

# Paths to Safety

Most efficient path to take and stay as safe as possible from wolves.

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Draft

There are many wolf sightings in Yellowstone National Park. Therefore, creating a least cost path to find the safest route is important. The following sidecar will walk you through the different costs associated with creating a least cost path.

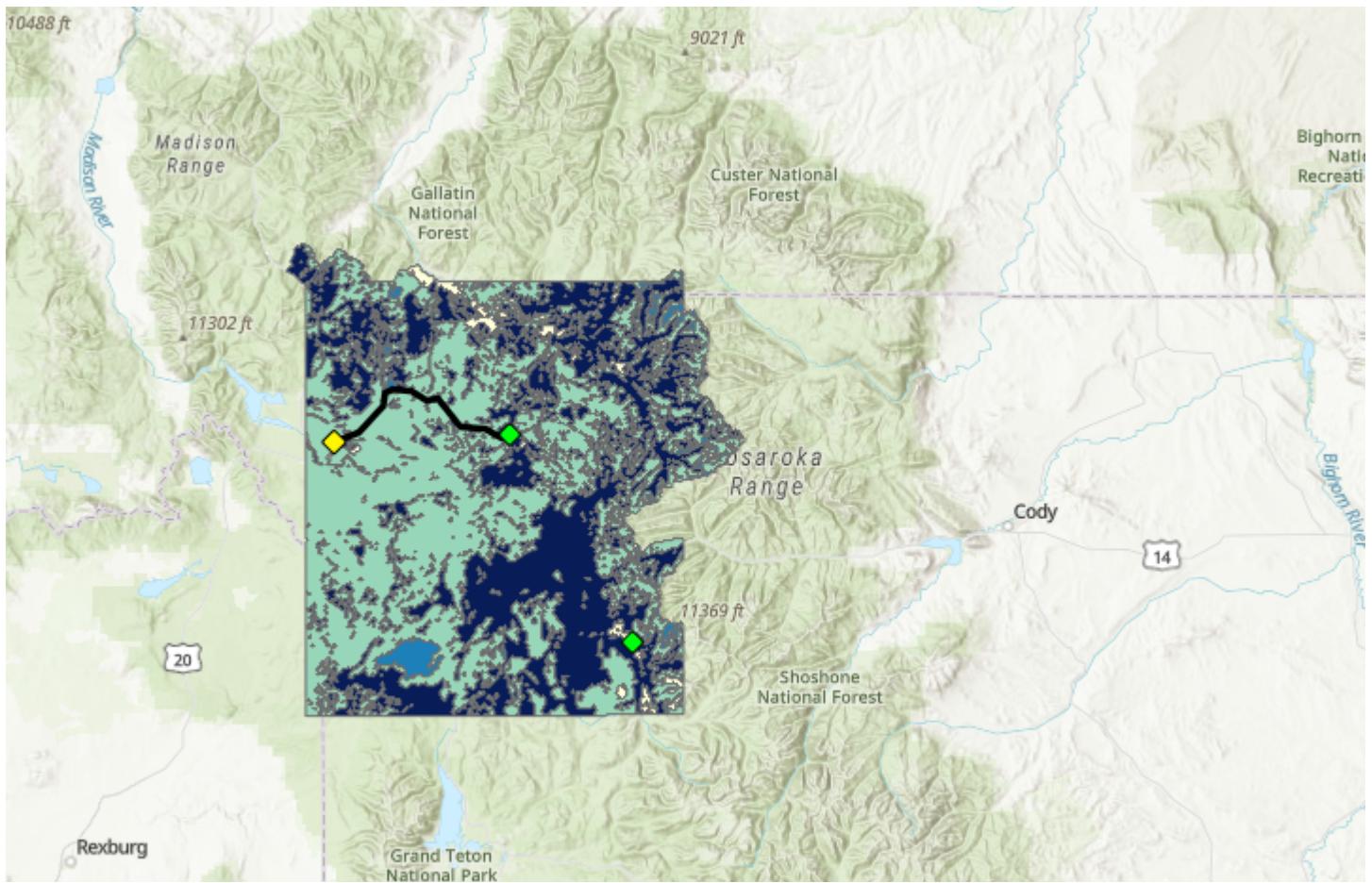
There is a gridcode that ranges from 1 (safest) to 999 (least safe) in the maps which is used to help rank the path efficiency and safety.



