



# Modern pollen analysis from Duck Valley Indian Reservation, Northern Great Basin

Destiny Max, Cedar Briem and Dr. Scott Mensing

<sup>1</sup>University of Nevada, Reno



University of Nevada, Reno

## Abstract

This is a modern surface pollen study focused at Blue Creek Wetland in Idaho, at the northern edge of the Great Basin. Analysis of modern pollen and its relation to the environment then can improve our ability to interpret paleoenvironmental reconstructions of vegetation. In this study we analyzed surface pollen from three different environments within the Great Basin and compare the results between sites.

## Introduction

Blue Creek Wetland on the Duck Valley Reservation, Idaho is located on the border of Idaho and Nevada at the northern edge of the Great Basin (Fig. 1). The majority of people living on the reservation work in agriculture. Pollen analysis can help reconstruct past changes in climate, such as long periods of drought that could potentially affect agriculture. In terms of modern pollen analysis and in relation to natural vegetation can help us interpret pollen from sediment cores and potentially identify past periods of climate change including extended periods of droughts. In this area the population of plant species consists of sagebrush, various grasses, and pine.



Fig. 1. Star represents the Duck Valley Indian Reservation where the samples and data from figures 2-4 come from.

## Methods

We collected multiple surface soil samples at three different locations at the Blue Creek Wetland; wetland, edge of wetland, and upland zone. We measured 1 cc of dry soil into test tubes from then the samples went through a standard process of chemical digestion this gets rid of dirt and rocks but keeps the pollen intact. When you are able to look at pollen under a microscope at 400x you can see the taxa and start to analyze the different characteristics of each pollen grain. An important part of analyzing pollen on slides is learning the names, family, genus, size, shape and texture of each pollen grain you see in the side as this can help narrow down what specific plant the grain came from. I plotted percentages of the main pollen types for each site (Figs. 2, 3, 4).

