of native plants and animals.
- 12) Nearly two-thirds of Hawai'i's original forest cover has been lost. Not only are the native plants and animals lost from these areas, but less water percolates into the ground to recharge the islands' fresh water supplies. Native forests provide habitats for native animals; when forests disappear, so do the native birds, snails, and insects that depend on these forests for survival.
- 13) Loss of native forests causes an increase in erosion; the soil runs off into streams and eventually ends up in the ocean, where it harms the coral reef and ocean life that lives on or near the reef.

Figure 12. Diurnal and nocturnal postures of *Theridion grallator*. During the day, the spider holds itself flat against the leaf surface, minimizing shadow and cross-sectional profile. At night, or in darkness, the spider assumes a more theridiid-typical angular pose, and expands its web structure. 12a: Diurnal pose. 12b: Nocturnal pose.

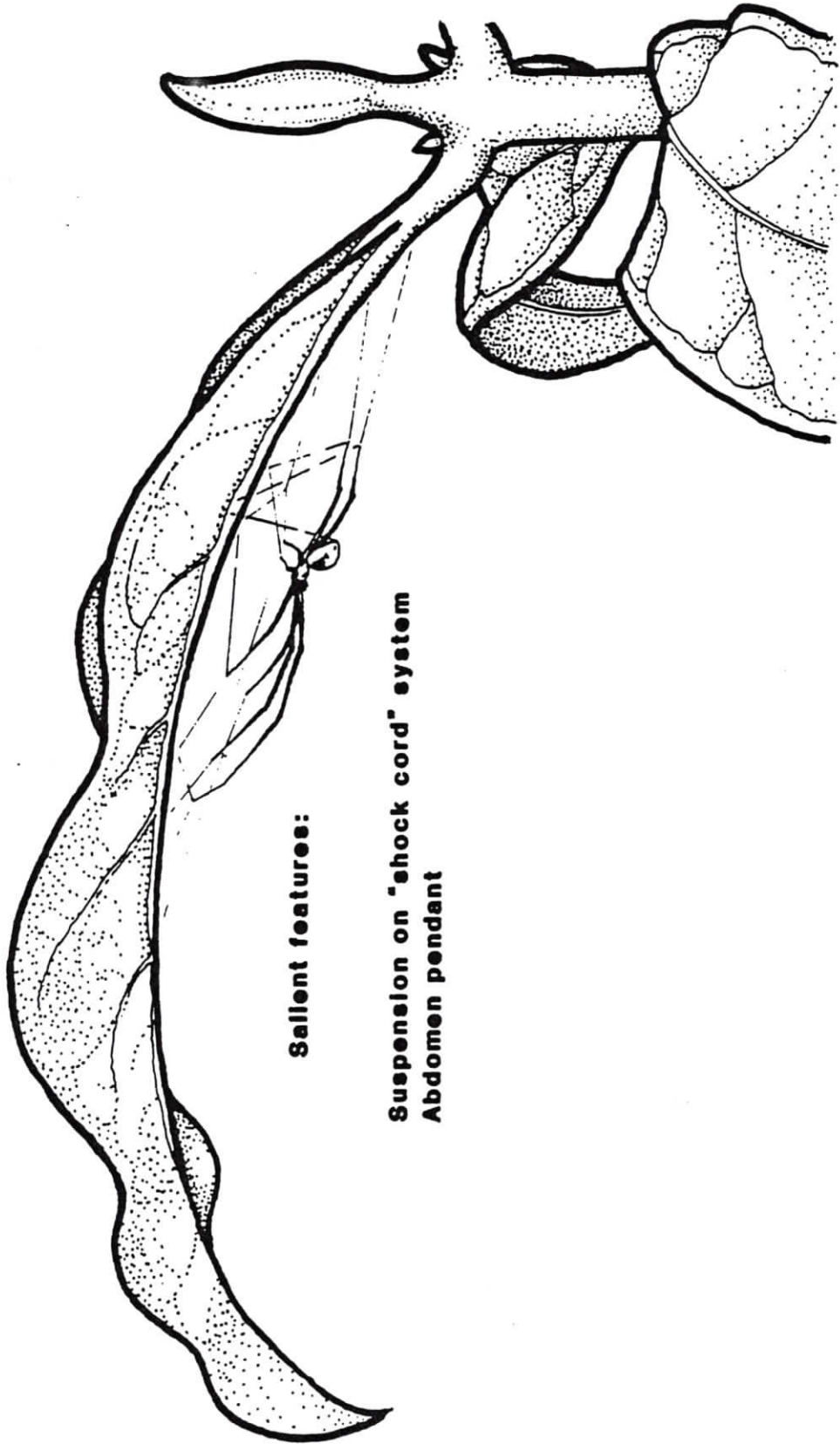


12a



