

Executive Summary for the OSU Research Forests Recreation Survey Report

September 2018



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Project overview and objectives

Oregon State University (OSU) College of Forestry's Research Forests ('the Forests') provide space for many uses. Balancing these uses is a priority among managers of the Forests. Dynamic trends in recreation visitation at the Forests require regularly assessing visitor experiences and attitudes about management issues. This project involved surveying visitors and Forests-adjacent landowners about their recreation use of the McDonald and Dunn Forests. The overall goal of these efforts was to inform future management decisions by incorporating visitor opinions as managers strive to offer a wide range of activities and outstanding opportunities for recreation experiences on the Forests. The project objectives were to:

- 1) Determine the characteristics of recreation users and their visits to the Forests
- 2) Evaluate recreation use, experience, and preferences
- 3) Evaluate the Forests' information program
- 4) Estimate current recreation use levels at the Forests

Methodology

This project consisted of two main survey efforts: 1) administering *onsite* questionnaires at locations on the McDonald and Dunn Forests as visitors exited and 2) administering mail questionnaires with Forest-adjacent *households*. Seven trailheads on the Forests were selected to represent a range of visitor activities and use levels. Questionnaires were distributed at each site between January 2017 and January 2018. Approximately 200 landowners within 750ft of the Forests' boundaries were randomly selected to receive a questionnaire in the mail in March 2017.

The questionnaire included four main categories or sections: 1) visitation characteristics, 2) recreation experiences at the Forests, 3) attitudes towards management strategies and communication, and 4) socio-demographic characteristics. The *onsite* and *household* questionnaires were nearly identical. One main difference was that the *onsite* questionnaire often asked respondents about their experiences on the day they were surveyed, whereas *household* respondents were asked to think about their typical experiences.

Additional observations about visitors during survey sessions. Between September 21, 2017 and December 30, 2017, surveyors collected additional observations about visitors as the visitors exited the site. A total of 1,089 groups (including single visitors) were observed over 51 observation/survey sessions. Surveyors recorded the group size, the number of adults and children, activity type, and the number of dogs in each group.

Recreation use level estimates. We used exit count data gathered during survey sessions to estimate current recreation use levels at the Forests, including the number of annual visits to the Forests and the number of separate or individual visitors.

Data analysis. Data was analyzed in the statistical software, SPSS (Statistical Package for the Social Sciences). Findings are reported separately for *onsite* and *household* respondents. We examined many of the results based on the survey location and/or respondents' primary typical activity type. When applicable, findings from this study are compared to those from a previous study on the Forests conducted in 2009.

Main Findings

Response rates

- 1,257 completed questionnaires were received from *onsite* visitors for a 61% response rate.
- 70 completed questionnaires were received from *household* respondents for a 35% response rate.

Visitation characteristics

- Hiking/walking was the most common activity participated in at the Forests among all respondents and was rated as the primary typical activity by 51% of *onsite* respondents. Dog walking (19%), trail running or jogging (16%) and mountain biking (12%) were the next most common primary typical activities among *onsite* respondents. Fewer than 3% of *onsite* respondents reported a different primary typical activity (e.g., horseback riding, nature viewing, hunting, birdwatching, or other).
- Repeat visitation to the Forests is high.
 - The average number of years recreating at the Forests was 13.26 years for 2017 *onsite* respondents and 18.90 years for 2017 *household* respondents. In 2009, *onsite* respondents had been recreating at the Forests for an average of 10.5 years.
 - 78% of *onsite* respondents visit the Forests at least once/month and 51% visit at least once/week.
 - 83% of *household* respondents visit the Forests at least once/month and 61% visit at least once/week.
 - Visitation frequency among respondents in 2017 was similar to 2009 respondents' visitation frequency.
 - The average duration of visits was 1.91 hours for *onsite* respondents and 1.66 hours for *household* respondents. 78% of *onsite* respondents and 79% of *household* respondents typically spend 2 hours or less recreating at the Forests.
 - Longer term visitors visit the Forests more frequently than newer visitors.
- 84% of *onsite* respondents and 85% of *household* respondents were in groups of 1 or 2 total people when visiting the Forests.
- 92% of *onsite* respondents did not have any children with them on the survey day and 83% of *household* respondents reported that they typically do not have any children with them when recreating at the Forests.
- Most *onsite* respondents (88%) drove motor vehicles to the site on the survey day. Most *household* respondents (69%) typically walk or jog to the Forests.
- The majority (88%) of *household* respondents reported that they typically use the Forests for recreation. Approximately half (49%) of the *household* respondents typically access the Forests from their neighborhood, 31% access the Forests from their property, and 20% use official trailheads.