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## Safest Path

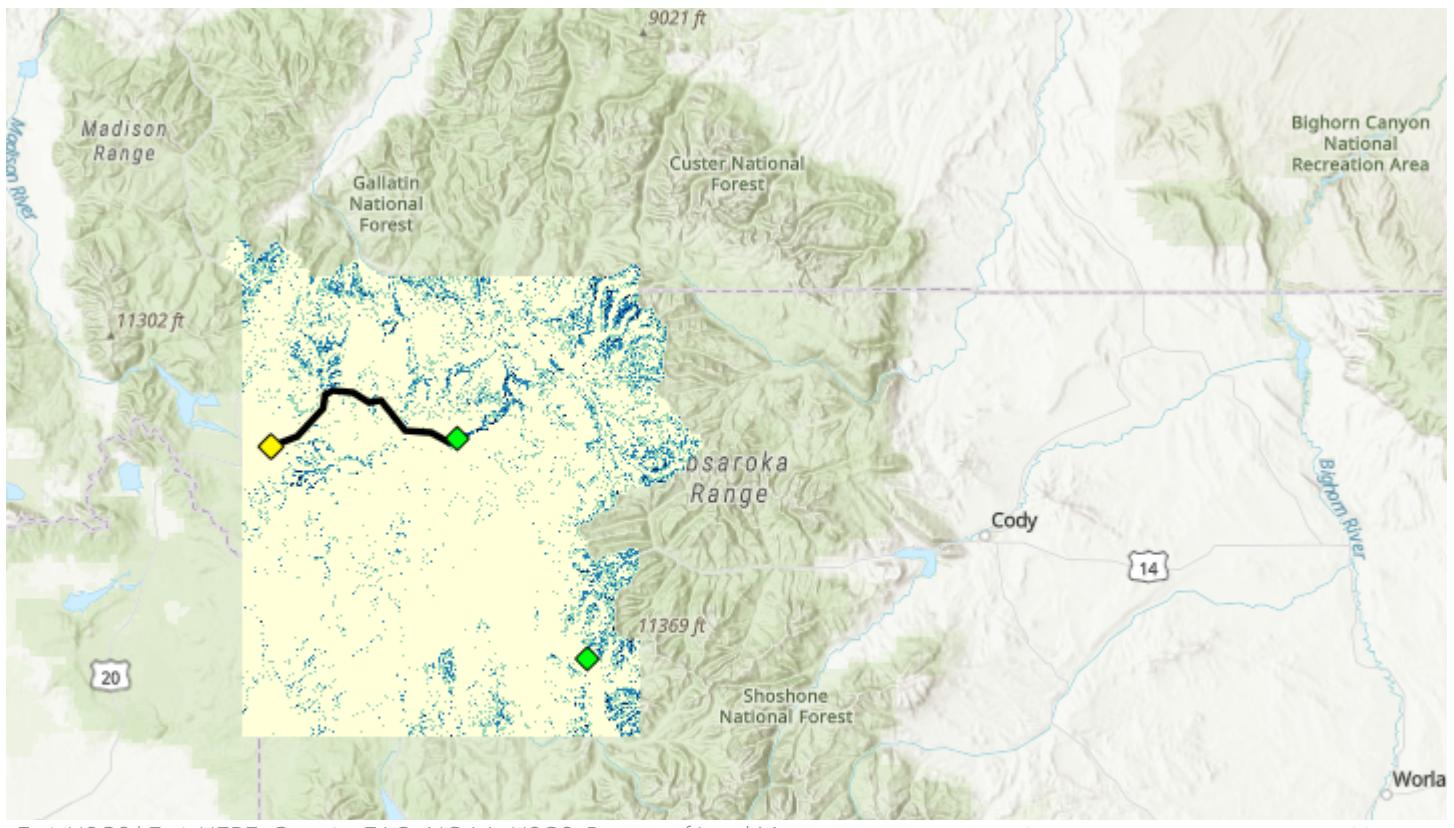
To begin, this path shows the quickest and safest way to get to the green point, starting from the yellow point in Yellowstone Park.



Esri, USGS | Esri, HERE, Garmin, FAO, NOAA, USGS, Bureau of Land Man... | Powered by Esri

## Landcover Cost

Here, we have the path shown with the landcover. Non-forested regions are ranked as 1. Mixed forests are ranked as 20, Plateaus and Talus' are ranked as 40 and then we have water, wetland, and thermal areas ranked as 999.



Esri, USGS | Esri, HERE, Garmin, FAO, NOAA, USGS, Bureau of Land Man...