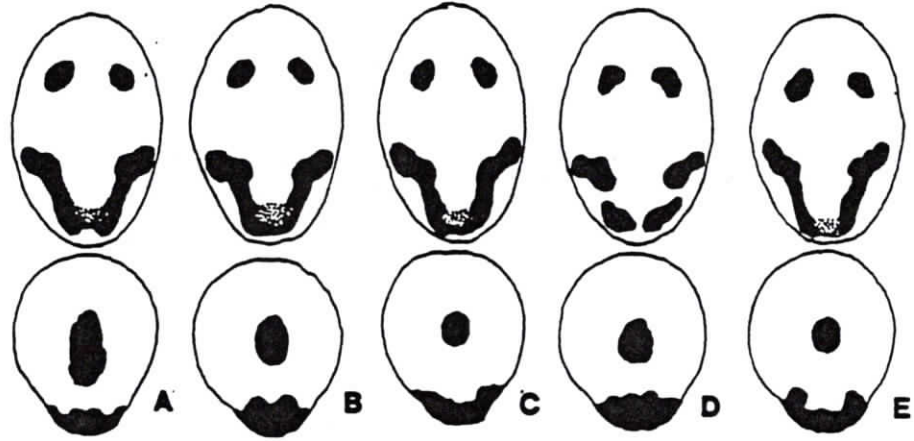
12b

Inclement Weather Posture of *Theridion grallator*



Intra-population Variation in *Theridion grallator* Simon

MALES



FEMALES

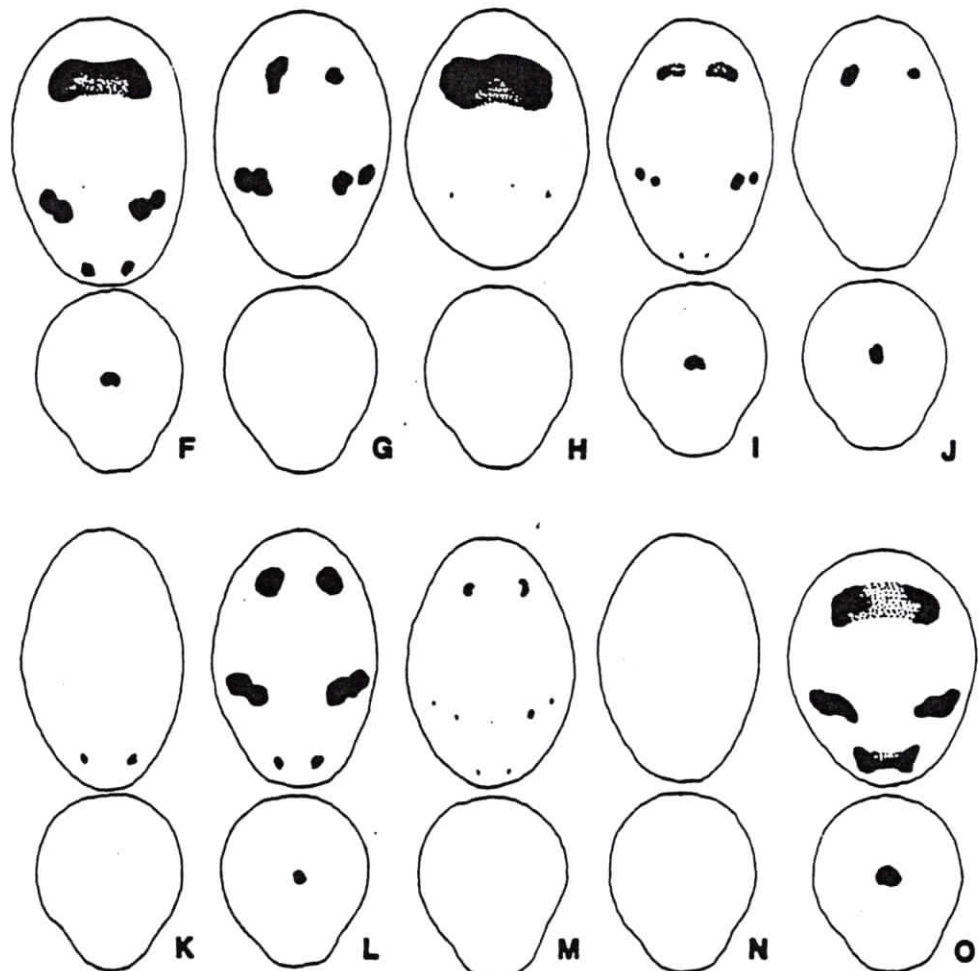
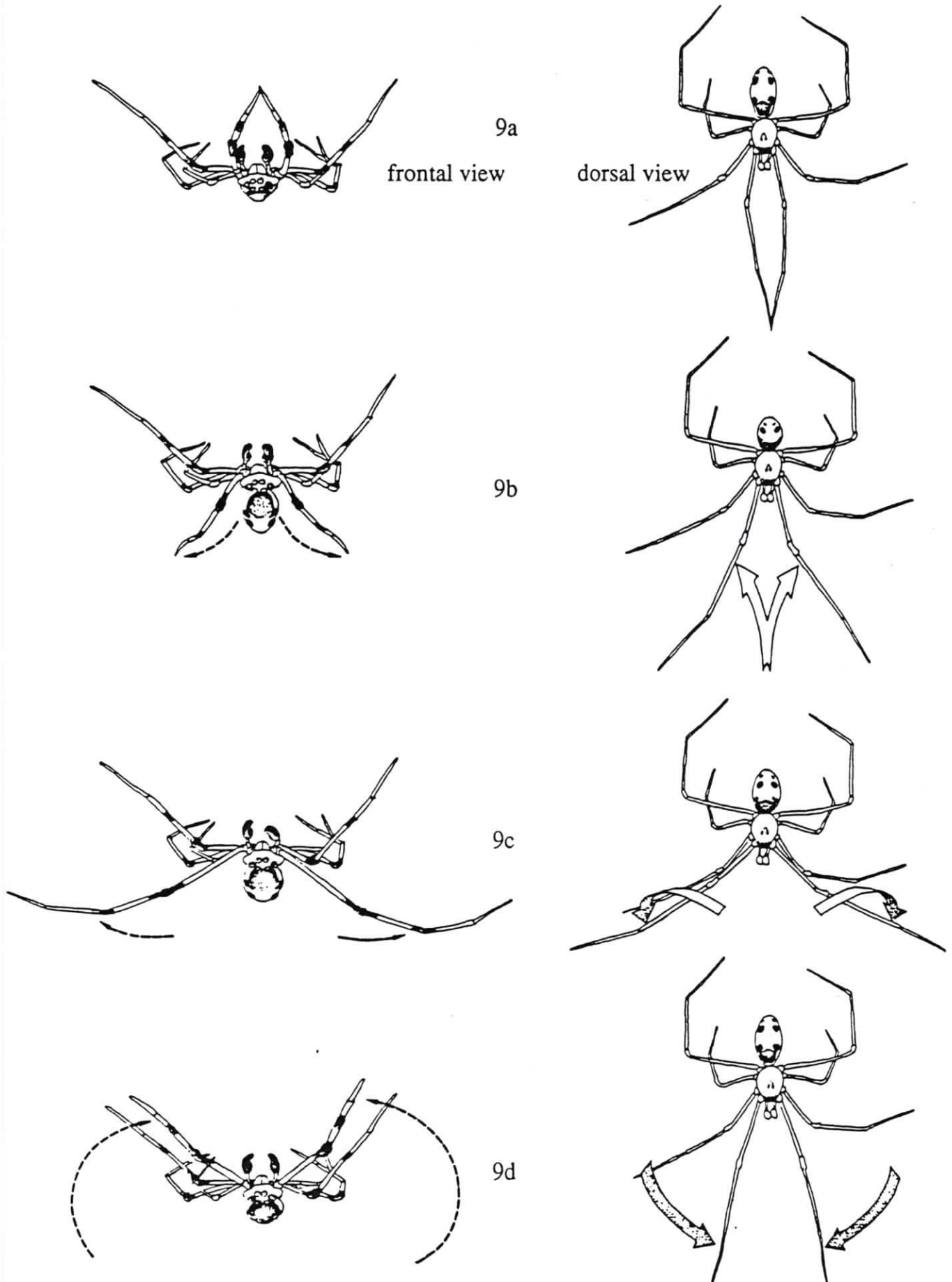
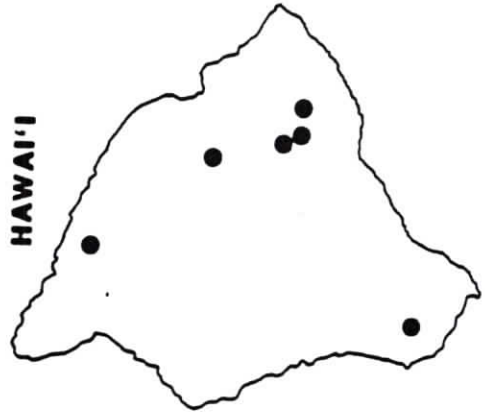


Figure 9. The pluck-wave movement is a courtship-specific movement that involves a plucked release of a webline held by the forelegs (Figs. 9a-9b), and a circular waving of the forelegs, returning to the original position (9c-9d).





