



Beat The Heat!



How are Pikas recolonizing after a Forest fire at Mt Hood National Forest?

Juan Correa, Aaliyah Fitzke, Livi DePina, Norman Hammond, Emma Babson, and Noah Burre

Jane Goodall Environmental Middle School

Abstract

How are pikas recolonizing after a Forest Fire at Mt. Hood National Forest? The Pika group is studying the recolonization of the American Pika at Mt. Hood National Forest after the Dollar Lake Fire at the three sites called Talus 6, Talus 6B, and Cathedral Ridge. These three sites had roaming pikas all around until the fire came burning. Talus 6B was burned 100 percent. Talus 6 had 35 percent of its area burned and Cathedral Ridge 17 percent burned. We have been observing these sites for three years looking for evidence for surviving pikas. In these three areas we were looking at plant biomass, pika abundance, plant richness, hay piles, and the temperatures above and below the talus slopes. Our hypothesis is that the vegetation and pikas will start to come back. Our pika abundance graph shows how from 2012 to 2014 Talus 6B has had an increase by one pika known as "Lonesome George" and Talus 6 has had an increase of three pika. Cathedral Ridge actually had a decrease of one pika. Plant biomass is continuing to dramatically increase since the Dollar Lake Fire. For example, it went from 80.00 grams per square meter in the summer of 2012 at Cathedral Ridge to 419.60 grams per square meter in the fall of 2013 to 618.84 grams per square meter in the fall of 2014. Plant richness, the number of species found, has stayed about the same.



A Pika at Mount Howard taken by Ethan Thomas

Introduction

Pikas are small Lagomorphs that live in talus slopes with brown to black fur giving them camouflage. They have short stout bodies, small legs, big round ears and fur that thickens during winter and lightens in the hotter seasons. Pikas have a life span of 3 to 4 years and a gestation period of about one month. Their litter consists of 2 to 3 pikas, beginning with closed eyes, little fur, and a full a set of teeth. Predators of the pika are weasels, foxes, coyotes, bobcats, hawks, and eagles. When a pika spots an eagle or hawk, they will call out to each other warning of a predator. If the predator is a weasel, then they will only give out one little call. The American Pikas diet consists of fireweed, grasses, sedges, moss, thistles, and many more wild flowers. They even eat their own scat, which is poop, to gain back some of the nutrients that weren't completely digested. Also, they collect toxic plants that last longer during winter. In time, the plant lose its toxins and becomes edible. Pikas don't hibernate. Because of this, they collect vegetation to make a hay pile to eat during the winter. Pikas live on a talus. Talus's are slopes with various sizes of rocks and boulders. Pika stores their vegetation in the crevices where they also hide from natural predators.

