

# The Cultural and Nutritional Significance of Traditional Berries to the Apsaalooke (Crow) People: Using GIS as a Tool to Encourage Community Involvement and Cross-Cultural Communication

Authors: Greta Robison (Geography and GIS), Tracie Small, Florence Dunkel (Plant Sciences & Plant Pathology), Caleb Killian (Architecture), Tyler Nyman, and Durc Setzer (Agriculture)

## Introduction:

This project exemplifies how GIS, when used to communicate across disciplines and cultures, can be a powerful tool in creating sustainable, appropriate, and positive change. This project focuses on Lodge Grass, a town on the Apsaalooke Reservation in southeastern Montana. The

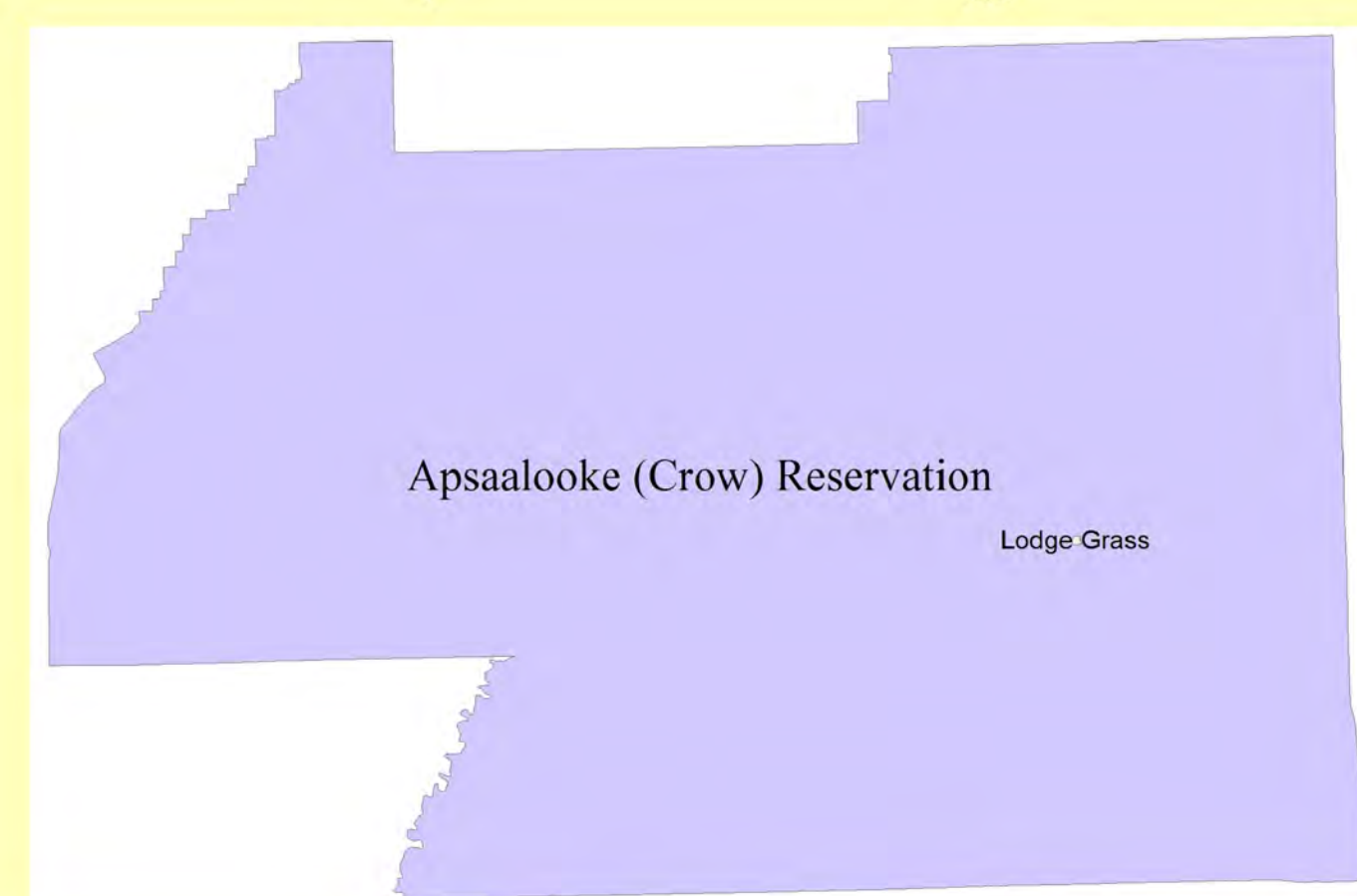
### Lodge Grass Statistics:

