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Nonresident Travel Patterns Between Glacier and Yellowstone National Parks

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Executive Summary

Nonresident visitors who traveled to both Glacier and Yellowstone National Parks on one trip to Montana were extracted from a larger data set of nonresident travelers in Montana for this report.

The purpose of the study was to explore travel patterns used between the two parks. Results showed a number of travel patterns emerged, with two predominate patterns – the open loop pattern and the linear pattern. The open loop is a circular pattern with different routes taken between the two parks. The linear pattern was either re-tracing the same route back, or exiting on the opposite side of the state such as east-west or north-south.

Glacier was the primary draw over Yellowstone for both the open loop and linear travelers. Those in the open loop pattern were more likely to have children under 18 in the travel group, while the linear travelers were more likely to have people over 55 years old in their travel party. Linear travel patterns were taken by people from overseas and folks from California compared to the open loop travelers who were more likely to be from Colorado.

The most frequented travel route was the interstate between Bozeman and Yellowstone and highway 93 between Missoula and the Glacier gateway communities (Kalispell, Whitefish, Columbia Falls). Most of the major highways in the western part of Montana were traveled by Glacier-Yellowstone visitors but eastern Montana highways generally did not see the traveler to both parks. Fly/drive travelers were more likely to travel the Interstate as well, unless they flew into Helena or Great Falls.

Travelers who visit both parks do not adhere to the theory of Distance Decay, a theory that demand will peak at some distance relatively close to a source market and then decline exponentially as distance increases. Instead, these travelers represent visitors from all over the United States and foreign countries. The findings show the opposite. Fewer visitors from nearby markets traveled to both parks in one trip.

Findings in this study suggest that marketers for Montana's two park destinations should provide route suggestions and other traveler service information for travelers visiting both parks with an emphasis on distance and time needed for traveling each route. If a two-park visitor center were to be in future plans, it is recommended that the center be located somewhere between Bozeman and Missoula to capture the majority of travelers going to both parks.

Table of Contents

Nonresident Travel Patterns between Glacier and Yellowstone National Parks

Introduction

Travel patterns and the spatial movement of people on leisure trips has been the topic of numerous researchers throughout the years. Some studies have focused on multidestination travel (Hanson 1980; Hwang and Fesenmaier 2003; Lue, Crompton, and Fesenmaier 1993; Stewart and Vogt 1997; Tideswell and Faulkner 1999), highlighting issues of distance, market access, and travel time available which correlates to travel patterns. Other studies have looked at distance decay and its effect on travel destinations (Eldridge and Jones 1991; McKercher, Chan, and Lam 2008; McKercher and Lew 2003; McKercher 1998).

The theory behind distance decay predicts that demand will peak at some distance relatively close to a source market and then decline exponentially as distance increases. McKercher and Lew (2003), however, found that travel from Hong Kong clearly showed a short-haul and long-haul travel pattern with an emerging ETEZ (effective tourism exclusion zone) in-between suggesting that destinations within the medium-haul distance were less likely to be chosen by Hong Kong residents. In a follow-up study it was found that international outbound travel patterns of 39 of the world's leading 41 major source markets adhere closely to distance decay principles (McKercher, Chan, and Lam 2008).

Multi-destination trip patterns were conceptualized by Lue, Crompton, and Fesenmaier (1993) to consist of four distinct patterns: the En Route Pattern (same route to and from the destination with short stops along the way); the Base Camp (directly to the destination then take day trips from the destination); Regional Tour (drive to the region, then circle the region); and finally the Trip Chaining Pattern (an extended tour visiting several regions on the same trip, usually in a circular pattern). This was further tested and verified by Stewart and Vogt (1997) in a study of visitors to Branson, Missouri.

Similarly, describing the spatial configuration of travel to Yellowstone National Park, Mings and McHugh (1992) found four distinct patterns of visitor travel from home to Yellowstone and back again. The Direct Route (shortest route possible to and from), the Partial Orbit (partially direct route with an orbit in the rocky mountain region including Yellowstone and back on the direct route), the Full Orbit (a completely circular route), and the Fly/Drive (similar to the Partial Orbit but the direct leg was by air) showed some differences in length of trip, distance traveled and prior visits to Yellowstone. They concluded that visitors to Yellowstone were more likely to combine a trip to Yellowstone with stops at other western landmarks. They also found that the Direct Route pattern was usually taken by visitors from the region. McKercher (1998) would suggest that market access is the reason for this finding meaning that destination choice is often influenced by convenience and that, given a choice, the visitor will tend to choose the more convenient one.

All of these studies focused on travel patterns from the home to the destination(s) and back home again. Little research has looked at the travel patterns between two prominent destinations on one trip. The purpose of this study was to analyze the travel routes taken by nonresident visitors to Montana who visited both Glacier and Yellowstone National Parks. The distance between Glacier

and Yellowstone is anywhere between 454 miles to 509 miles depending on the route and park entrance. From a travel marketing viewpoint, understanding the routes taken and relationships of that route to travel group characteristics could assist in traffic projections, marketing to enroute travelers, and the location of visitor centers and other travel facilities.

Methods

Data were collected through both an on-site questionnaire and a diary type mail questionnaire to nonresidents traveling in Montana during the 2005 nonresident visitor survey. Visitors were asked to trace their travel routes in Montana on a map provided in the survey instrument and return it in the postage paid envelope after completing their trip. Ten percent of nonresident visitors indicated they visited both Glacier and Yellowstone National Parks (Oschell and Nickerson 2007). Of this group, 160 useable maps were extracted for this analysis.

GIS was used to analyze the travel patterns of visitors to both Glacier and Yellowstone. The travel maps generated by visitors were first digitized. Once the maps were in digital format, a line density function was performed in order to represent the density of travel patterns for non-resident visitors to both Yellowstone and Glacier National Parks. In addition, the entry and exit points for each visitor were coded and then digitized. This data was then aggregated by entry/exit point. Finally, the home zip code of every visitor was recorded in the survey and the data joined to a GIS file containing the center points of each zip code in the United States.