40 km | Powered by Esri

## Slope Cost

Here, we have the path shown with the slope of the terrain. The rankings were created by:

- 1 with a slope between 1-20 degrees
- 20 with a slope between 20-30 degrees
- 40 with a slope between 30-45 degrees
- 999 with a slope over 45 or less than 1 degrees



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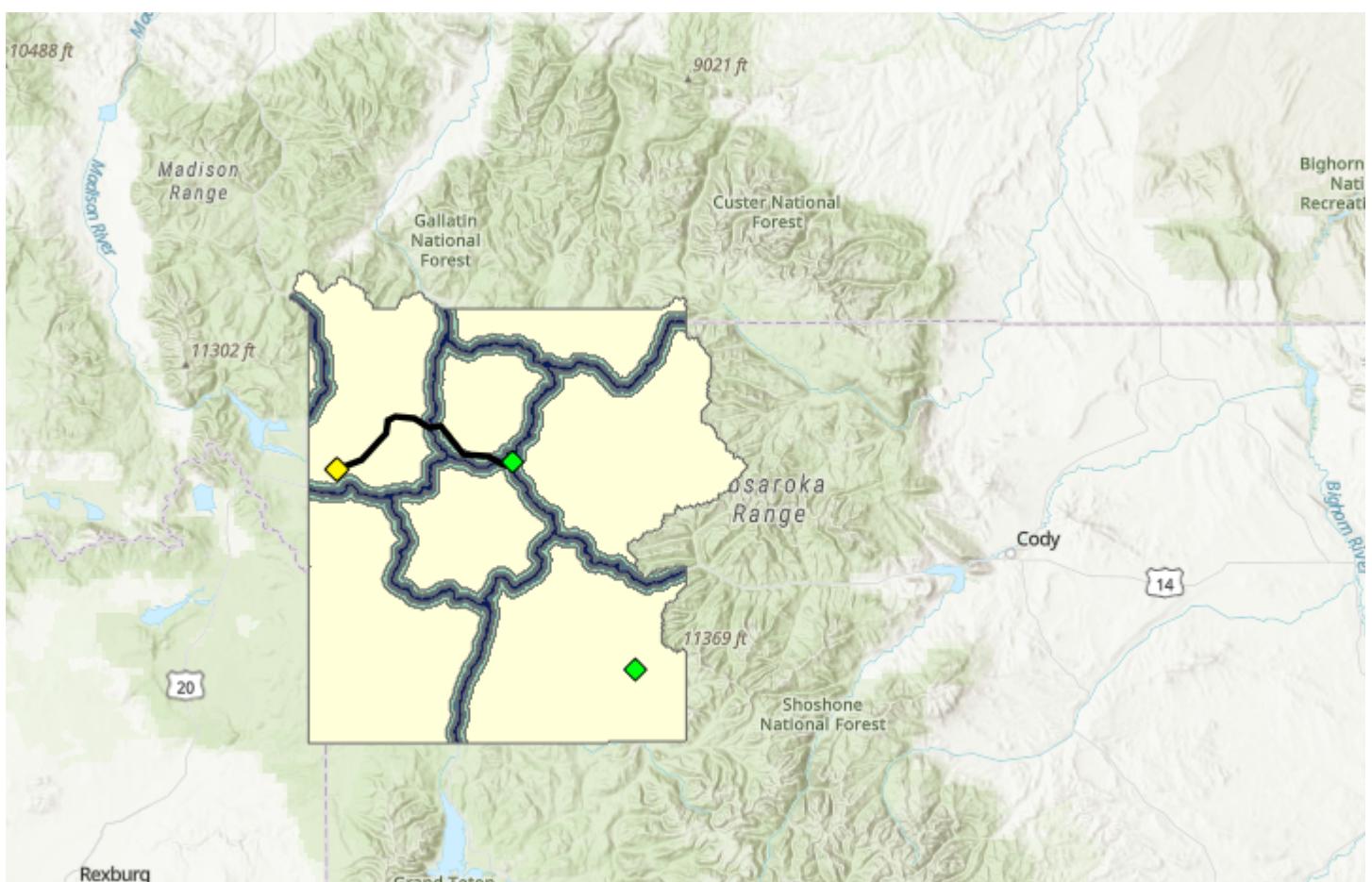
40 km

Powered by Esri

## Wolf Sightings Cost

Now we have the path showing where there have been the most wolf sightings. The rankings are:

