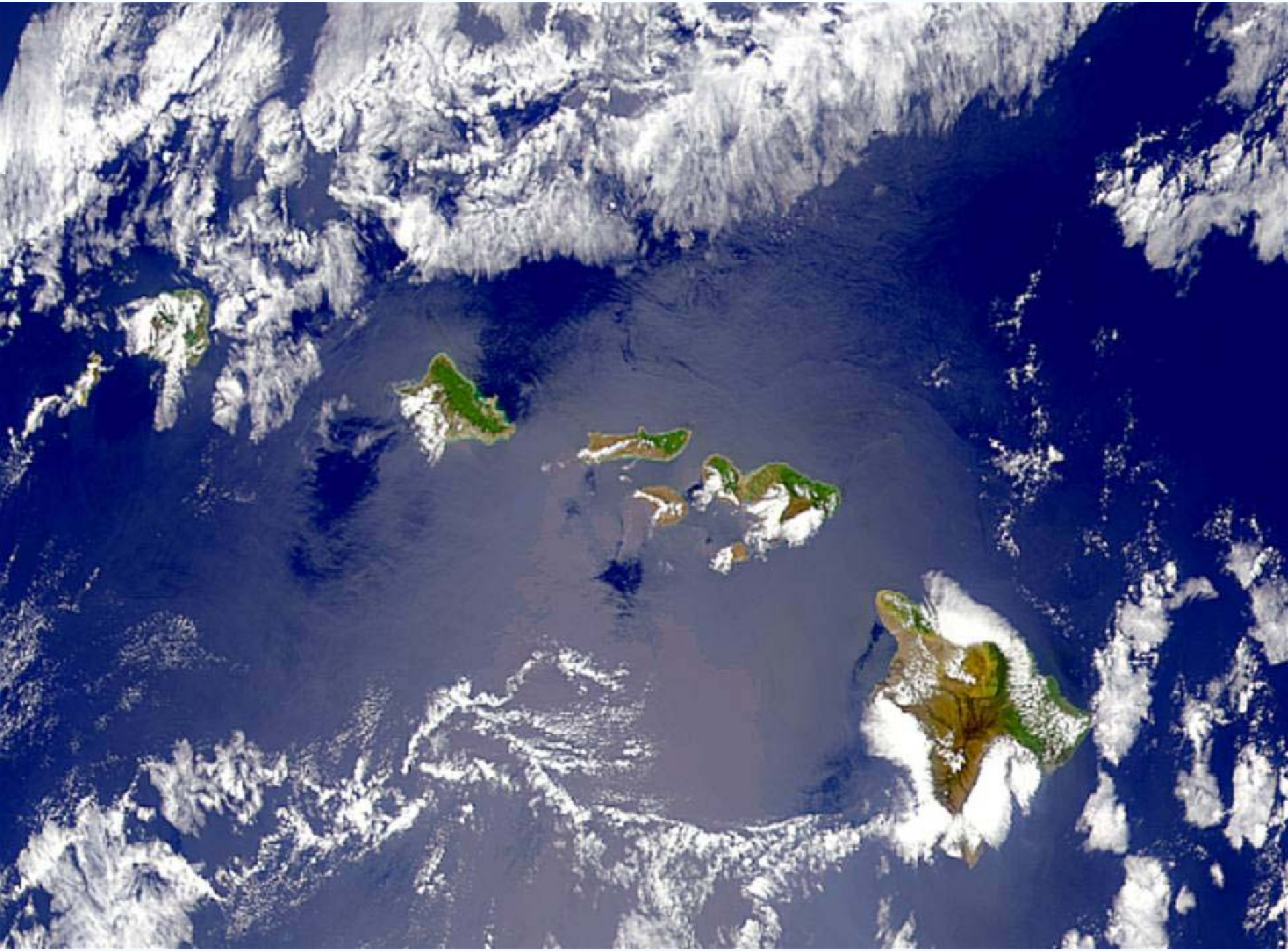
The Effect of Escaped Agricultural Plants on Hawaii's Environment

JUMPING THE FENCE LINE: ESCAPED AGRICULTURAL PLANTS IN HAWAII

Kauai presentation by:
Mindy Wilkinson, Invasive Species Coordinator, Department of Land and Natural Resources, Division of Forestry and Wildlife