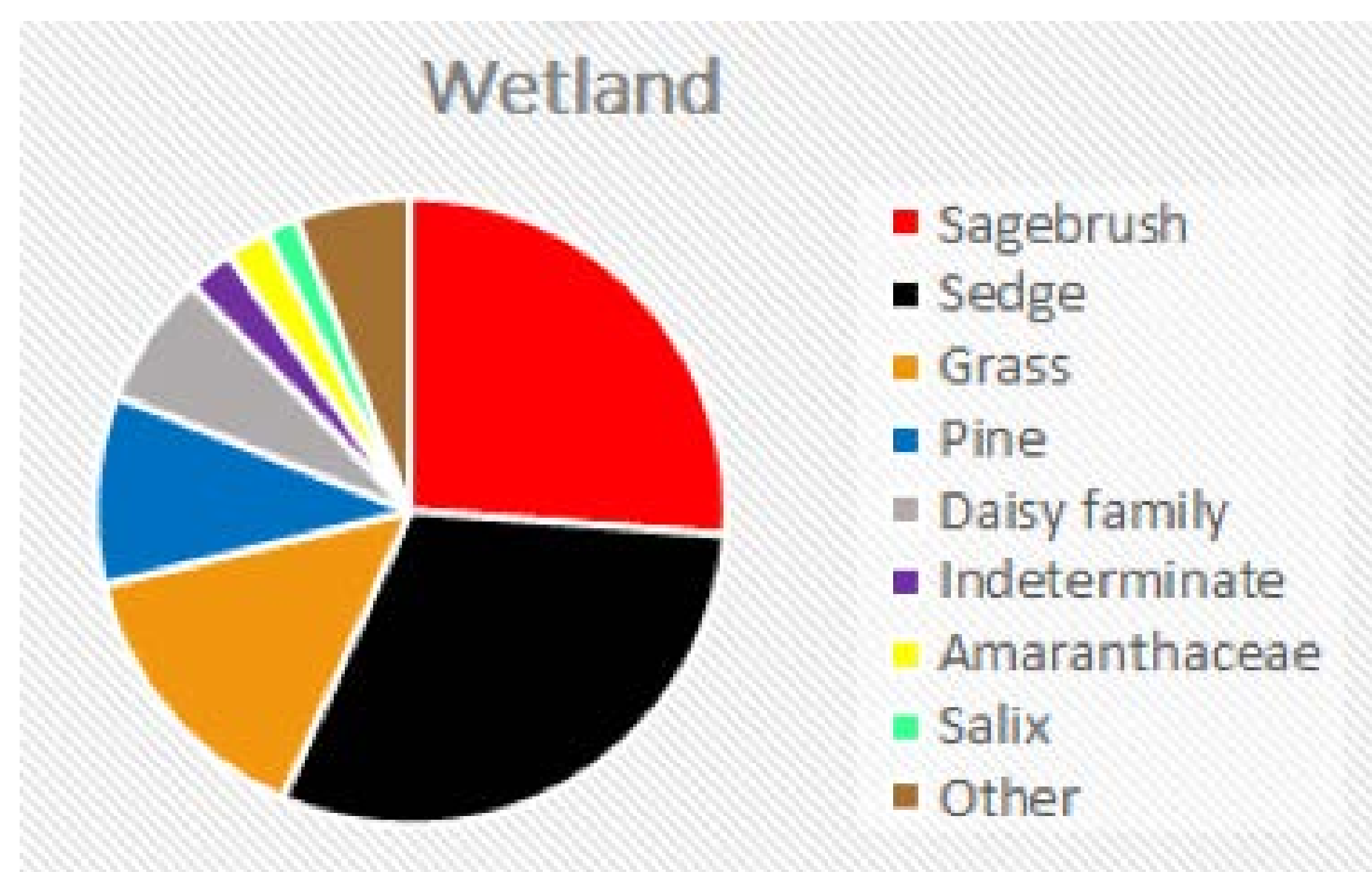


Fig. 2. -Wetland pollen percentages showing the most common pollen types found in the wetland.