- 1 = LOW
- 20 = MEDIUM
- 40 = HIGH
- 999 = VERY HIGH



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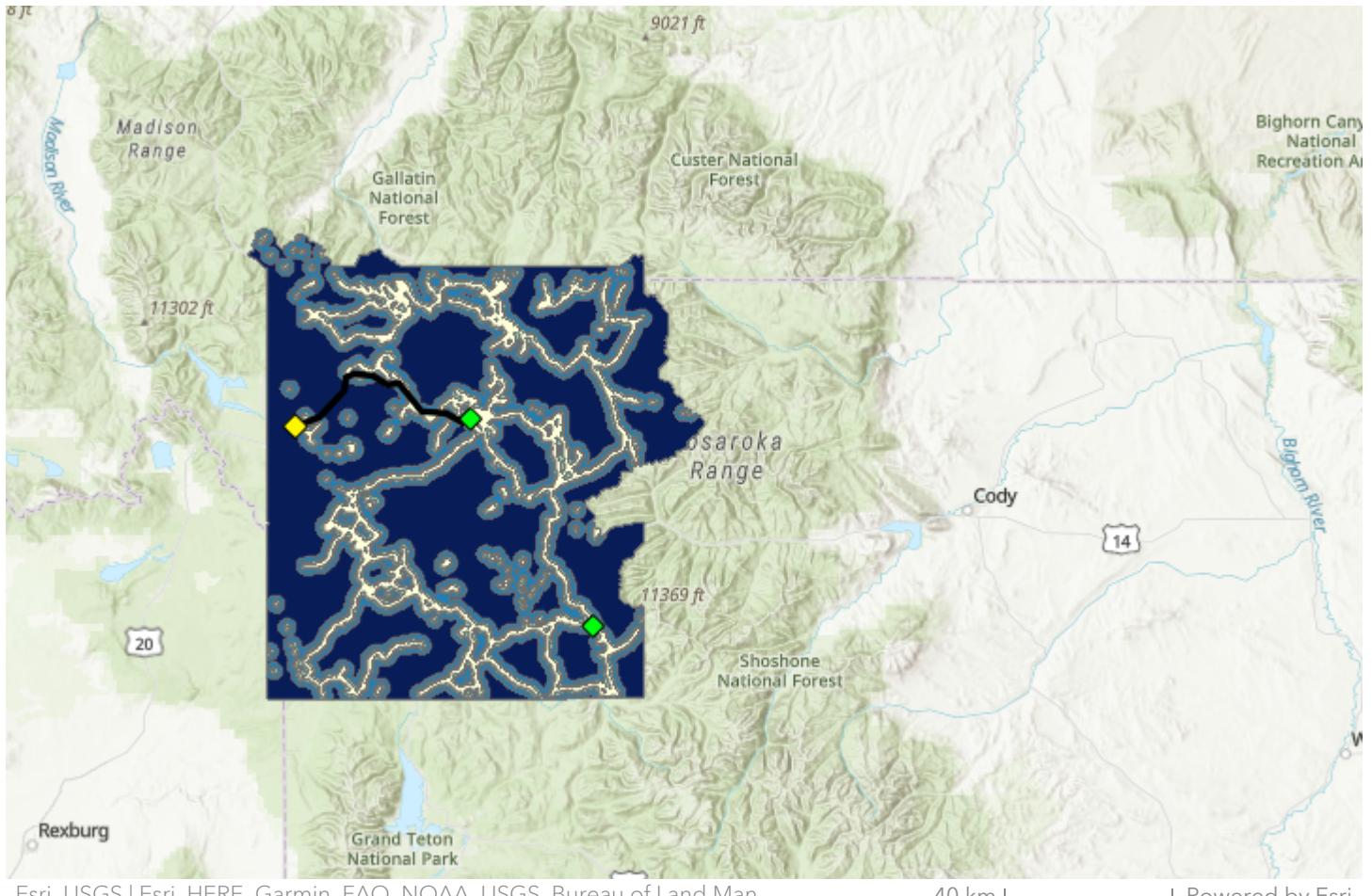
40 km

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## Roads Cost

This shows the path with the roads. The path tries to avoid the roads as we do not want to walk beside cars. The rankings are:

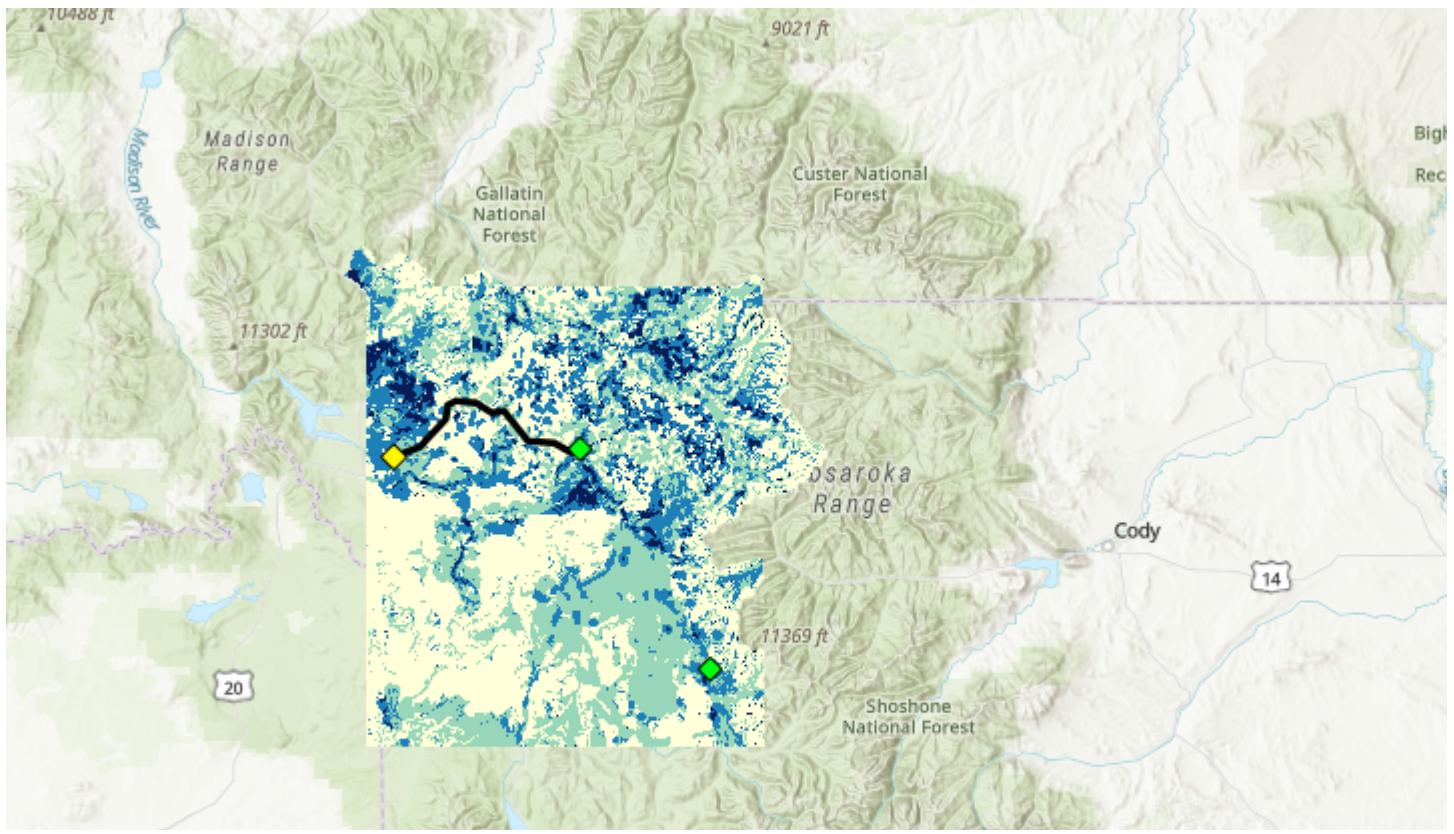
- 1 = over 2000m away
- 20 = between 1000 - 2000m away
- 40 = between 500 - 1000m away
- 999 = less than 500m away



### Trails Cost

Here, we have the trail and path shown together. The rankings include existing campsites and trails.

- 1 = less than 500m
- 20 = between 500 - 1000m
- 40 = between 1000 - 2000m
- 999 = over 2000m



Esri, USGS | Esri, HERE, Garmin, FAO, NOAA, USGS, Bureau of Land Man...

40 km | Powered by Esri

## Combined Costs

Finally, we have the combined costs of all the previous costs weighted at different amounts to help create the best safest path. The weightings for each category is:

- Landcover = .20
- Slope = .40
- Wolf sightings = .20
- Distance to trails/campsites = .10
- Distance to roads = .10