Analysis of the data included extracting visitors who had travel patterns as suggested by Lue, Crompton, and Fesenmaier (1993) and Mings and McHugh (1992). Were the described patterns from home to a destination similar to the travel patterns used between destinations on the trip? In addition, the home zip codes were analyzed to look for distance decay patterns.

Findings

Results are presented with seven maps for visual representation. First is the travel pattern of all Glacier and Yellowstone visitors. This is followed by the open loop and linear route patterns along with characteristics of visitors who drove these two routes. The fourth map highlights visitors with a fly/drive pattern. The remaining maps represent entry and exit points as well as a zip code representation of origin.

Density of Travel Patterns (Visiting Yellowstone and Glacier)

Travel pattern density of nonresidents who visit both Yellowstone and Glacier National Parks in one trip reveals concentrated patterns in the western and southwestern part of the state. The most traveled route was Interstate 90 between Bozeman and Missoula then Missoula to the Glacier gateway communities (Kalispell, Whitefish, Columbia Falls). The secondary route included Helena, Great Falls and Choteau on the eastern side of the Rocky Mountain front. Not surprisingly, the central and eastern portions of the state have seen little travel for those visiting both parks as this would be a diversion from either park. Appendix A provides the visual analysis for all travelers visiting both parks.

Open Loop or Full Orbit Travel Pattern

Results show the most common pattern for travelers to Glacier and Yellowstone was an open loop or full orbit (circular) where visitors entered and exited from the same side of the state but through different roads (53% of Glacier/Yellowstone travelers). As seen on the map in Appendix B, the patterns of the open loop traveler are spread throughout the state but do exhibit some common route areas of travel. The open loop traveler was more likely to enter or exit through Yellowstone or south of Billings on Interstate 90. The highest density of travel occurred on Interstate 90, highway 93 between Missoula and the Glacier gateway communities (Kalispell, Whitefish, Columbia Falls), highway 2 between Kalispell and Shelby, Interstate 15 between Shelby and Helena, as well as connecting roads; highway 89 between Browning and Great Falls, highway 287 between Helena and Three Forks, highway 83 through the Seeley-Swan, and the three roads out of Yellowstone (highway 89 from Gardiner to Livingston, highway 191 from West Yellowstone to Belgrade, and highway 287 from West Yellowstone to Three Forks).

Linear Travel Pattern

Thirty-three percent of the Yellowstone-Glacier travelers used a linear pattern for their route between the two parks (Appendix C). With this pattern the traveler entered and exited in the same spot and backtracked on the same road, or did a north-south or east-west entry and exit. In other words, there was no indication of any sort of loop in their travel pattern. In general it was usually the most expedient route a visitor could take between the two parks.

Characteristics of Open Loop and Linear travelers

A comparison of travelers who did an open loop pattern to travelers on a linear pattern show some differences yet many similarities (Tables 1 & 2). Recall that the sample size in these comparisons is quite small (85 for open loop and 52 for linear).

In terms of demographic differences (Table 1), open loop travelers were more likely to have children under 18 in the travel group. Along with that age comparison, 56 percent of open loop travelers had travelers over the age of 55 in their group while 72 percent of linear travel groups had travelers over the age of 55. It is not clear why older travelers were more likely to go on a linear travel pattern. Household income only varied at the $20,000-$39,999 category where the linear pattern travelers represented 16 percent compared to 7 percent of the open loop travelers. Interestingly, place of residence differed quite a bit between the two groups. Those in the open loop pattern were more likely to be from Colorado while those in the linear pattern were most likely to be from California. The linear pattern had travelers from foreign countries whereas the open loop travel pattern did not.

The most obvious difference in trip characteristics is in the length of stay in Montana (Table 2). The open loop traveler spent 1.6 more nights in Montana than the linear group. The linear pattern group was slightly more likely to be couples than the open loop group and significantly more likely to be camping in developed areas. A very interesting aspect of people who travel to both Glacier and Yellowstone on one trip is that the primary attraction to Montana was Glacier rather than Yellowstone. Slightly over 50 percent of both travel pattern types said Glacier was their primary attraction.

Yellowstone was the primary attraction for 15 percent of the open loop travel group and 22 percent of the linear travel group. Apparently, when visitors come to Montana with the purpose of visiting both parks, Glacier, not Yellowstone is the primary draw. This is in contrast to all vacationers which shows that ten percent more of all vacationers are primarily attracted to Yellowstone over Glacier National Park (Oschell & Nickerson 2007). Therefore, when one park is the reason for traveling to Montana, Yellowstone is more likely to be the draw. When both parks are the reason for traveling to Montana, Glacier is the primary draw.

Table 1: Comparison of Open Loop and Linear Traveler: Demographic Characteristics

Demographic characteristics	Open Loop (N=85)	Linear (N=52)
Mean age of respondent	51.27	51.60
Age groups represented in travel group		
<18 years old	38%	19%
18-24 years old	9%	6%
25-34 years old	12%	23%
35-44 years old	27%	21%
45-54 years old	34%	25%
55-64 years old	35%	39%
65 and older	21%	33%
Household Income		
< $20,000	4%	5%
$20,000 - $39,999	7%	16%
$40,000 - $59,999	20%	27%
$60,000 - $79,999	24%	21%
$80,000 - $99,999	20%	11%
$100,000 - $119,999	8%	5%
$120,000 or more	17%	16%
Place of residence	CO 12%; CA 9%; MI 7%; TX 6%; IL, PA, AZ, WA 5% each	CA 12%; FL, NY 6% each; UK, France, Netherlands, IA, NC, NE, SC, WA 4% each