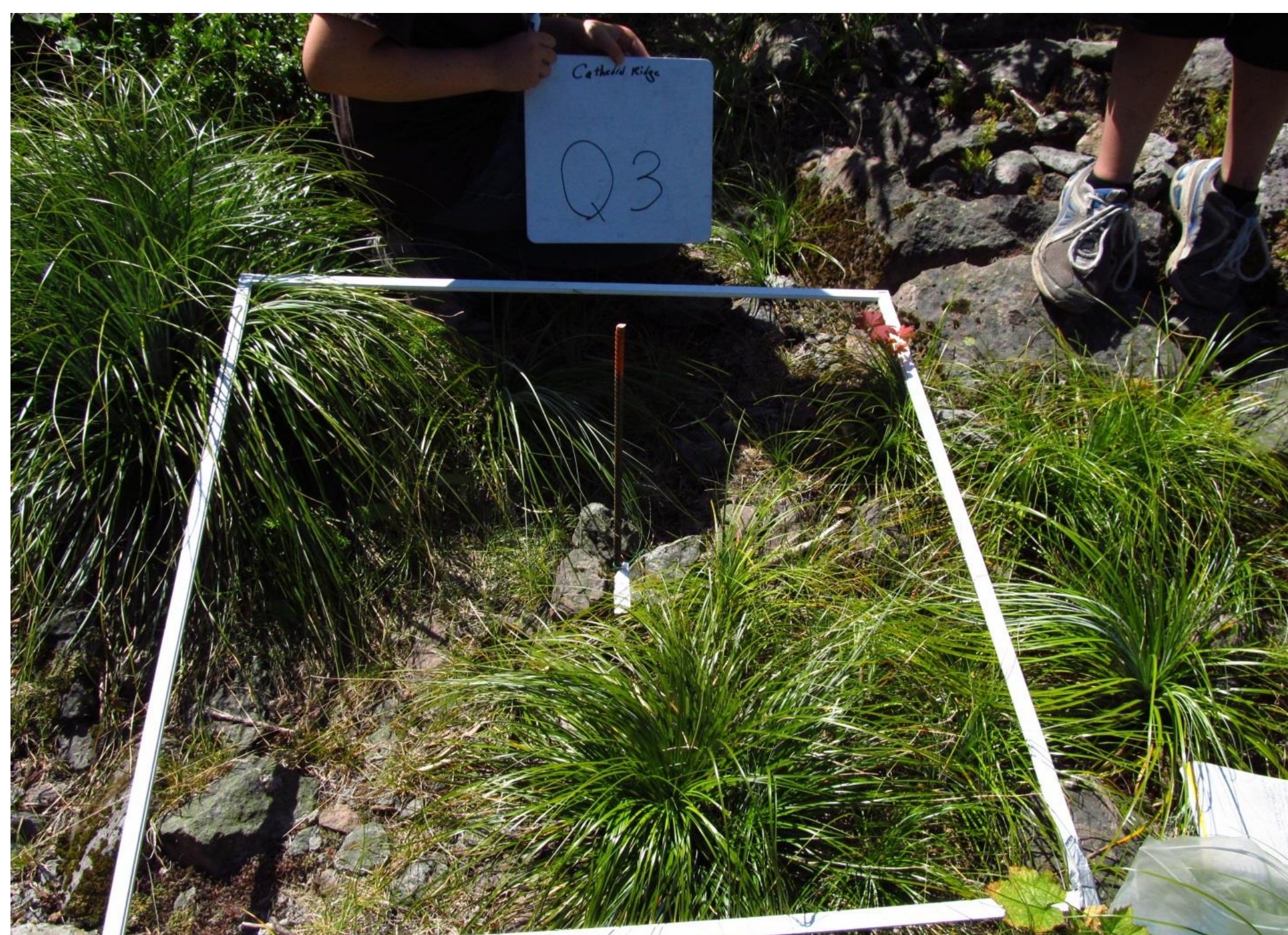
Our study site is in the Mt. Hood National Forest at three designated sites, Talus 6, Talus 6B and Cathedral Ridge. They are differentiated by the amount of plant loss due to the Dollar Lake Fire.

We also studies pika at a Columbia Gorge site, not influenced by a fire.

Materials and Methods

6 Binoculars
2 Temperature Data Loggers
2 Camera Traps
2 Quadrats (1 meter by 1 meter)

On August 18th we went to Mt. Hood National Forest and hiked to Talus 6 and 6B. First we split into two groups, one went to Talus 6 while the other stayed at Talus 6B. We took out our binoculars and watched for pika for around 20 minutes. Then we started walking along the slopes, looking for evidence of pika, haypiles and scat. We switched talus slopes and started counting plants in the quadrats to find plant richness. We then retrieved the camera traps that were placed last year, along with the temperature loggers. On August 19th we went to Cathedral Ridge and watched for pika as well as find plant richness. On November 6th we went up the Columbia River Gorge to observe the pika population there and set up a camera trap. On March 10th we went back to the gorge to retrieve the camera trap.



A quadrat at Cathedral Ridge

Searching for evidence of pika in the Columbia Gorge



A bear taken by a camera trap in Talus 6B



A pika in the Columbia Gorge



Discussion

Our hypothesis was initially that plant biomass, plant richness, number of juveniles, and pika abundance will increase. We found large increases in plant biomass from 2012 to 2014 at all three sites. We've found similar numbers of plant species. We also found pika population increases at Talus 6 (up 3) and Talus 6B (up 1) but saw a decrease of one pika from Cathedral Ridge. We think this decrease may be due to pikas moving out into others areas.