- In 2017, 43% of *onsite* respondents brought dogs with them to the Forests, compared to 51% of *onsite* respondents in 2009 and 44% of 2017 *household* respondents. However, with the increase in the number of overall visits to the Forests, we roughly estimate that there are approximately 22% more dogs visiting the Forests in 2017 compared to 2009.
- Among those *onsite* respondents who indicated that they do bring dogs with them to the Forests, 76% typically bring one dog and 21% typically bring 2 dogs.
- Among those *household* respondents who indicated that they do bring dogs with them to the Forests, 52% typically bring one dog and 48% typically bring 2 dogs with them.

Additional observations from survey sessions

- The observed characteristics of visitors were similar to the characteristics of *onsite* questionnaire respondents. This suggests that non-response bias may not have been a major issue and that survey results are generally representative of typical users at the survey locations.

Demographic characteristics of respondents

- 55% of *onsite* respondents and 47% of *household* respondents were females.
- The median age was 52 years for *onsite* and 63 years for *household* respondents. The median age in Benton County is 33 years old.
- The majority of *onsite* (80%) respondents had at least a 4-year degree, with 47% having an advanced degree, which is higher than the percentage in Benton County.
- *Onsite* respondents tend to have higher annual household income (median between \$75,000 - \$100,000) compared to the typical household in Benton County.
- The majority of 2017 respondents (91% of *onsite*) identified their racial/ethnic identity as white/Caucasian, also higher than Benton County (87.3% white/Caucasian).
- ~70% of all respondents lived in Corvallis.
- Nearly 50% of *onsite* respondents live within 1-5 miles of a Forest boundary and 34% live more than 5 miles away from a boundary.
- More than half of *household* respondents (54%) live adjacent to a Forest boundary and 46% live with ½ mile of a boundary.

Recreation experiences at the Forests

- ~90% of all respondents were satisfied with their experiences at the Forests.
- Analysis shows that visitor satisfaction levels could be improved by reducing the amount of dog waste seen and increasing the number of directional signs on trails/roads and the availability of single-track trails. Specific management actions were indicated at different locations throughout the Forests to improve satisfaction in each area.
- *Onsite* respondents were generally more satisfied with most characteristics at the Forests compared to *household* respondents.

- Overall, visitors' perceived levels of crowding do not appear to currently be a major issue of concern at the Forests.
 - However, ~30% of all respondents felt crowded based on the number of vehicles seen at trailheads, especially on weekends and at Lewisburg Saddle and Oak Creek parking areas.
- Perceptions of conflict between visitors was relatively minimal across user groups.
 - However, visitors with dogs not under vocal control, mountain bikers riding too fast, and mountain bikers and visitors with dogs failing to give verbal warning upon approach were observed by at least 50% of respondents and considered a problem by at least 25% of *onsite* respondents.
 - Nearly 30% or more of respondents in each activity group among *onsite* respondents reported observing every other activity group (except for horseback riders) failing to give verbal warning upon approach. This indicates an etiquette issue that managers should consider addressing and/or monitoring.
 - *Household* respondents generally reported more conflict than *onsite* respondents. *Household* respondents seem less tolerant of mountain bikers and people with dogs than *onsite* respondents.
 - Different levels of conflict were reported at different survey locations and by the various activity types recreating at the Forests. This information can be used by managers to address specific types of conflicts where they occur.

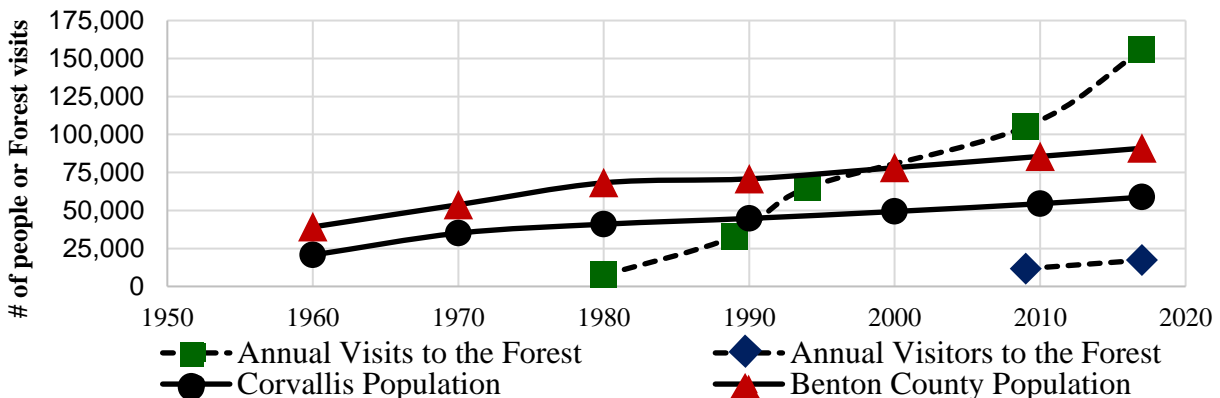
Attitudes about management and communication