Table 2: Comparison of Open Loop and Linear Traveler: Trip Characteristics

Trip characteristics	Open Loop (N=85)	Linear (N=52)
Average length of stay in Montana	8.1 nights	6.5 nights
First time visitor?	48%	45%
Travel Group		
Self	9%	2%
Couple	44%	56%
Family	31%	27%
Extended Family	4%	4%
Family & Friends	7%	2%
Friends	5%	8%
Business Associates or organized group	1%	2%
Primary purpose of Trip		
Vacation/recreation	86%	86%
Visiting family/friends	9%	6%
Business	2%	6%
Other	2%	2%
Primary Attraction to Montana		
Glacier National Park	53%	51%
Yellowstone National Park	15%	22%
Mountains/forests	11%	7%
Family/friends	8%	5%
Open Space/uncrowded areas	8%	10%
Primary activities participated in on trip		
Driving for pleasure	81%	77%
Wildlife watching	77%	73%
Day hiking	72%	60%
Picnicking	55%	48%
Visiting historic sites	49%	39%
Recreational shopping	43%	31%
Developed Camping	17%	42%
Sites visited (other than Glacier & Yellowstone)		
Little Bighorn Battlefield	21%	8%
Virginia City/Nevada City	19%	12%
Flathead Lake State Parks	21%	21%
Lewis & Clark Interpretive Center	20%	10%
National Bison Range	12%	14%
Primary Planning information sources used		
National park brochure/website	31%	26%
Internet travel information	30%	33%
Guide book	16%	19%

Multiple Entry and Exit Travel Pattern

Eleven percent of the visitors represented a pattern not described in earlier studies. These travelers entered and exited the state in a variety of patterns but still visited both parks. This multiple entry/exit group more closely represents visitors who are traveling in a larger pattern, perhaps throughout the Northwest or Rocky Mountain Regions. This research only captured visitors' travels within Montana and, therefore, these multiple entry/exit patterns were not fully captured. The researchers suggest that future research also include wider travel patterns of visitors in order to capture the entirety of the trip of visitor's to Montana. A density map showing this pattern was not developed as it simply looked like a maze of road segments with no typical route to be found.

Fly/Drive Pattern

A fly/drive group emerged representing seven percent of the Glacier/Yellowstone visitors. This group was less likely to leave the state for other stops and tended to stay in Montana to visit Glacier and Yellowstone (for the purposes of this travel pattern, Montana claims Yellowstone as within its boundaries). The main airports included Billings, Bozeman, Missoula, and Glacier International airport with some travelers opting to fly into Helena and Great Falls. The fly/drive route generally followed the interstate between Bozeman and Missoula then highway 93 from Missoula to the Glacier gateway communities (Kalispell, Whitefish, Columbia Falls) and into Glacier National Park. Appendix D highlights the patterns of the fly/drive traveler.

Entry and Exits Used by Visitors to both Parks

As seen in Appendix E, there are four entry points used more often than others including Interstate 90 west of Missoula from Idaho, Interstate 90 south of Billings from Wyoming, and the two exits from Yellowstone National Park at Gardiner and West Yellowstone. When visitors leave the state they generally leave on one of those four mentioned highways or through the Port of Chief Mountain going into Canada from Glacier to Waterton National Park.

Interestingly when the exit and entry points are included in the travel patterns between the parks, it is clear that visitors to Montana do not follow one route. Instead, multiple routes throughout the western half of the state were taken by visitors. The eastern half of the state is not the major access point to the two parks. Density analysis shows that the easiest route (along the Interstate between Bozeman and Missoula then northward on highway 93) was the prevailing travel route. Further analysis of travel pattern by length of stay in Montana shows that those spending more than 10 nights were more likely to travel off the beaten path than shorter stay visitors. If the visitor was staying five or fewer nights, they were more likely to fly into the state and travel the shortest route between the two parks.

Place of Origin by Travelers to both Parks

In analyzing the home zip code locations of non-resident visitors to Montana who visited both Yellowstone and Glacier National Parks, distance decay does not appear to play a significant role. In fact, visitors who provided their zip code (120 of 160 respondents) represented all regions of the United States, including Alaska (Appendix F). Certain urban areas and agglomerations were well-represented by visitors. These include: Seattle, Portland, Los Angeles, Phoenix, New York/New

Jersey, Washington D.C., Chicago, Dallas and Denver. In addition, the South was well represented as was the Midwest. The only region not well represented was New England. What this pattern does suggest is that people from surrounding states such as Wyoming, Idaho, South and North Dakota are perhaps less attracted to visiting Yellowstone and Glacier National Parks than those who live further away and/or in urban areas. It is not surprising here to see no significant distance decay for visitors to these two national parks within the United States as both are part of American wilderness iconography.

Implication and Application of Results

Studies of nonresident visitors to Montana who visit both Glacier and Yellowstone National Parks take a variety of routes to travel between the two parks. One dominant route, the interstate between Bozeman and Missoula, however, is where the state of Montana might consider concentrating visitor information centers as the gateways to the two parks. Keep in mind, however, visitors to both parks in one trip only represent 10 percent of nonresident travelers in Montana. In terms of marketing both parks to potential visitors, it would be important to highlight the differences in time and access based on travel patterns.

When these researchers tried to find travel routes between the two parks on visitmt.com or other sites, we were not able to find any suggestions or predetermined travel route itineraries. On visitmt.com, the result of a search on the site indicated, "Your search on travel routes glacier to yellowstone returned: 0 Business & Feature listings and 65 Recommended Results." The 65 recommended results were not travel routes, instead most of them were towns in Montana. There were suggested bike paths, but none of these were between the two parks. In addition, when a google search was conducted asking for a travel route between Glacier and Yellowstone National Park, nothing emerged. In fact the following did come up within the top ten on the search:

> "I am in two minds about doing **Yellowstone** or **Glacier National Park**, or both. **...** What week **between** mid June and Late August would you reccommend. **...** Can anyone furnish us with good **travel routes** (including **travel** distances and times), **..."**(forum.virtualtourist).