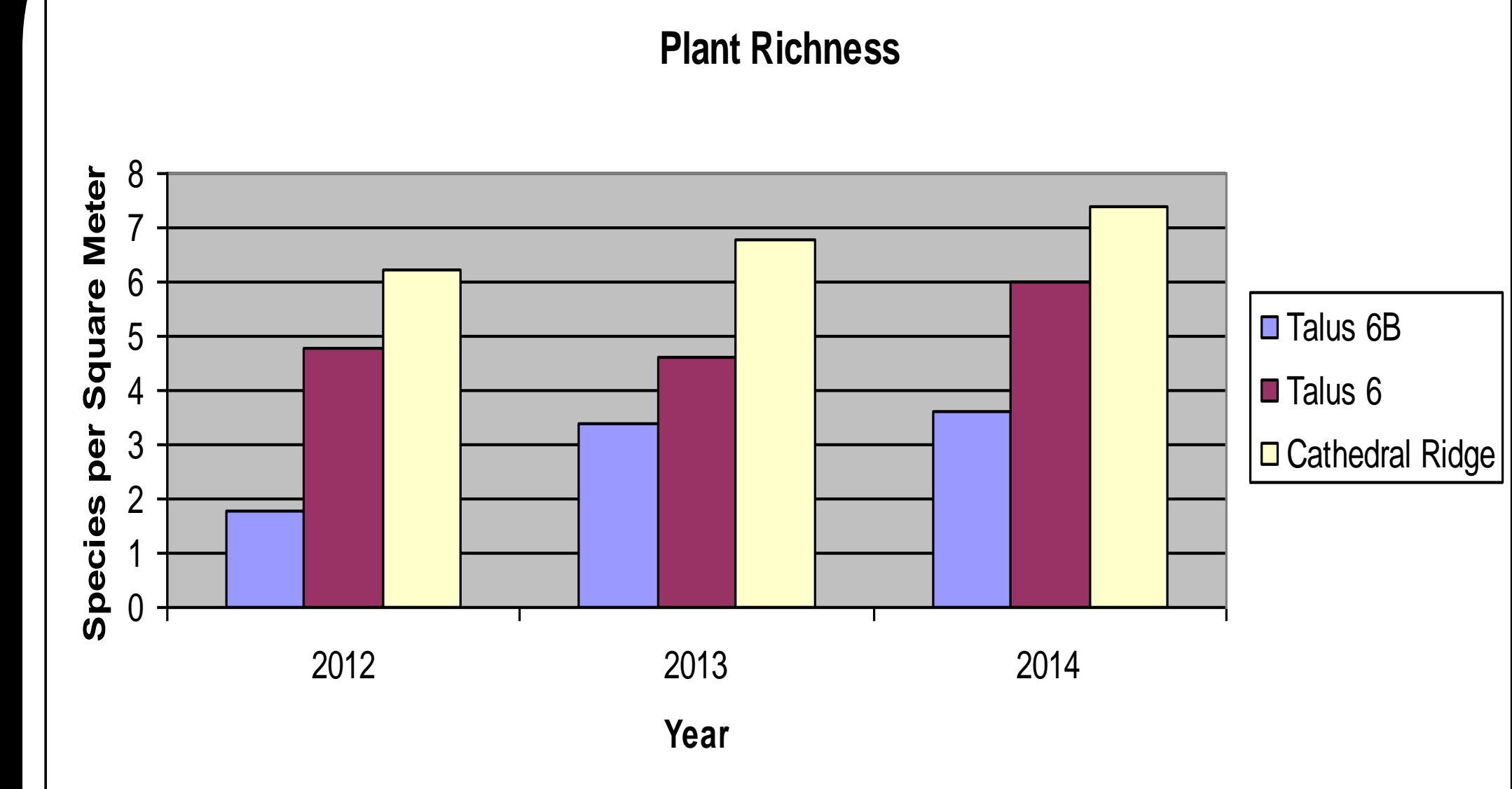
However, our temperature data suggests that future decreases in pikas will be caused by lack of snowpack. In fact, there appears to be an unusual lack of snow pack during the first part of the alpine winter of 2014-2015 on Talus 6 as well. We believe that the lack of snowpack is caused by climate change and we predict that next year's pika group will find a dramatic decrease in the population of pikas on all three taluses, particularly on Cathedral Ridge.

To improve our study, we could go out earlier to the talus slope, or we could attempt to bait the pikas so that we could see more of them. Although more than likely we missed some pikas or evidence of pikas during our transects, there is very little we can do to change that.