- ❖ 428 residents
- ❖ Wealthy in land and culture
- ❖ 40% live below the poverty line
- ❖ 96% Native Population

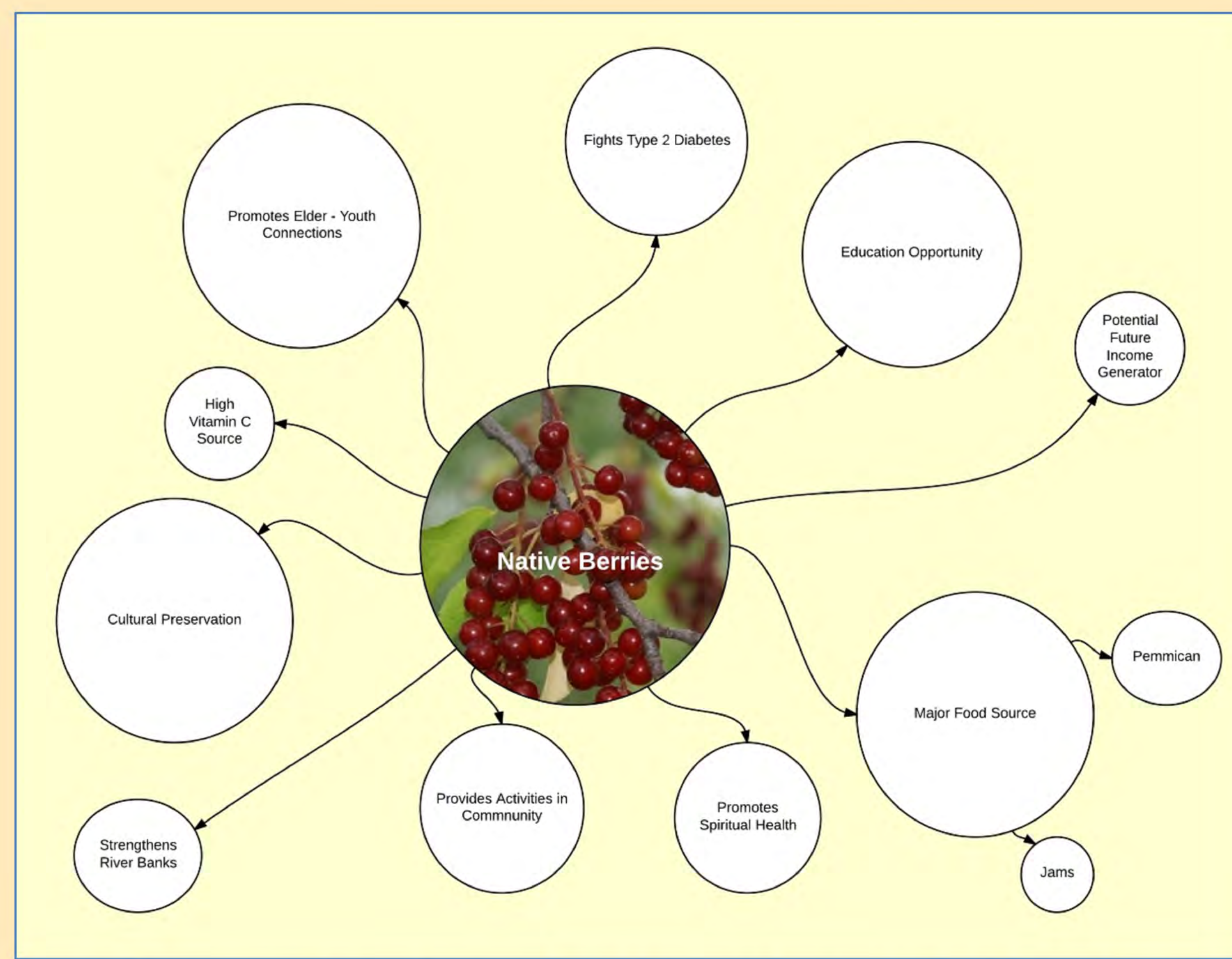


community encounters issues with crime, drug and alcohol abuse, and type-two diabetes, which stem from a history of land grab, forced assimilation, cultural cleansing, and lack of economic opportunity.