This potential visitor was blogging and asking for help on travel routes. This is just one example of a potential traveler's inability to find travel routes between the two parks. However, since we know that 10 percent of travelers are likely to travel to both parks, it would be advantageous for Montana's websites promoting the state to provide the traveler with route ideas. This would include providing a map on the web with each route highlighted with distances, sites to see along the way, and visitor services available.

Conclusions

Travel patterns between two destinations somewhat mirror the travel pattern classifications identified by Mings and McHugh (1992). In the Mings and McHugh study, 45 percent used a Full Orbit pattern to and from home. In this study, 53 percent used a Full Orbit pattern between Glacier and Yellowstone suggesting that when visiting parks, travelers are more likely to take different

routes and forgo the backtracking theme common in the direct route pattern. On the other hand, 33 percent did choose a linear pattern with no loop. Those on the linear pattern were in the state fewer days indicating that travel time was a predictor of travel route. This agrees with other studies conducted on multi-destination trips.

While it is possible to group people into travel patterns, it is obvious that travel between Glacier and Yellowstone is more a personal choice based on time available, distance from home, and activity. Additionally, distance decay is not represented in this data. This confounds the marketing efforts of a state like Montana since it would be much easier to concentrate marketing in certain geographic locations. It appears that visitors to both Glacier and Yellowstone National Parks are not bound by their geographic origin. Instead, in terms of marketing Montana to nonresidents, their interests in national parks and wilderness type settings are better indicators of likeliness to visit than place of residence.

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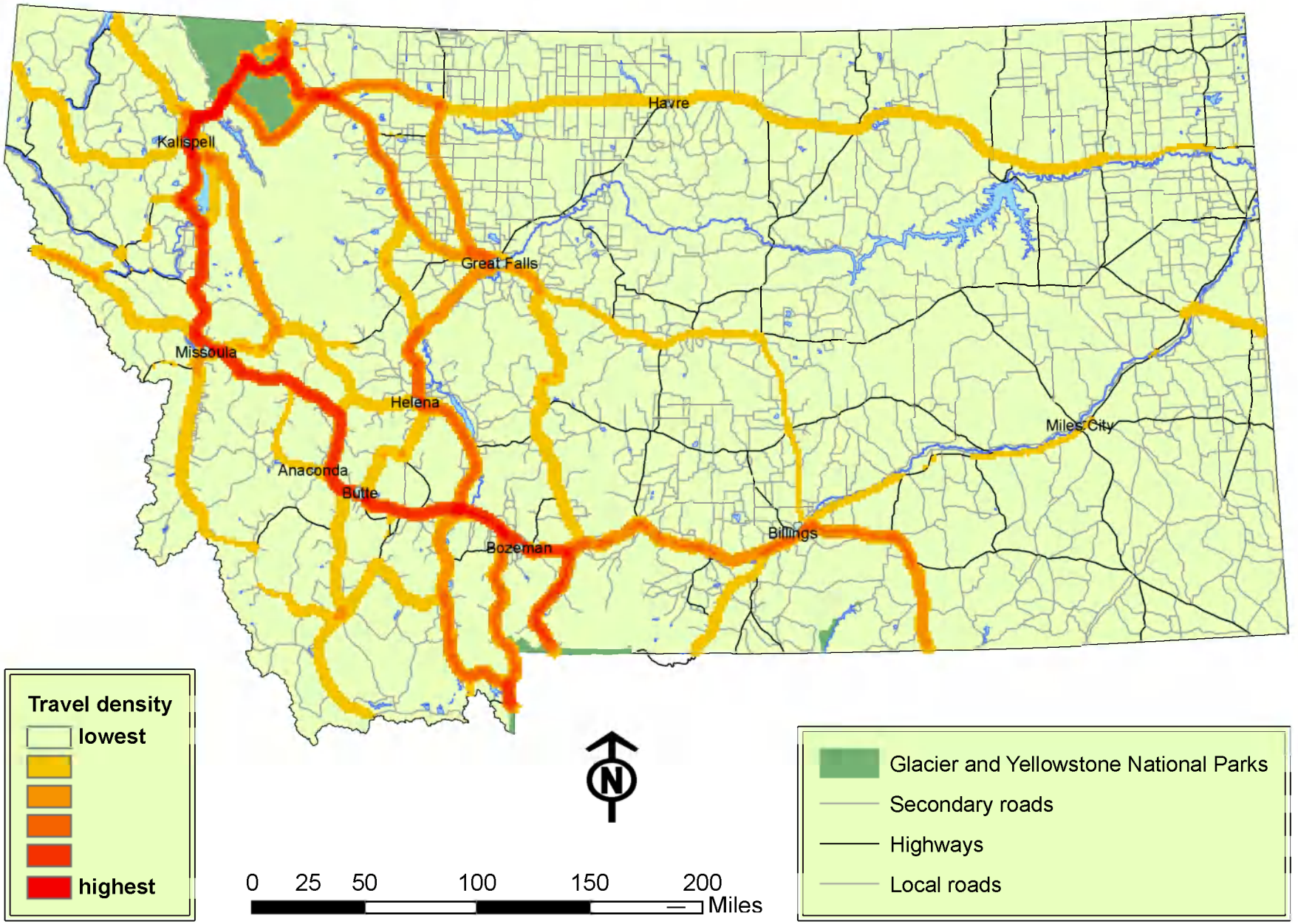
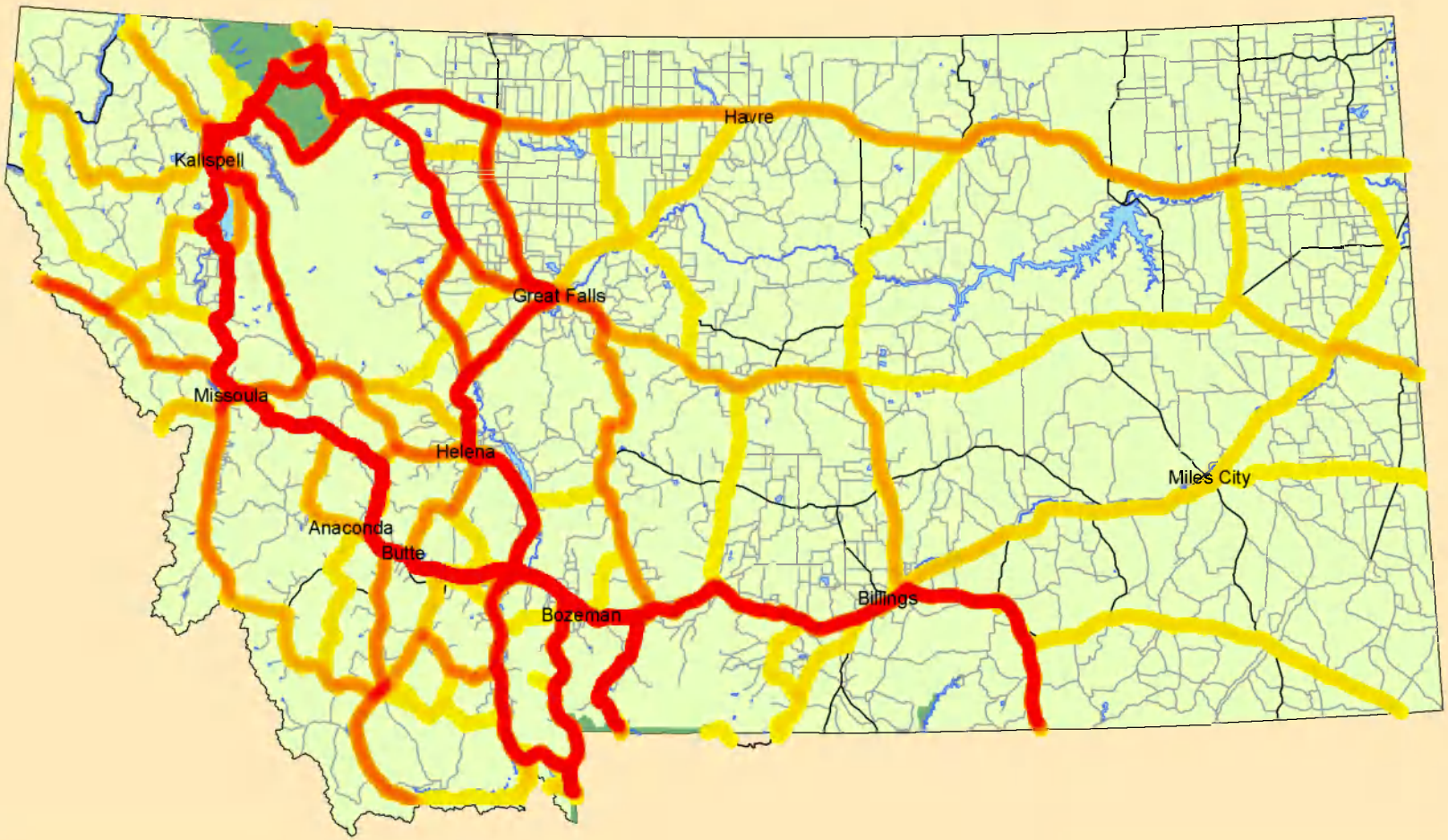
Appendix A: Map - Density of Travel Patterns for Nonresident Travelers to Yellowstone and Glacier National Parks