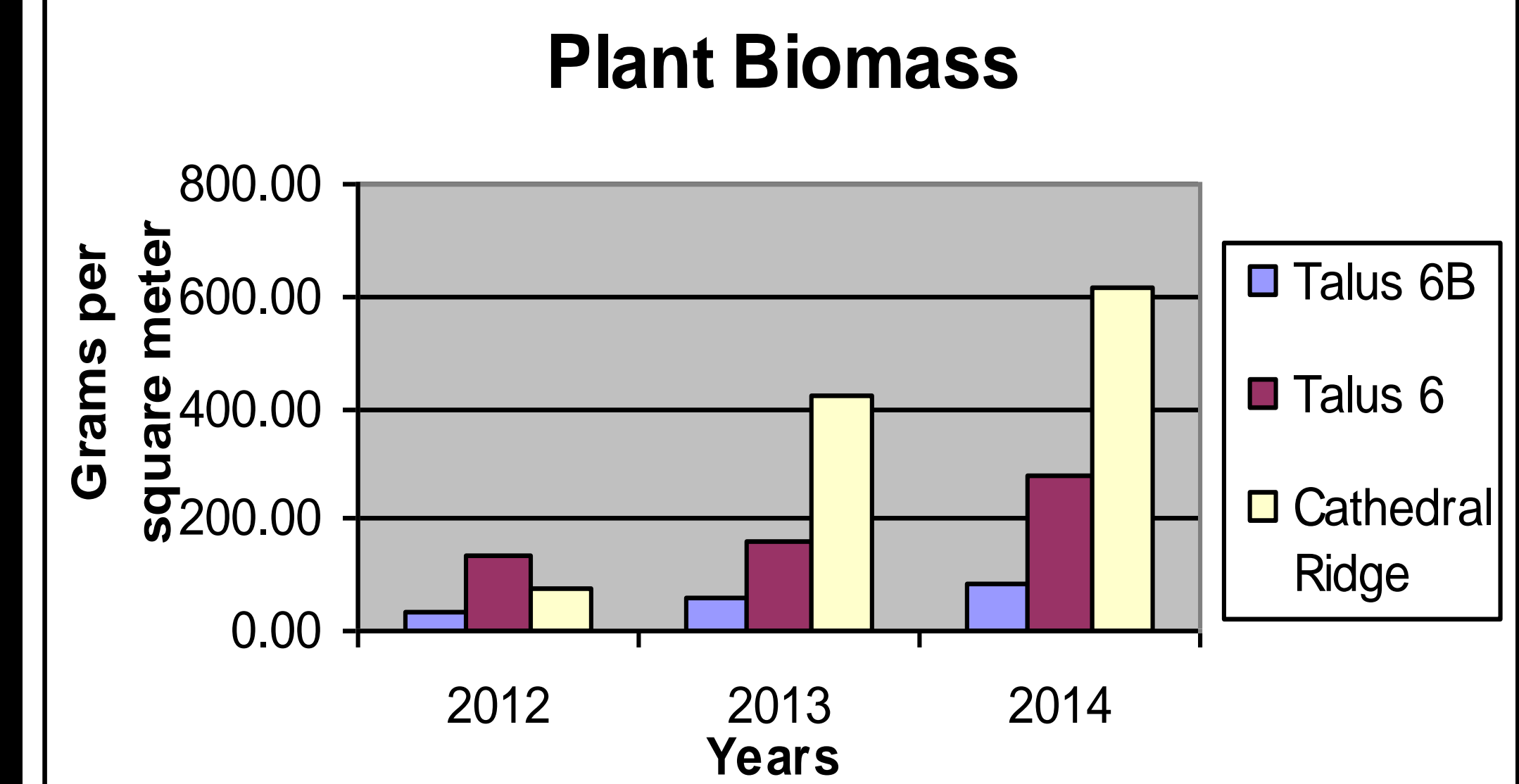
We suggest that in future studies, people continue to study how pikas recolonize areas after forest fires; also we suggest studying the correlation between the increasing threat of climate change and pikas. Studying the effects of forest fires on pikas natural predators would also be beneficial.

To protect the pika, we need to stop adding greenhouse gasses to the atmosphere. Doing simple things like buying environmentally friendly products and putting on sweaters can help slow the effects of global climate change. Other than reducing our carbon footprint, we can attempt to get the pika on the endangered species list.