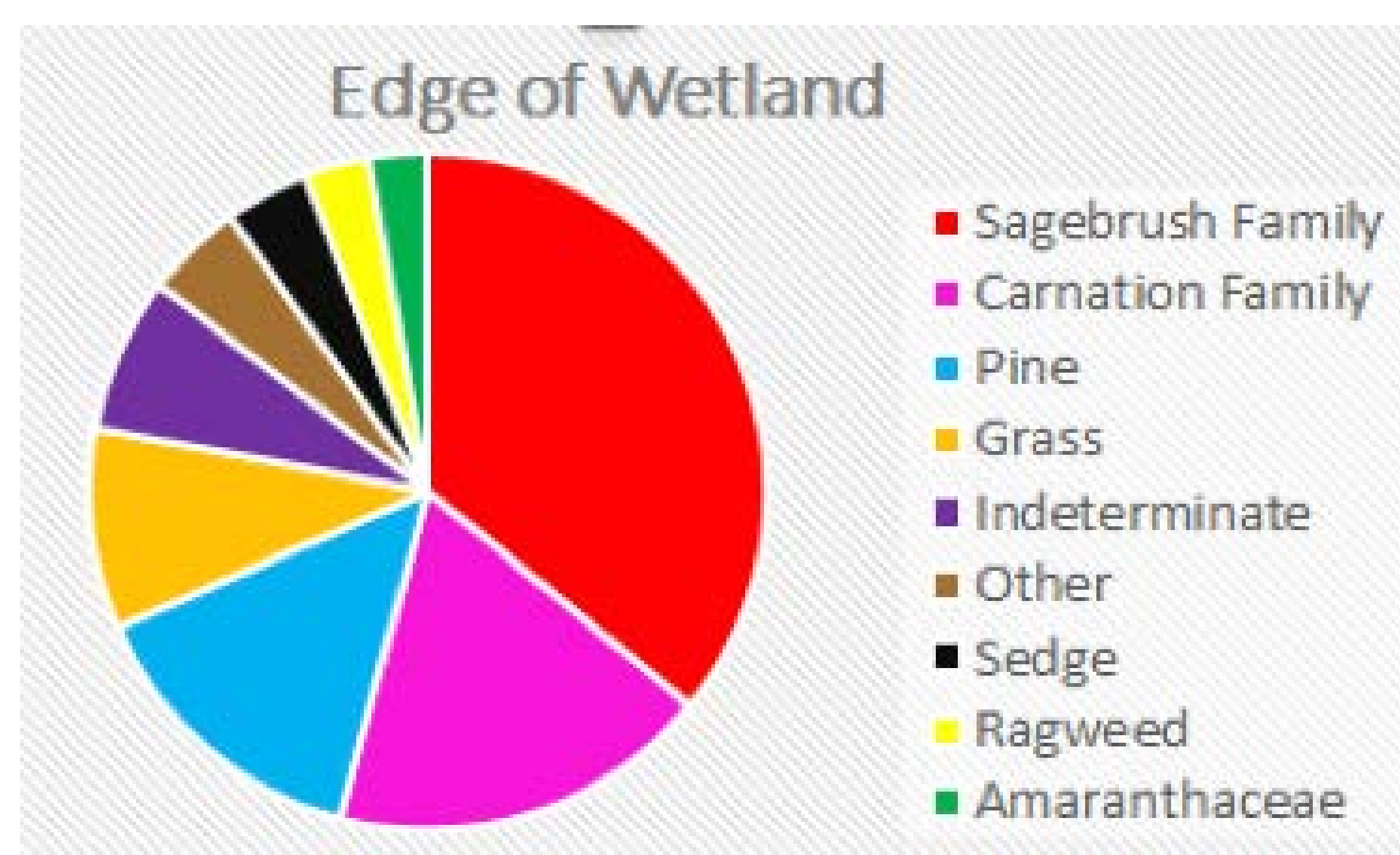


Fig. 3. Edge of the wetland pollen percentages showing the most common pollen types found on sites that are wet for part of the year.

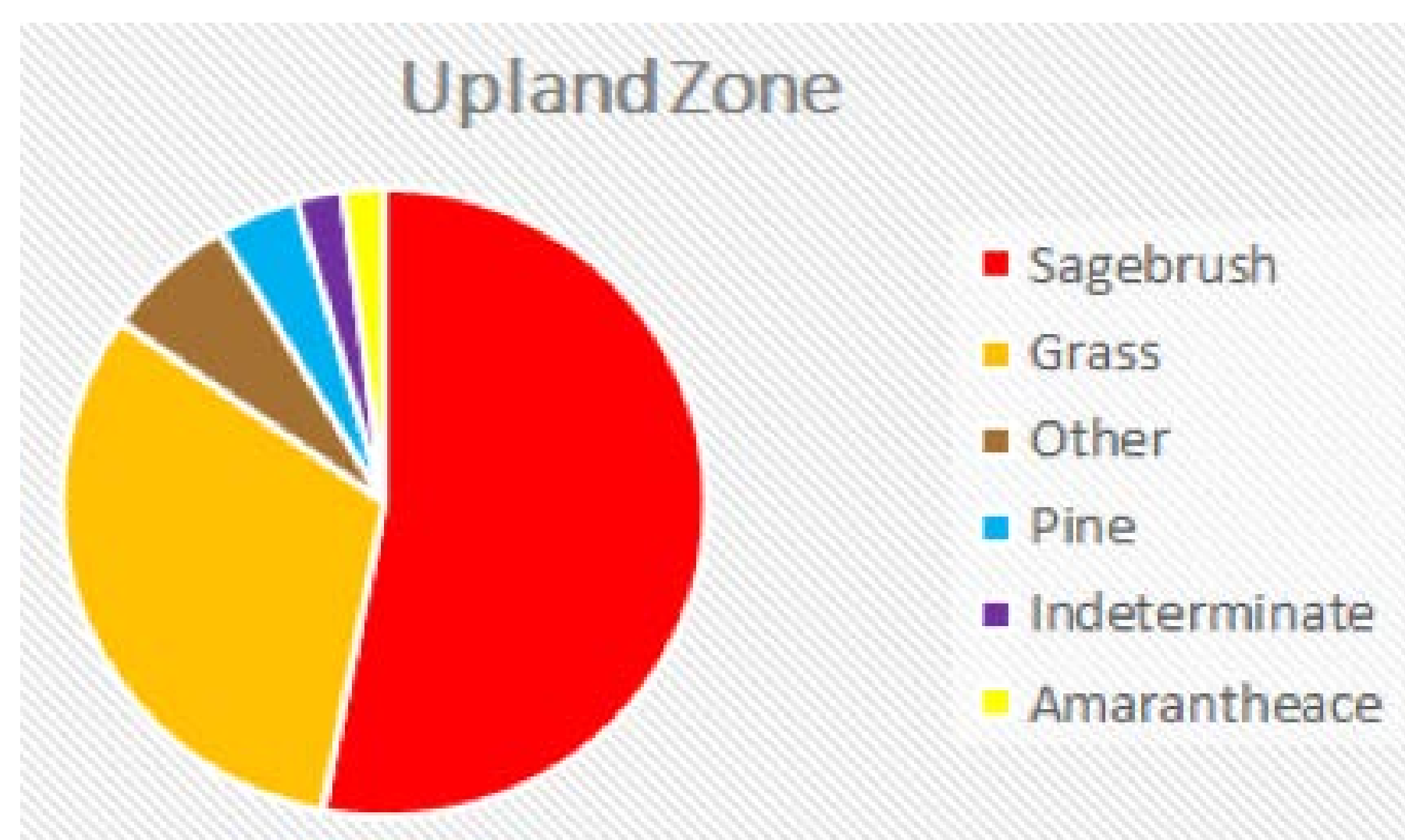


Fig. 4. Upland pollen percentages showing the most common pollen types found on sites that do not have water nearby.