Refer to Map Details for Maui and Hawai'i Sites
(Subsequent Pages)



Distribution of *Theridion grallator* in the Eight Major Islands of the Hawaiian Archipelago

- Species records
- No island records

FIGURE

ENVIRONMENTAL EDUCATION IN HAWAI'I

You can hear the wind coming from afar, almost like a wave swirling through the forest, setting the leaves to dancing, then leaving silence in its wake. Listen closely and the silence comes alive--birds singing just for the joy of life, bird songs that say: "Here I am. Where are you?" Crickets chirping in harmony, a brief rustling tells of some small animal scurrying through the underbrush. To experience the peacefulness that lives in the shimmering groves of the deep forest, to see the rich texture of the forest through sound, smells, and the light touch of a misty breeze...this is education through experience.

Efforts throughout the State are providing opportunities for youth to experience Hawai'i's unique forest environments. Big Island sixth graders have for years enjoyed three-day outings to an outdoor education facility at the old Volcano School near Hawai'i Volcanoes National Park. Several programs are available to students on O'ahu, such as the classroom preparation and guided field trips into Moanalua Valley provided by Moanalua Gardens Foundation, environmental education programs at Ho'omaluhia Park in Kāne'ohe, and a rapidly growing outdoor education program provided by Hawai'i Nature Center in Makiki Valley. Hawai'i Nature Center is expanding to Maui, where a site has been selected for a second outdoor education facility.

Kaua'i District is moving ahead with plans for the Kōke'e Center for Environmental Education (KCEE), a project that received start-up funding from the 1991 Legislature. Surrounded by dozens of miles of maintained hiking trails and diverse forest ecosystems full of native plants and wildlife, the Kōke'e Center for Environmental Education will offer overnight accommodations and a wide variety of activities at a natural landscape camp designed for outdoor learning.

In *Listen to the Forest*, students see examples of the fascinating life of Hawai'i's forests, and some respectful users of the forest. It will take some extra effort by teachers, but a field trip to see and experience a Hawaiian forest would make a fine follow-up to the film. Give it a try...Create the opportunity for your students to *Listen to the Forest*.

LISTEN TO THE FOREST

A Film by Eddie & Myrna Kamae

GLOSSARY

Spelling, definitions, and pronunciation
of Hawaiian and other terms
in the film and Resource Unit



The primary resource for information reproduced in this section is The Hawaiian Dictionary by Mary Kawena Pukui and Samuel H. Elbert. Definitions listed are those that relate to usage heard in the film.

GLOSSARY

The primary resource for information reproduced in this section is the Hawaiian Dictionary by Mary Kawena Pukui and Samuel H. Elbert. Definitions listed are those that relate to usage in the film.

<u>Word</u>	<u>Definition</u>
a'a	Small root, vein, artery, nerve, tendon.
'āina	Land, earth.
akua	God, goddess, spirit, ghost, deity, image.
'amatihi* ('amakihi)	A small group of Hawaiian honeycreepers. The feathers are yellow and greenish, and were formerly used in feather capes. *Older spoken and spelled form.
'ama'u	All species of an endemic genus of ferns, with trunk more or less evident. The fronds are narrower, smaller, and less divided than those of the hāpu'u.
Aotearoa	New Zealand.
'atatane* ('apapane)	A Hawaiian honeycreeper, with crimson body and black wings and tail, found on all the main Hawaiian Islands. Its feathers occasionally were used for featherwork. *Older spoken and spelled form.
'aumakua	Family or personal god.
'awapuhi	Wild ginger, a forest herb introduced to Hawai'i by the Polynesians. It has narrow leaves arranged along a stalk one to two feet high, bearing on a separate stalk small yellowish flowers in a red oblong head, and having aromatic underground stems.
'elepaio	A species of flycatcher with subspecies on Hawai'i, O'ahu and Kaua'i. The bird was believed to be the goddess of canoe makers.
"gook"	Oozy, sloppy dirt or debris.
hā	Stalk that supports the leaf and enfolds the stem of certain plants, as taro, sugar cane; breath; to breathe, exhale.
hāhā 'ai a ka manu	A lobelioid eaten by the birds. A native lobelia relative found in high mountains of Kaua'i; a shrub or small tree with many branches; oblong and narrow leaves; greenish-purple, curved flowers; and sweet, edible orange fruits.
Hāloa; Hāloa-naka	Name of a son of Wākea who was born in the form of a taro; he was said to be the ancestor of high chiefs. Lit. long stalk.
hāpu'u	An endemic tree fern, common in many forests of Hawai'i, as at Kīlauea Volcano and now frequently cultivated.

