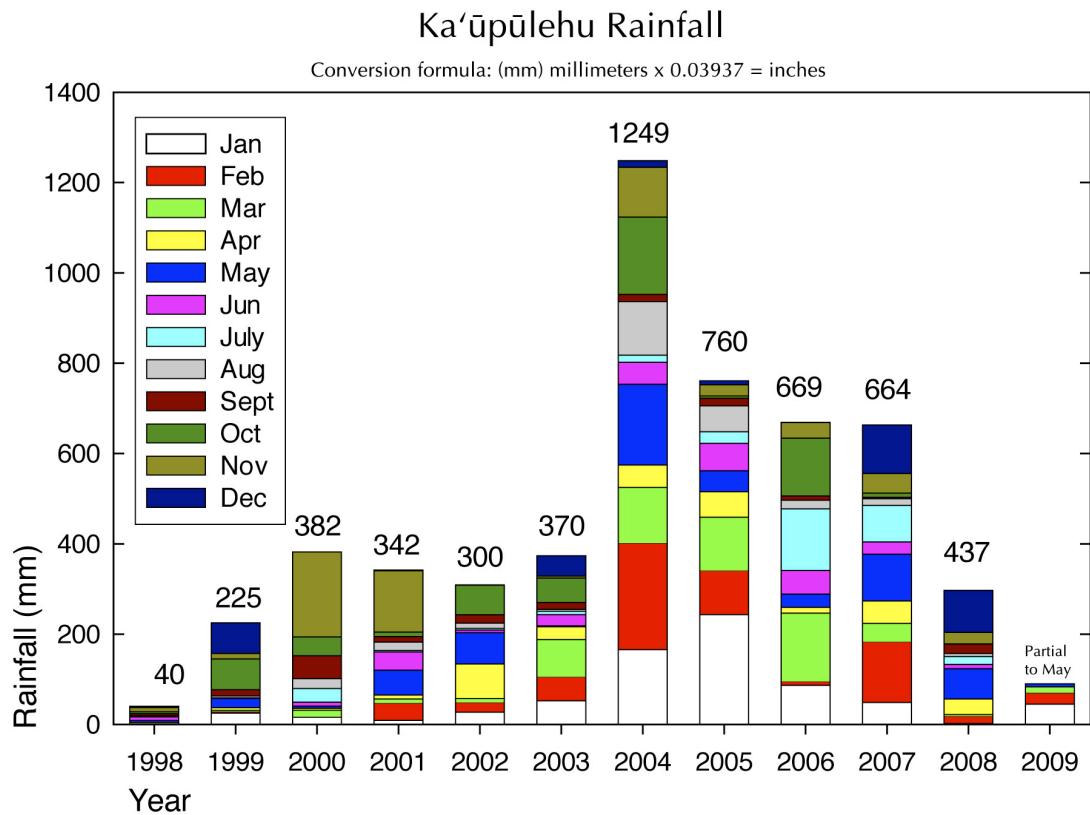


## Pulse Rainfall System

Dryland forest ecosystems are defined by their low amount of annual rainfall. Sites such as the Ka'ūpūlehu forest in Kekaha, (North Kona) region have what is known as a PULSE rain system. This is very different than ecosystems with predictable “rainy seasons”. This rainfall graph of the dryland forest reflects records kept by the USDA-Forest Service in Hilo. Mahalo to, Dr. Susan Cordell and her research team for this data.



## Pulse Rainfall Exercise 1:

### Resource:

Science uses the metric system for measurements. If you don't know metrics, there are formulas to convert from inches.

Millimeters (mm) to inches: millimeters  $\times$  0.03937 = inches

Centimeters (cm) to inches: centimeters  $\times$  0.3937 = inches  
(centimeters  $\times$  10 = millimeters)

There are also online conversion sites such as this one:

<http://www.google.com/intl/en/help/features.html#calculator>

Use the Reference Tools calculator.

### Reference Tools

#### Calculator



To use Google's built-in calculator function, simply enter the calculation you'd like done into the search box.

Example: 1249mm in inches

Search

### Activity:

Use either method above to convert the 2004 high rainfall year of 1249mm to inches. See the illustration above to use the Google calculator. Round off to no decimal points.

Which answer is correct?

- A. 12 inches
- B. 125 inches
- C. 49 inches
- D. 36 inches

Next, which year is the lowest rainfall year?  
Write the year, and amount in mm & inches.

### Bonus Activity:

Determine the overall average rainfall from 1998 – 2008 in inches and mm.

## Pulse Rainfall Exercise 2:

### Activity:

Use the rainfall graph above to see if you can figure out if there is a month or season that you could describe as a distinct "rainy season" or month for Ka'ūpūlehu. Each color represents a month. Then, discuss in small groups whether there is a particular month you would prefer to outplant native seedlings based on rainfall. Keep in mind that along with careful planting practices, water is basic to their survival. If you were to plant seedlings 4 times a year, decide as a group which months you would plant, based on the pulse rain system you have learned about through this graph.