Density of Travel Patterns in Montana for Non-resident Travelers to Yellowstone and Glacier National Parks



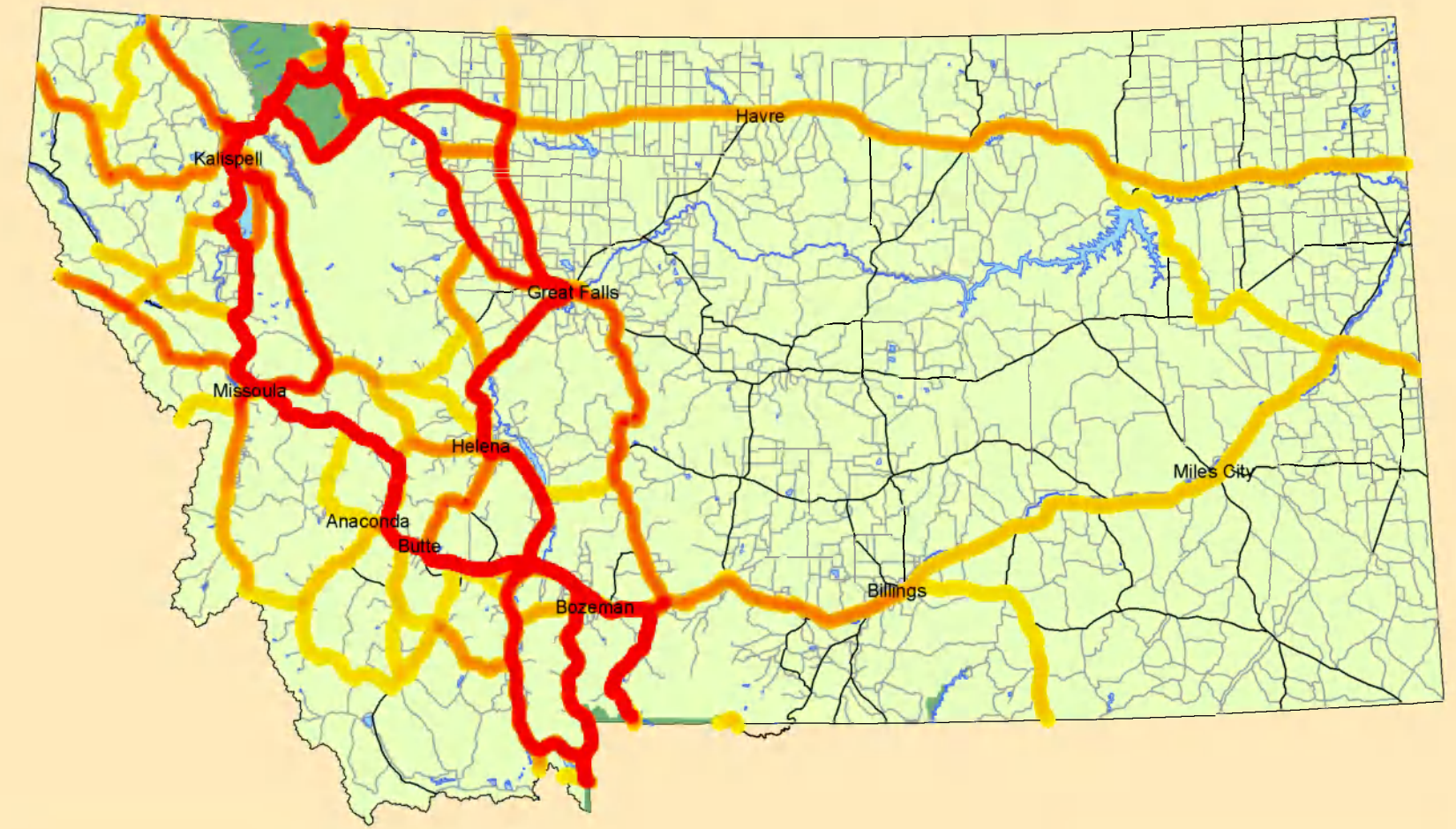
Appendix B: Map - Open Loop Travel Patterns for Nonresident Travelers to Yellowstone and Glacier National Parks