This research is part of the project "Let's Go Berry Picking," led by tribal member Tracy Small. Through community discussion the tribe has determined that a return to native food systems is an important aspect of improving the tribe's quality of life. This project focuses on improving access to traditional berries through the establishment of Tribal berry patches.



## Berries and Their Importance

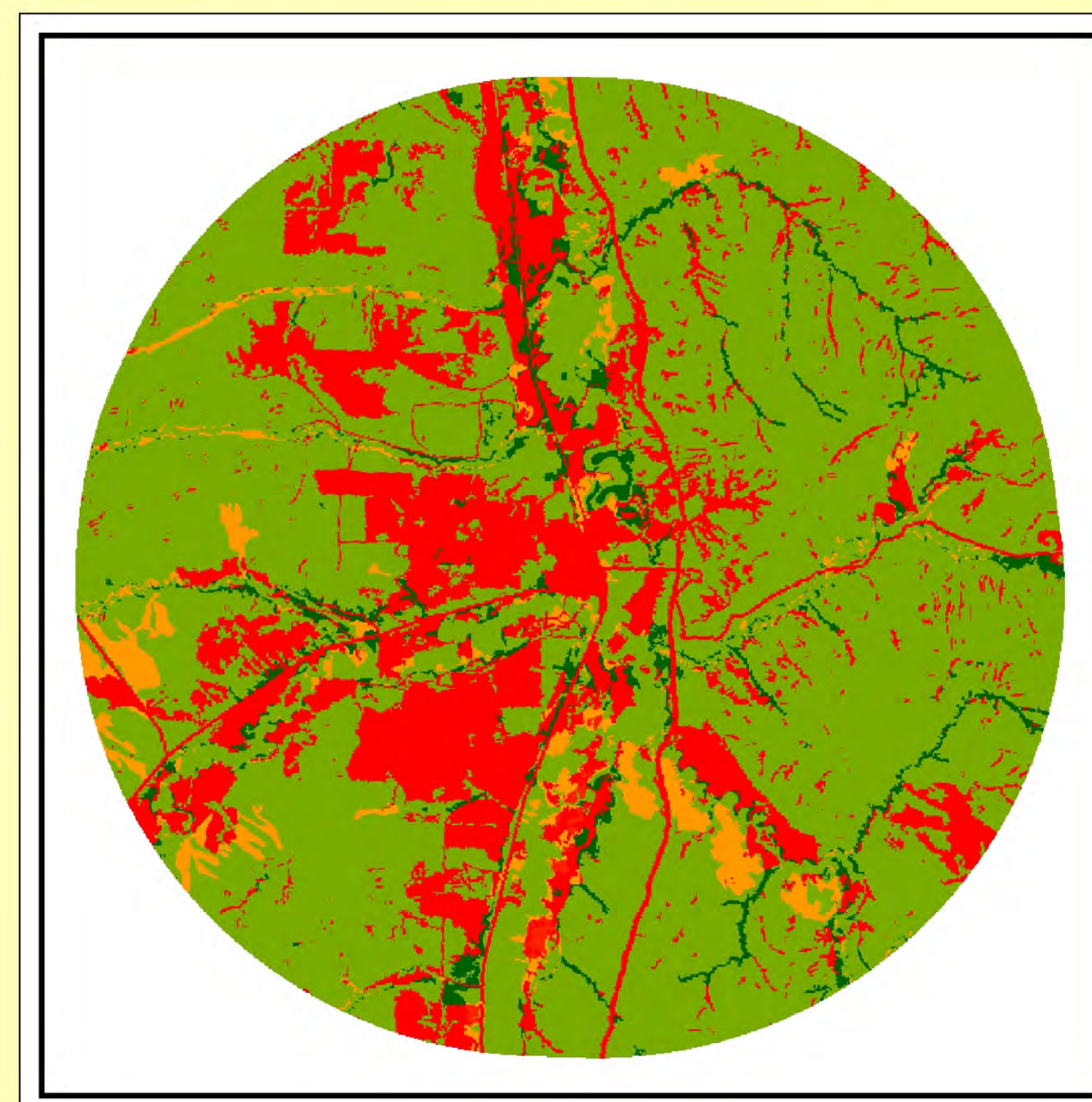


Surveys from Lodge Grass community members are reflected in the above values associated with berry cultivation. The size of the component is associated with the frequency it was mentioned.