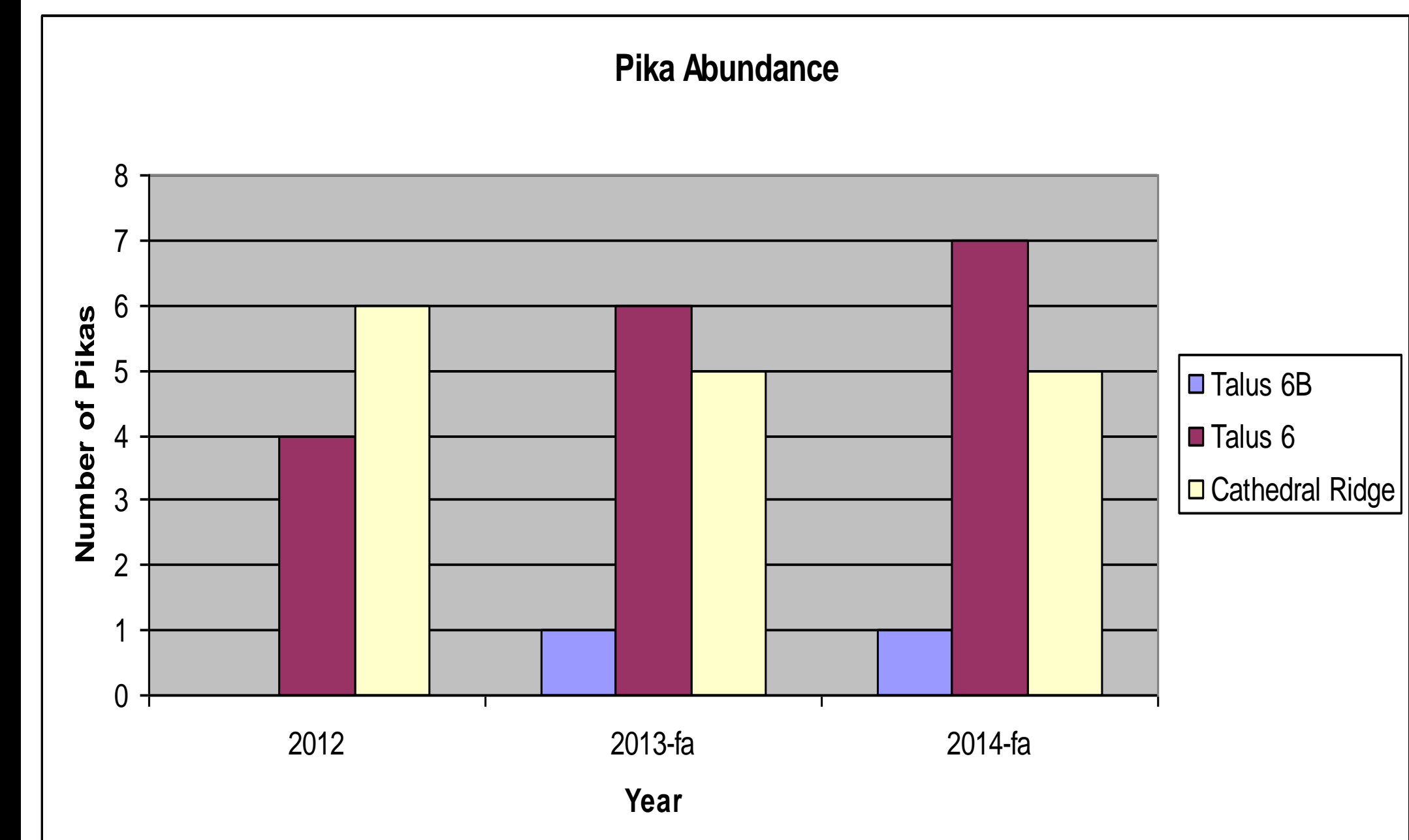
Graphs



In the three years after the Dollar Lake Fire, the plant richness has increased at each of the three talus slopes above. This is good because it means more food for the pikas on these talus slopes.



At Talus 6, Talus 6B, and Cathedral Ridge the plant biomass has also risen significantly over 2012, 2013, and 2014 which is another sign that food for the pika has increased since the fire.



In the three years of our study there's been an increase of three pika at Talus 6. At Cathedral Ridge the population has slightly decreased, and since 2013, one pika has appeared at Talus 6B.

References

- Becky Oskin, Life Science
"These adorable fur balls survived a raging forest fire"
Monday, August 25 12:27 PM
William G. Simpson "AMERICAN PIKAS INHABIT LOW-ELEVATION SITES OUTSIDE THE SPECIES' PIREVIOUSLY DESCRIBED BIOCLIMATIC ENVELOPE" January 16 2009
Johanna Varner and M. Denise Dearing "Dietary plasticity in pikas as a strategy for atypical resource landscapes"