Density of travel routes of non-resident visitors to Yellowstone and Glacier National parks traveling in an 'open loop' pattern



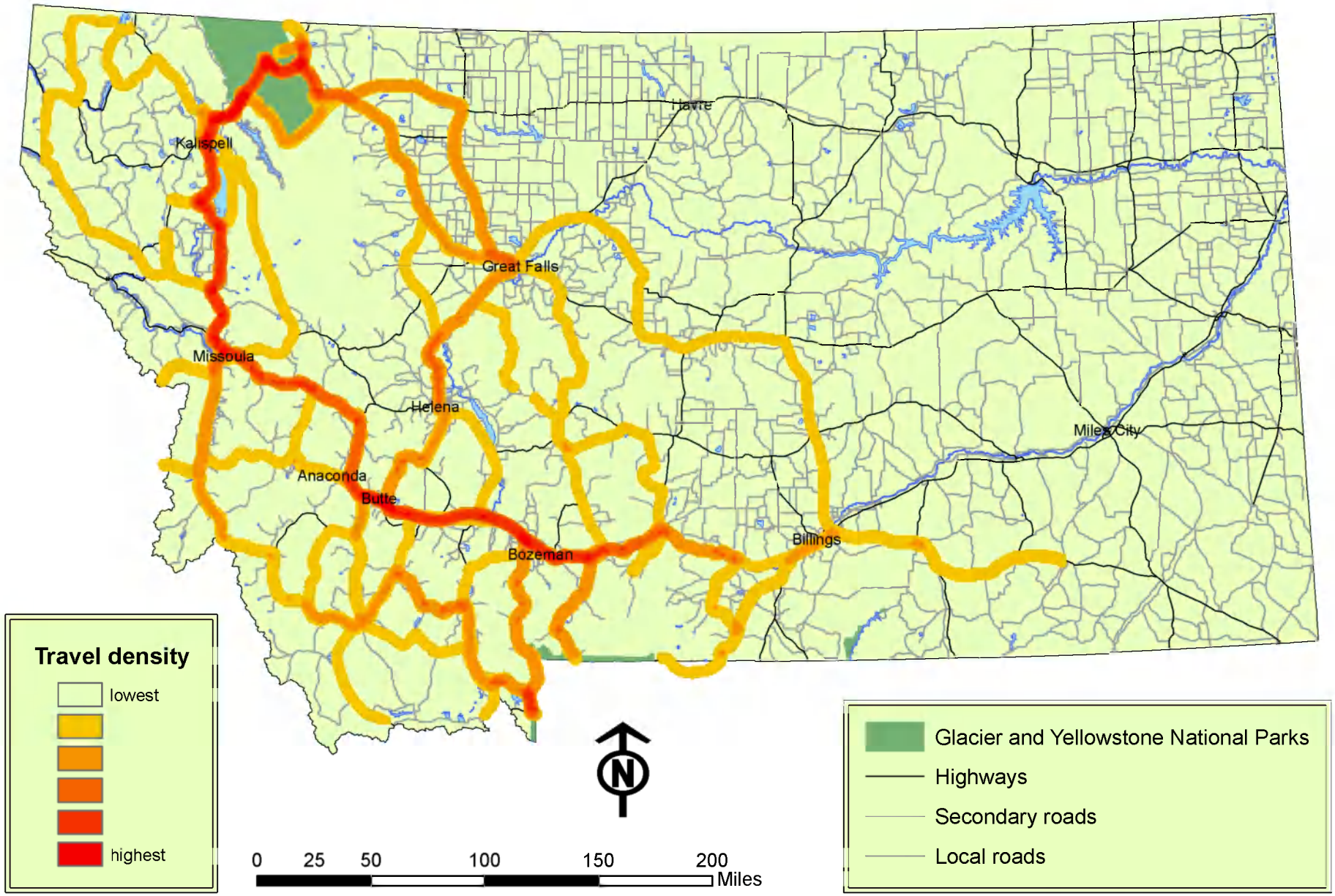
Appendix C: Map - Linear Travel Patterns for Nonresident Travelers to Yellowstone and Glacier National Parks

Density of travel routes of non-resident visitors to Yellowstone and Glacier National parks traveling in a linear pattern