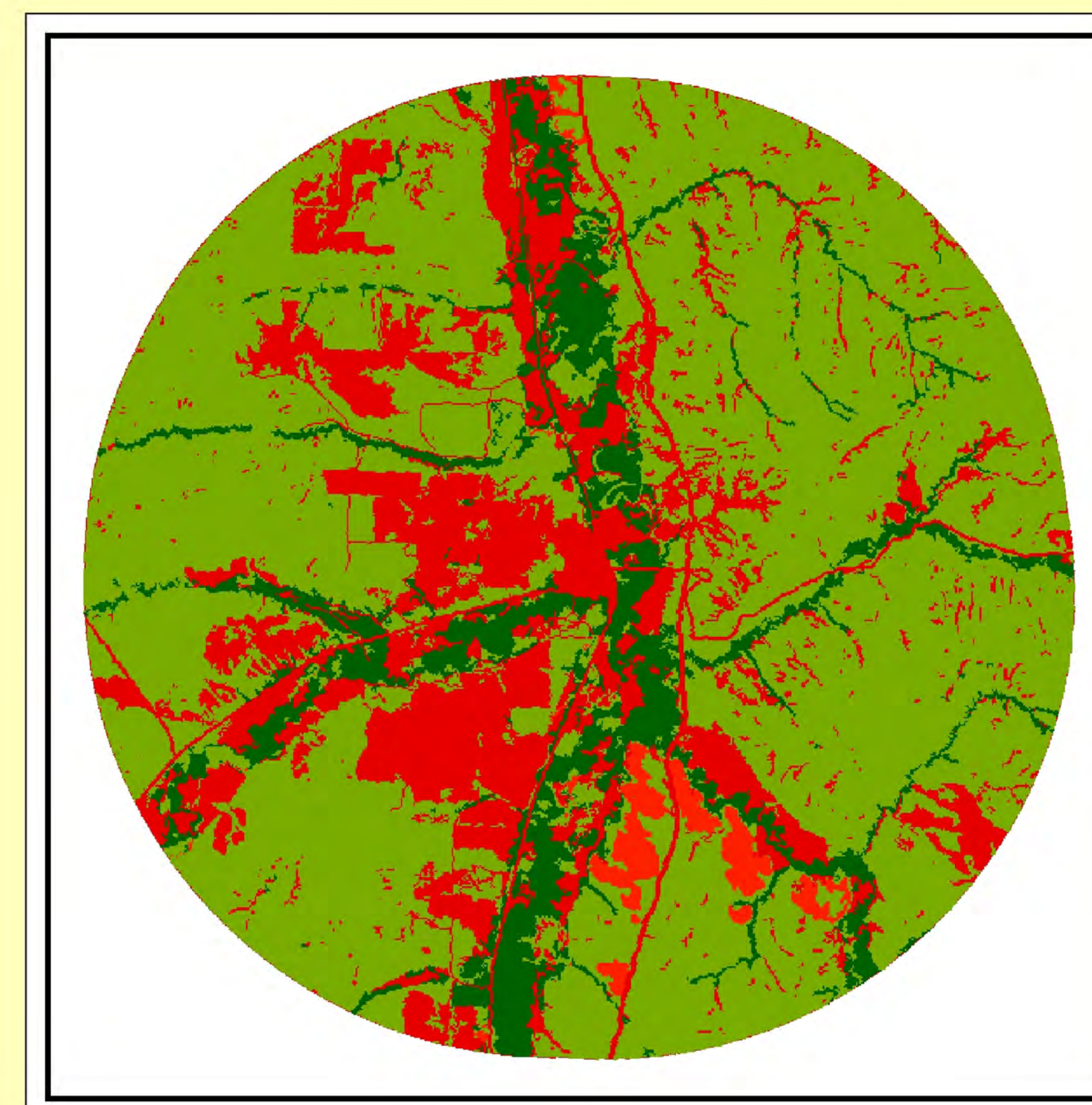
### Selected Berries

Apsaalooke Name	Scientific Name	Common English Name
Baáchuuwuuleete	Amelanchier alnifolia	June Berry Service Berry
Baáchuutaale	Prunus virginiana	Chokecherry
Baalashiish	Sheperdia canadensis	Buffalo Berry
Buluhpé	Prunus americana	Wild Plum