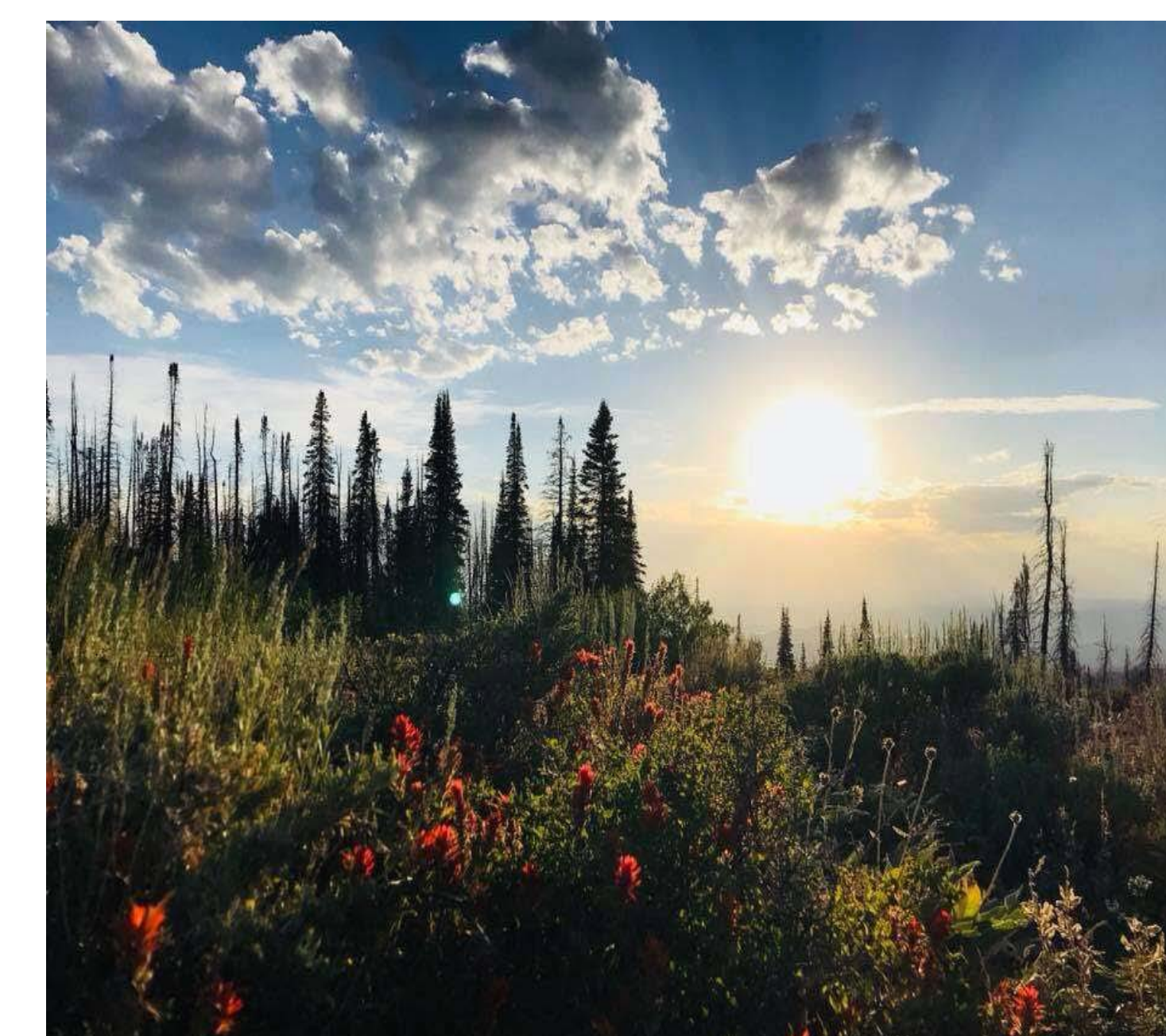


Fig. 5. Photo of uplands on the Duck Valley reservation.