Big Island, Maui, Oahu presentation by:
Christy Martin, Public Information Officer
Coordinating Group on Alien Pest Species

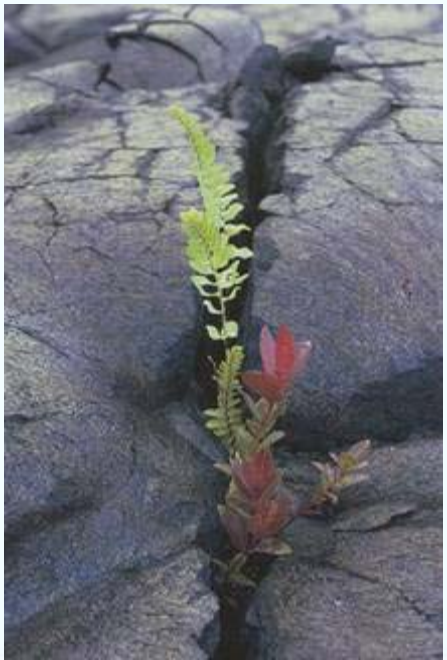


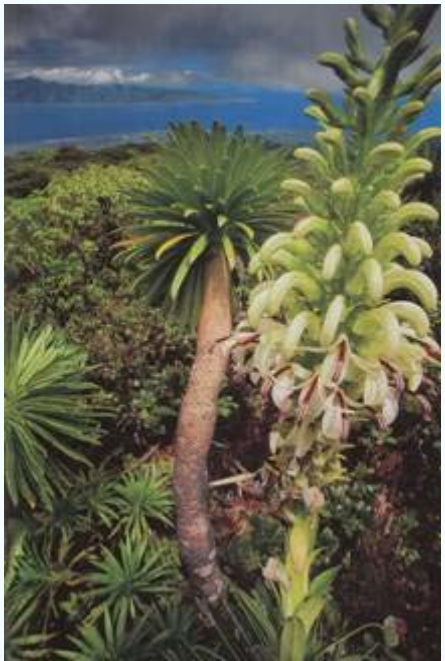
Hawaii's First Arrivals

Some seeds, spores and insects arrived on the wind.

A few birds flew or were blown off course. In them or stuck to their feathers were more seeds.

Some seeds managed to float here on ocean currents or waves. Ocean currents also carried larval forms of fish, invertebrates, algae, and even freshwater stream species.

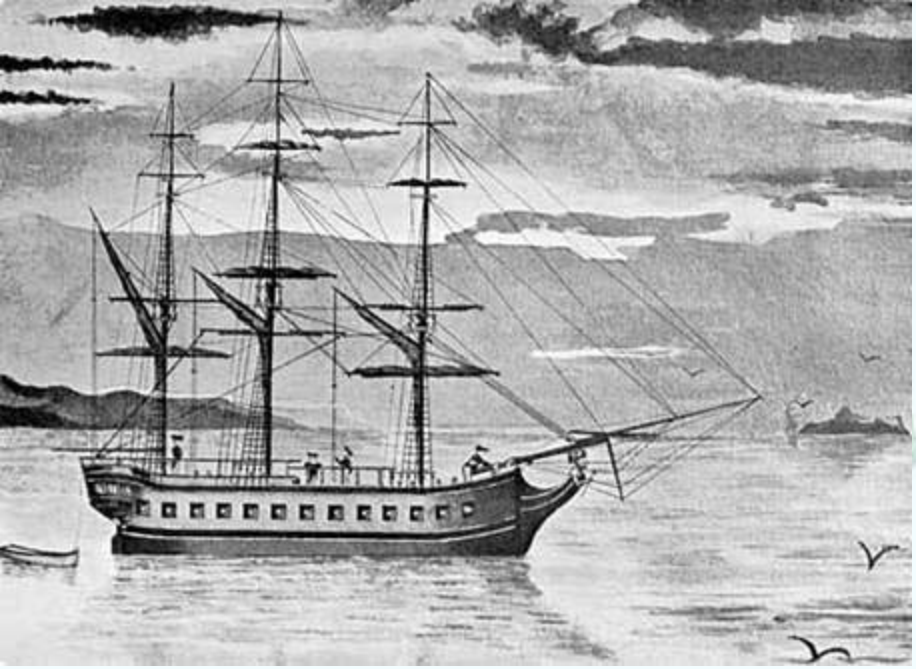




Hawaii's native ecosystems are the result of 70 million years of isolation and very slow change.