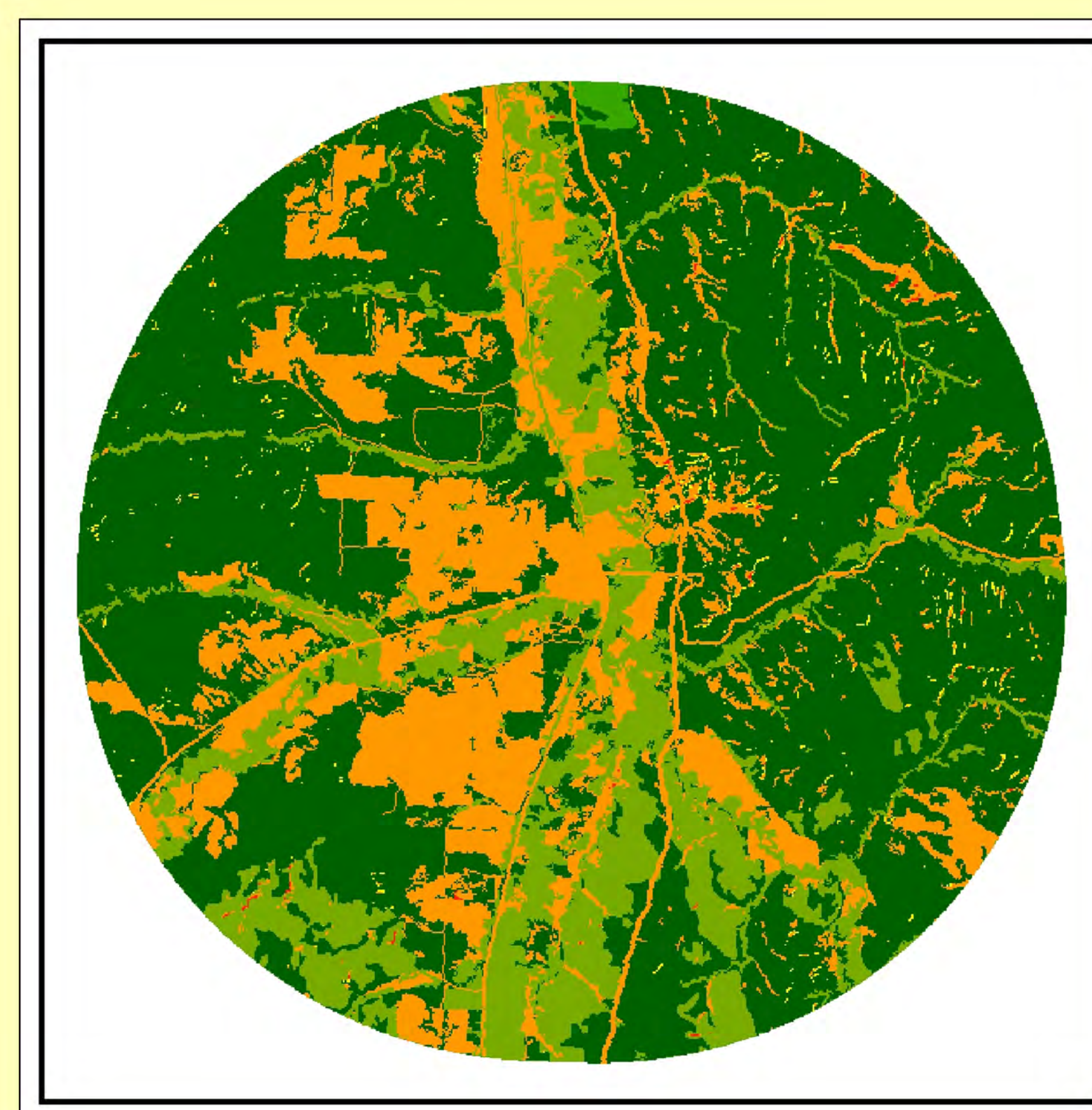
## Buffaloberry Suitability