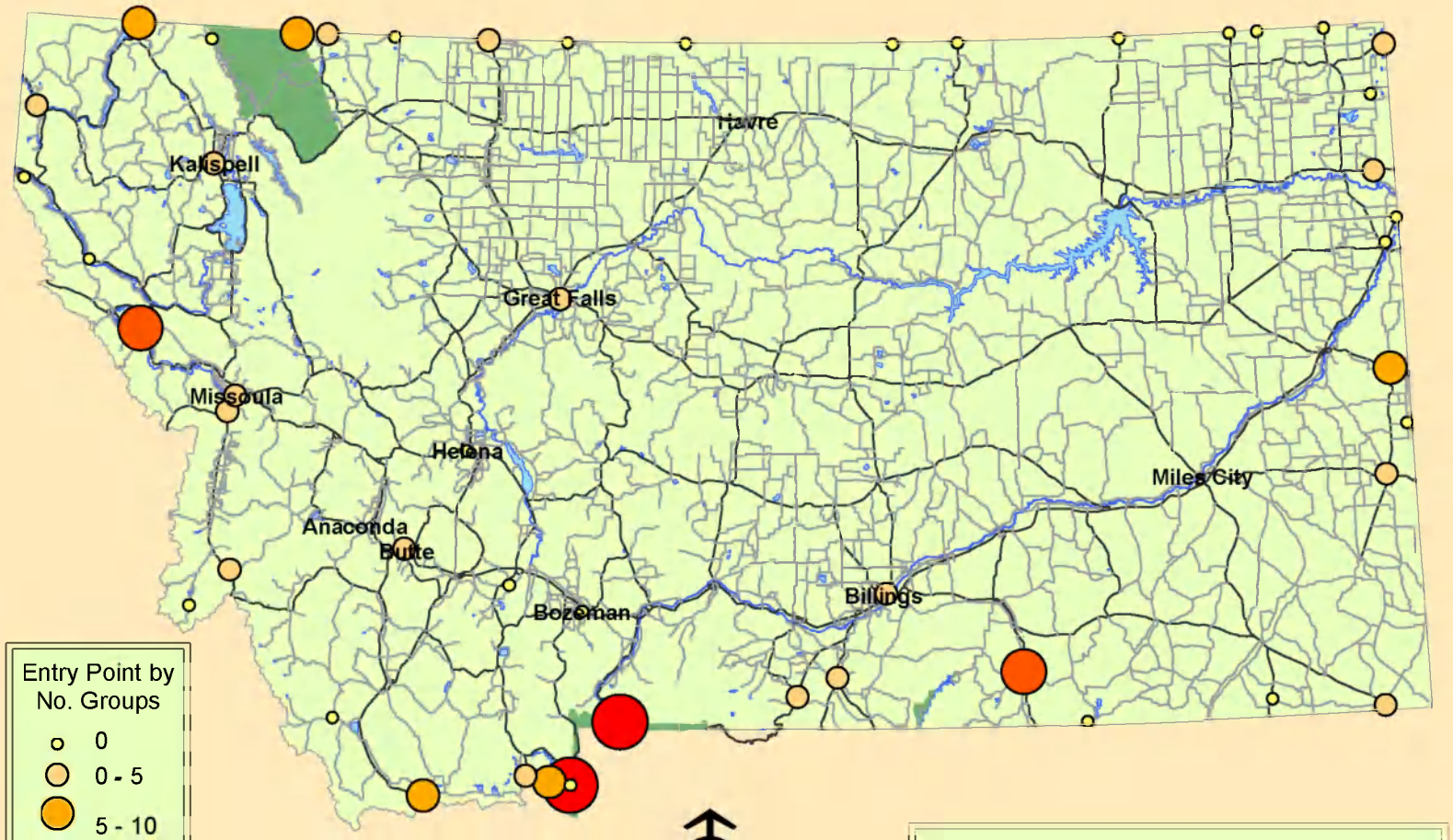
Appendix D: Map - Fly/Drive Travel Patterns for Nonresident Travelers to Yellowstone and Glacier National Parks

Density of Travel Patterns for Non-resident Travelers flying into Montana and Visiting Yellowstone and Glacier National Parks