GLOSSARY (continued)

hula	Hawaiian dance.
huli	To turn; to curl over, as a breaker. To look for, seek; search, investigation. Taro stalk, as used for planting.
'ie'ie	An endemic woody, branching climber growing luxuriantly in moist forests. The ringed stems end in tufts of long, narrow leaves, in the center of which flowers are borne on cylindrical spikes surrounded by leafy bracts, which are green with pinkish-orange bases. Aerial roots were used for making fish traps.
'i'iwi	An orangy-red honeycreeper found on all the main islands; its feathers were used extensively in feather-work.
kahiko	Old, ancient; old person.
kāhuli	Tree snails.
kahuna lā'au lapa'au	Hawaiian healer; medical practitioner.
kama'āina	Native-born, one born in a place, host; native plant; familiar.
Kanaloa	Name of one of the four leading Hawaiian gods, a god of healing and god of the ocean.
Kāne	Male, husband, male sweetheart, man; brother-in-law of a woman; male, masculine; to be a husband or brother-in-law of a woman. Name of one of the four leading Hawaiian gods, the giver of life and source of water.
kino lau	Multiple forms assumed by a supernatural being.
kupuna	Elder. Grandparent, ancestor, relative of the grandparent's generation, grandaunt, granduncle.
kupuna loea	Hawaiian elder of acknowledged expertise.
lā'au	Medicine; medical. Plant, tree, wood, forest.
Laka	Goddess of the hula.
lava	Magma that issues from a volcano.
lei	Garland, wreath; necklace of flowers, leaves, shells, ivory, feathers, or paper, given as a symbol of affection; beads; any ornament worn around the head or about the neck.
lepo	Dirt, earth, ground, filth, excrement; dirty, soiled.
ma'a	Accustomed, used to, knowing thoroughly, habituated, experienced.

GLOSSARY (continued)

mahalo	Thanks, gratitude; to thank. Admiration, praise; to admire, to praise.
makua	Parent, any relative of the parents' generation, as uncle, aunt, cousin; Catholic father. Main stalk of a plant; adult; full-grown, mature, senior.
mālama	To take care of, care for, preserve.
mālama 'āina	To take care of the land.
mold	Superficial often wooly growth of a fungus produced on damp or decaying organic matter or on living organism.
nananana-maka-'aka'aka	Happy-face spider.
niu	The coconut, a common palm in tropical islands of the Pacific and warm parts of eastern Asia; coconut meat.
'ohana	Family, relative, kin group; related.
'ōhi'a	Two kinds of trees. A tree of the 'ōhi'a-lehua, or the mountain apple, 'ōhi'a-'ai.
'ō'ō	A black honeyeater, with yellow feathers in a tuft under each wing, which were used for featherwork. There have been no sightings of this bird for several years.
'ōpae	General name for shrimp.
'ōpiko (kopiko)	About eight species of trees belonging to a native genus, a member of the coffee family. Leaves are thick, leathery, blunt or pointed; flowers small, white, clustered at the ends of long stems at branch tips.
palapalai	Same as palai, a fern. A lacy fern used for leis by hula dancers; one of the plants of Laka, goddess of the hula.
pau	Finished, ended, completed, over, all done; final.
pulelehua	Butterfly, moth, the Kamehameha butterfly.
pūpū kani oe	The shell of high pitched sound, singing snails; a name for Hawaiian tree snails.
pūpū rangi	"The voice in the sky." A name for New Zealand tree snails.
spores	Tiny dust-like reproductive cells produced by ferns and mosses.
taro (kalo)	An important food, the staple starch of the Native Hawaiians.
uluhe	All Hawaiian species of false staghorn fern, weedy, creeping, branching ferns, forming dense thickets.

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Colleen Murakami - Environmental Education Specialist

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