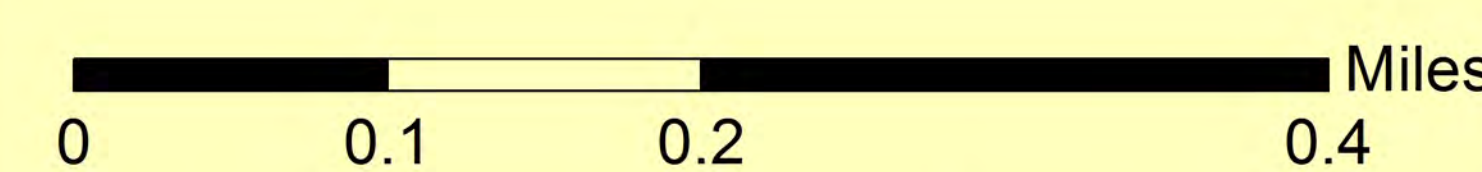
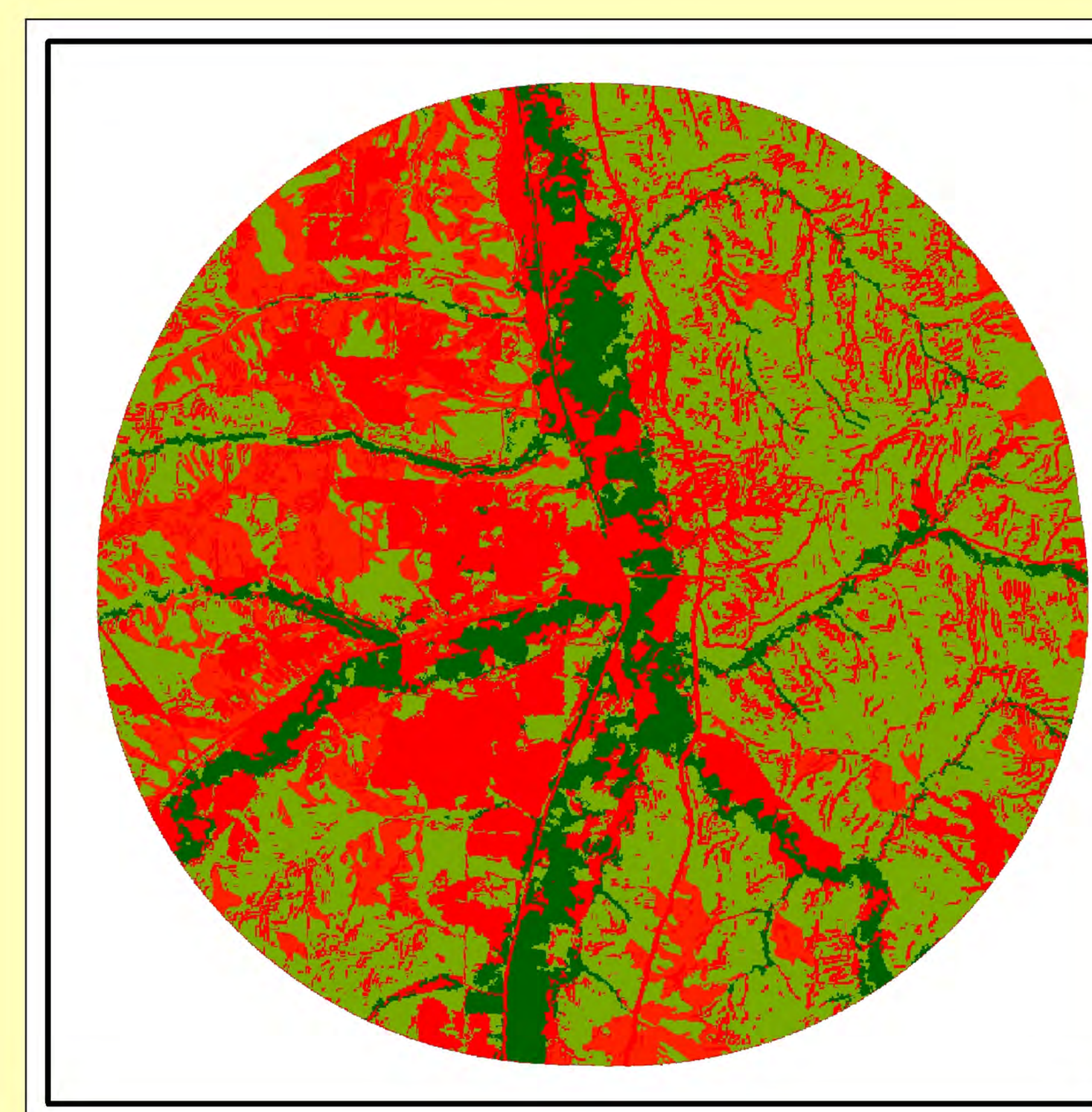
## Chokecherry Suitability