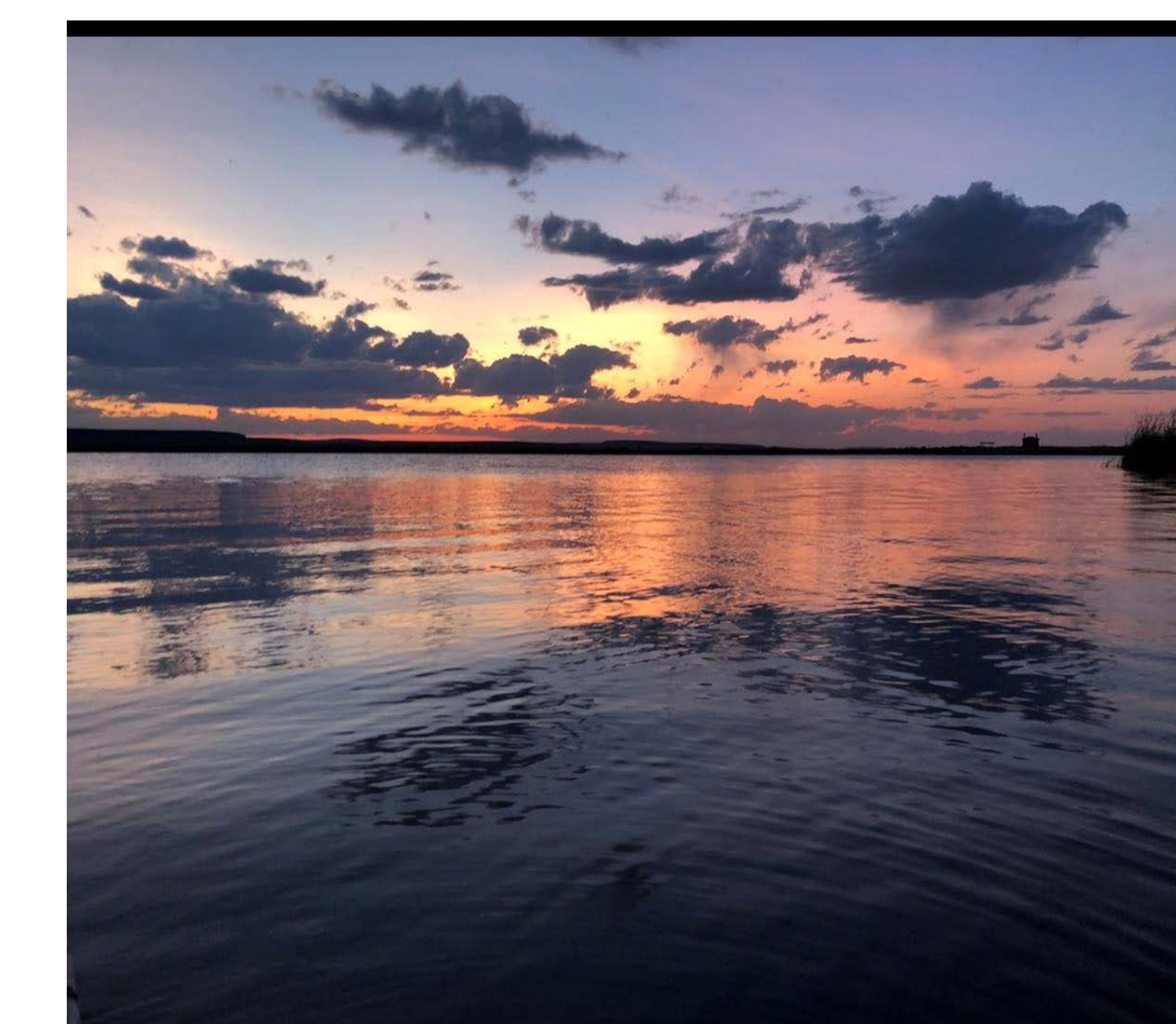


Fig. 6. Photo of Mountain View reservoir at Owyhee, NV on the Duck Valley reservation.

## Results and Discussion

In the Wetland the most common pollen type is sedge (30%) Followed by sagebrush (26%) the next common type of pollen would be grass (15%) Sedge is an essential part of the wetland because it needs water to grow. As we move away from the Wetlands and get to the Edge of Wetland we see that Sedge is not an essential part of the area with (4%) The main indicators to now are Sagebrush (36%) and the Carnation family (18%), possibly *Silene*, a common plant of open meadows. we also noticed more Pine (14%) in the area and notice that pine and flowers start becoming more common along with various other plants. Moving to the Upland Zone we see fewer plant types and a significant increase in sagebrush taking over (50%) of the chart. Following is grass with (32%). In more upland sites sagebrush is more common with vegetation.

When you move to each site you see a change in pollen from wet, transitional, and dry. If we were to take a core sample from the wetland this will help us interpret the climate of past and for example if we see less sedge and more sagebrush we can conclude that the area had a period of drought.

## ACKNOWLEDGEMENTS

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