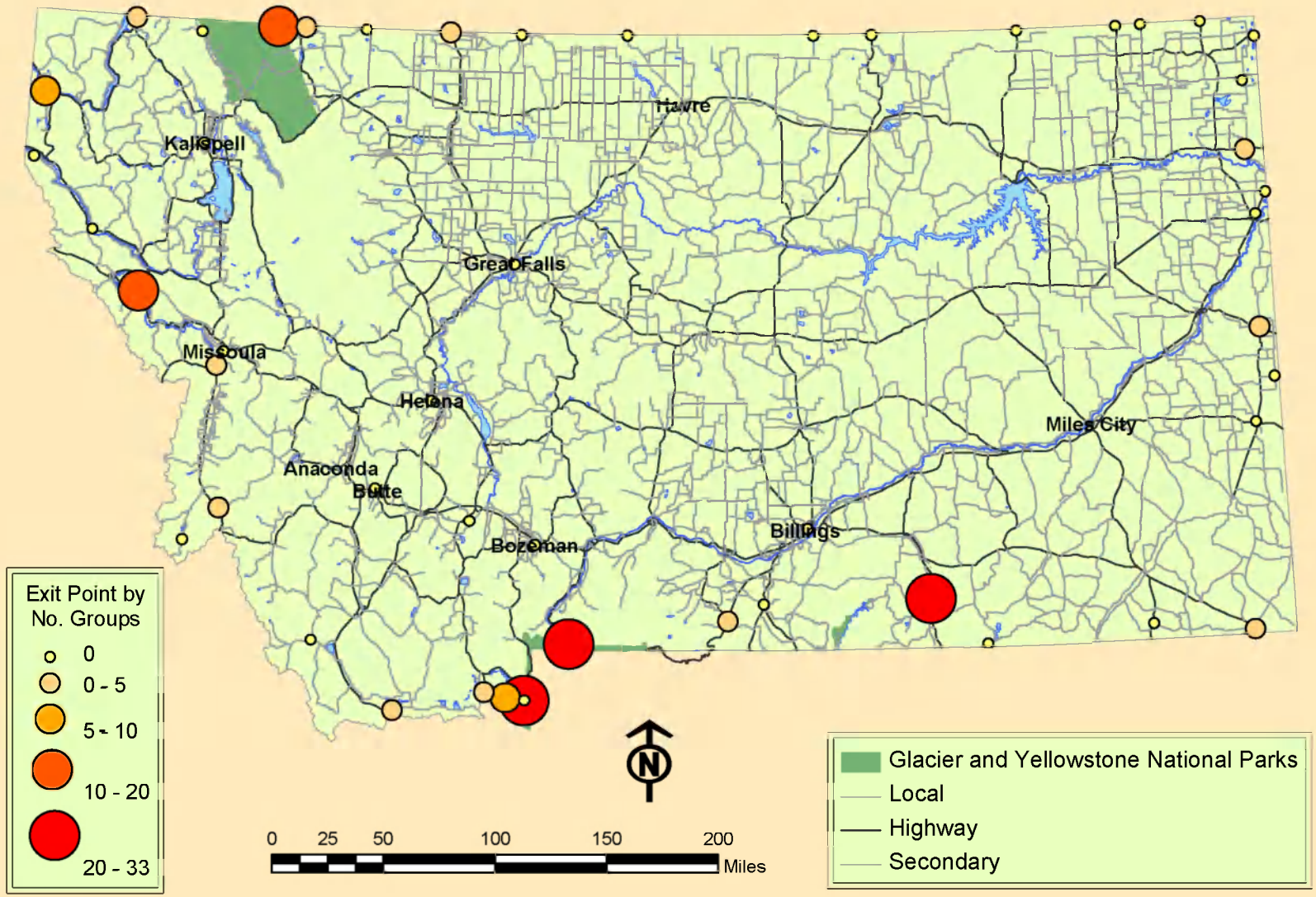


Appendix E: Map - Entry and Exit Points for Nonresident Travelers to Yellowstone and Glacier National Parks

Montana Entry Points Used by Non-Resident Travelers to Yellowstone and Glacier National Parks

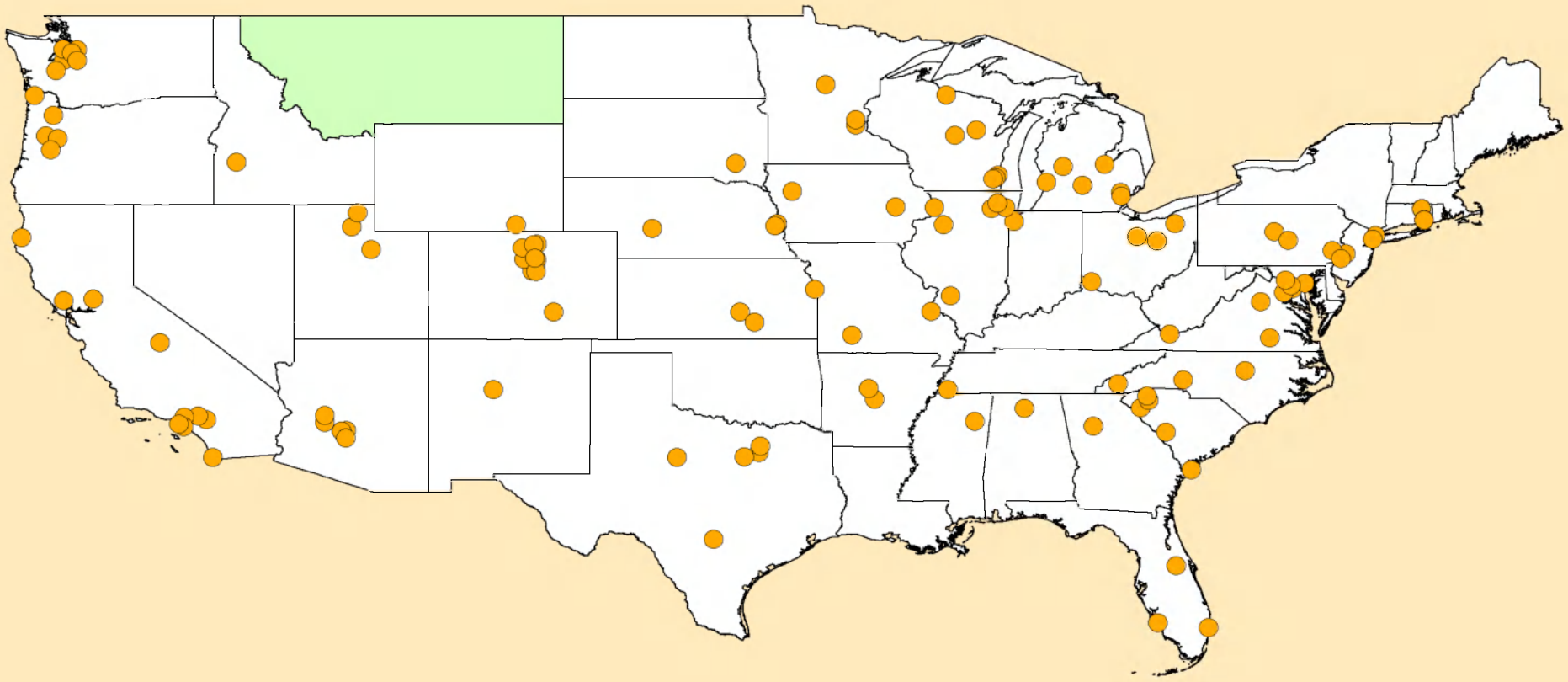


Montana Exit Points Used by Non-Resident Travelers to Yellowstone and Glacier National Parks



Appendix F: Map - Zip Code locations for Nonresident Travelers to Yellowstone and Glacier National Parks

Zip Code Locations for Non-resident Visitors to Glacier and Yellowstone National Parks



zip code locations

state of Montana

N

0 405 810 1,620

Miles