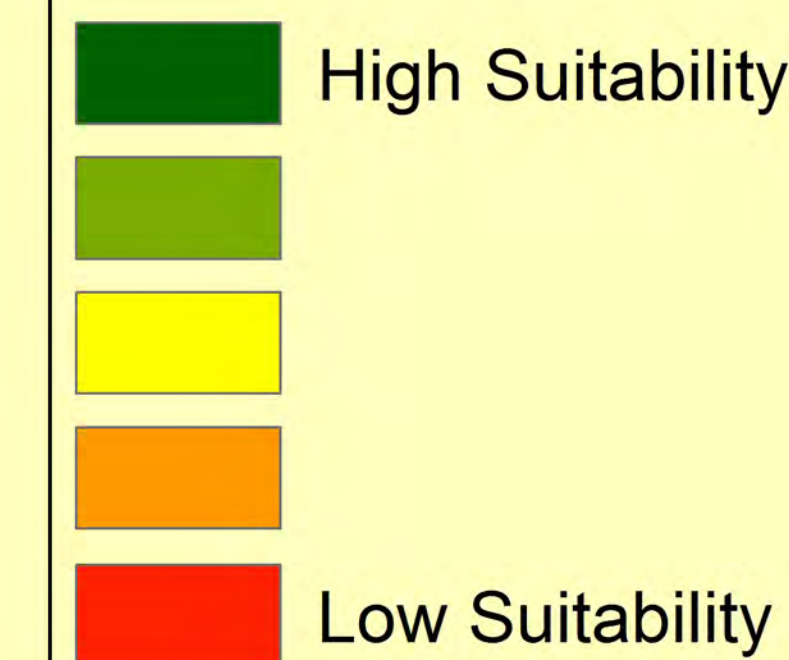
## June Berry Suitability



## Wild Plum Suitability



### Suitability Rating



### Considered Factors and Sources

Data/ Information Source	Suitability Factors
Web Soil Survey (WSS)	Clay content Flood risk Ph Drainage
Community Members	Culturally appropriate Desired by community
National Land Cover Data 2006 (NLCD)	Sun to semi-shade location Non-developed location
National Elevation Dataset (NED)	Slope steepness Elevation
Montana 2011 NAIP Orthophotos	Reference
Montana Incorporated Cities & Towns	Proximity

## Methods:

The considered factors for appropriate berry sites used in these maps are soil, land cover, proximity to community, moisture, cultural appropriateness, community desires, and altitude. These factors were selected through conversations with Small and interdisciplinary work with MSU Agriculture undergraduates Durc Setzer and Tyler Nyman. Appropriate conditions for growth have been largely determined through the USDA Forest Service Fire Effects Information System.

Each factor has been weighted relative to its importance for plant growth. The most important factors come from community input, which ultimately determines site location.

It is an essential part of this project's methods to work with the Lodge Grass community to produce a result the community desires and will continue to benefit from. All cultural factors were not included on the maps due to the nature of tribal knowledge and out of respect for academic sovereignty. Their absence as quantifiable data points does not minimize their importance in site selection.