Nonindigenous (Alien) species = 34

1500 Years Ago



Nonindigenous (Alien) species = 500?

226 Years Ago

Nonindigenous (Alien) species = 5311

- 343 new marine/brackish water species
- Hawaii went from 0 to 24 land reptiles
- 0 to 6 amphibians (including coqui)
- More than 20 insects become established each year.

1 Year Ago

Estimate:
10,000 plants introduced;
200 causing ecosystem damage;
others may become invasive.

2 Years Ago

Not all alien plant species are invasive.

An **invasive species** is…

An alien species whose introduction does or is likely to cause economic or environmental harm or harm to human health (Exec. Order 13112)

Effects of Invasive Plants

Exclude other plants by resource competition: space, sunlight, water, nutrients

Exclude other plants by chemical competition

Change watershed recharge/water cycle

Change soil stability

Change fire regime

Change/reduce habitat and resources for other species

Support/promote other invasive species

Fence Jumping Plants

Introduction reasons vary:

Ornamental uses
Agricultural uses
Utilitarian

Many invasive plants are helpful in some areas even while damaging other areas.

Agricultural uses -- ag. production

Agriculture--Food

Forestry -- reforestation

Forestry -- industry

Ornamental uses--botanical exhibit

Ornamental uses--landscape

Ornamental uses--cont.

Utilitarian

Accidental introductions

Surveying for Plants: Playing Catch-up

From: Roadside Survey and Expert Interviews for Selected Plant Species on Maui

(Forest Starr, Kim Starr of PCSU; Lloyd Loope of USGS PIERC)

Compiled a list of **126 invasive plants** known to be invasive AND cultivated on Maui.

Drove 1,246 miles of roads at 5-10 mph to survey for and map these plants; collected additional location info from interviews, etc.

Surveying for Plants: Playing Catch-up

44% were widespread (+50 locations)
27% were medium distribution (10-50 locations)
23% were limited distribution (-10 locations)
6% were not found...and...

10 species showed range extensions

11 new state records

29 new island records

Surveying for Plants: Playing Catch-up

Of the 126+ invasive plants in the survey, less than 5% were unintentional introductions.

Addressing the Problem

Ongoing control of invasive plants via field crews and biocontrol

Planting with native plants (or at the very least, non-invasive plants)

Getting Ahead of the Problem

There are an estimated 250,000 plants in the world. Identifying the species that could pose a high risk to Hawaii before introducing it

Assessing the potential for a plant species to be invasive in Hawaii PRIOR to introduction should be mandatory.

Identifying and promoting non-invasive plants is a priority.

Moving towards a more proactive system

December 2001 meeting between plant industry and conservation groups organized by the Kaulunani Urban Forestry Program

Agreement: Dr. Curt Daehler of the University of Hawaii at Manoa and Dr. Julie Denslow of the U.S. Forest Service Institute of Pacific Islands Forestry would look at adapting and testing the **Hawaii-Pacific Weed Risk Assessment system** which was modified from Weed Risk Assessment systems used by New Zealand and Australia

The WRA system requires a "plant screener" to use published data to answer 49 questions about a plant's biology, ecosystem requirements and invasive history elsewhere

Codes of Conduct

Hawaii Goals: 3 main points

1. Have new plant introductions screened for their potential to be invasive (the Weed Risk Assessment sys).

2. Work with natural resource/conservation groups to identify some incipient (not widespread) invasive plants and agree to discontinue use/sale.

3. Identify non-invasive alternatives and help promote the use of non-invasives.

Mahalo to the following for their photos:
HDOT, Forest and Kim Starr, JB Friday,
Hana Tropicals, DLNR, National Geographic,
OISC, MoMISC, TNCH, Anna Palamino,
Kealii Bio and Chad Yoshinaga