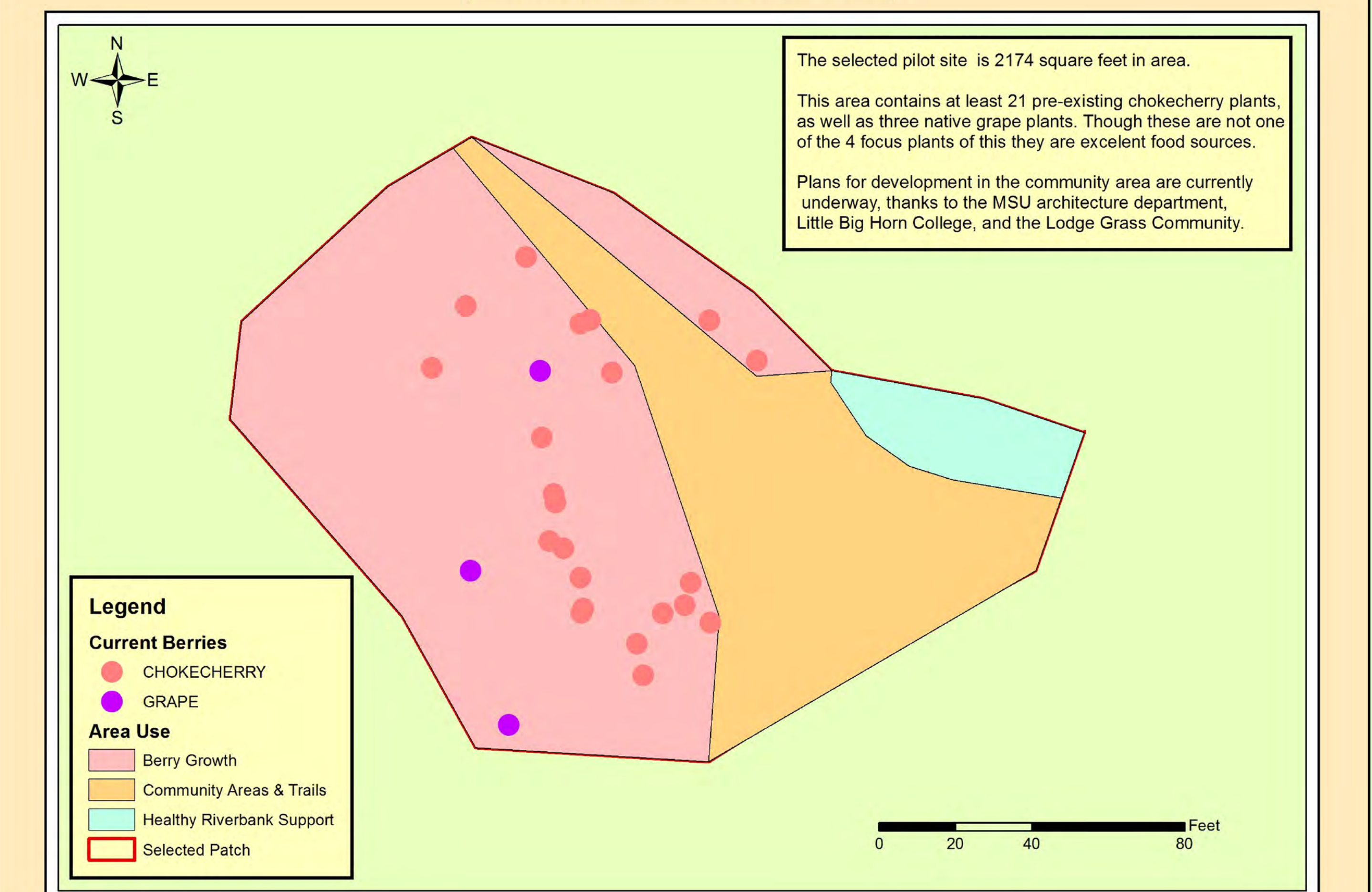
## Results:

As a result of soil analysis, community feedback, and collaboration between fields, the first berry patch site was selected in April, 2014. Tracie Small and Greta Robison traveled to Lodge Grass where Small and the community selected a small area to serve as a pilot site. The area will focus primarily on chokecherries, as they already grow in the area.

Currently a community space is being designed to promote education and a place for youth and elders to connect.



## Proposed Site



## Conclusions and Recommendations:

Berry growth, harvesting, and consumption hold major significance for the Apsaalooke people on a cultural, nutritional, spiritual, and environmental level. There is a long history misguided and harmful research done by outside cultures in Native communities. This project makes it clear that, through holistic thinking, open community dialog, and trust relationships research collaboration across cultures is not only possible but positive.

The use of GIS in these processes allows for complex information to be conveyed in understandable ways for people of many disciplines and cultures. Apsaalooke culture is place based, and so using maps and graphics to communicate ideas between a diverse group of people has proven powerful.

We recommend that there be further development plans made for the selected berry site and that there is at least one more site selected in the Lodge Grass area. Nyman and Setzer are currently cultivating the following plants, which will be ready to plant in early June, 2014.

Plant Type	Number of Plants
June Berry	20
Chokecherry	60
Buffalo Berry	30
Wild Plum	20

## Associated Course:

Health, Poverty, and Agriculture (AGSC 465R) is a four-credit research class offered by the Plant Science and Plant Pathology Department at MSU. Taught by Florence Dunkel (PhD), the class works to break down barriers between disciplines and examine the interconnected issues of poverty, agriculture, and governance.

The research portion of the class implements the holistic process, a method that promotes inclusivity and community directed research. Students work with a community they select. Options include a focus in Palestine, Mali, Northern Cheyenne Reservation, and Apsaalooke Reservation. Each focus area has site mentors who are from the selected communities who work with students on their projects.

Tracy Small is the site mentor for the "Let's Go Berry Picking" project, which she began as a student in this class two years ago.



A Lodge Grass high school student participates in a berry picking trip with elders and youth partook in with Small in Spring 2013.