- The most frequently supported management actions among all respondents were providing additional dog-bag dispensers and developing more trails designated only for people on foot. At least 60% of all respondents supported these actions.
- Among *onsite* respondents:
 - 67% of visitors on foot (w/no dogs) supported developing more trails designated only for people on foot, compared to 59% of dog walkers, 49% of trail runners, 48% of mountain bikers, and 17% of horseback riders who supported this option.
 - 89% of mountain bikers supported developing trails designated primarily for mountain biking, compared to 47% of other visitors on foot with no dog, 46% of dog walkers, 44% of trail runners, and 14% of horseback riders.
 - 24% of dog walkers supported requiring that dogs be kept on leash in high-volume areas, compared to 72% of horseback riders, 55% of visitors on foot with no dog, 53% of mountain bikers, and 43% of trail runners.
- Overall, 47% of *onsite* and 61% of *household* respondents supported requiring dogs to be kept on leash in specific high-volume areas.
- 62% of *onsite* respondents and 50% of *household* respondents opposed requiring dogs to be on leash everywhere in the Forests.

- Most management strategies were supported by at least 40% of respondents and opposed by no more than approximately 20% of respondents.
- 73% of *onsite* respondents did not look at a trailhead kiosk on the survey day, although 80% of all *onsite* respondents (regardless of whether they looked at it on the survey day) found the information provided on the trailhead kiosk to be very useful.
- 18% of *onsite* and 53% of *household* respondents receive information updates about the Forests. 98% of newer *onsite* visitors do not receive information updates.
- Receiving information updates appears to be related to more positive evaluation of communication effectiveness about Forest issues and programs.
- Communication effectiveness regarding management decisions, research at the Forests, and recreation programs or events could be improved ($\leq 35\%$ of all respondents rated these aspects as being effectively communicated by Forest managers).
- At least 50% of all respondents preferred getting information about the Forests through trail signs, trailhead kiosks, the OSU Research Forests' website, and email.
- 14% of *onsite* respondents and 19% of *household* respondents have volunteered for the Forests in the past. 40% of *onsite* respondents and 29% of *household* respondents who have volunteered for the Forests at some point have not volunteered at all in the past 12 months. 34% of *onsite* respondents and 36% of *household* respondents who have volunteered at the Forests in the past have volunteered once in the past 12 months.

Recreation use level estimates in 2017

- The estimated total number of annual visits to the Forests in 2017 was 155,446, +/- 10% (i.e. to 139,901 to 170,990 visits). The estimate in 2009 was 105,000 visits. Spring was the busiest season overall and fall was the least busy season overall.
- We used the estimate of annual visits to roughly estimate that, in 2017, the number of separate visitors was 17,271 plus or minus 8,635 (i.e., 8,635 to 25,908 visitors). The estimate in 2009 was 11,702 separate visitors.
- Estimates for the number of annual visits are likely conservative because they use conservative estimates of the number of daylight hours and they do not include the Dunn Forest. Also, additional visits made by users during non-daylight hours, or people accessing this Forest using secondary points are not accounted for in these estimates.



Management recommendations

- Prioritization of these recommendations is at the discretion of Forest managers. Implementing many of them will likely require additional staff or support.
- When developing these recommendations, we considered any management changes in related to the findings that occurred after data was collected. However, conditions and management direction will continue to change, and managers should use their discretion to interpret how our recommendations apply in the context future changes.

1. Forest managers should use the Interagency Visitor Use Management Framework to develop a comprehensive visitor management plan for the Forests.

- The plan should integrate and expand on current management guidelines and documents, and social science findings (i.e., results in this report and from previous efforts), to set specific goals, define acceptable and future conditions, and identify appropriate management actions and implementation strategies. Consider hiring additional staff to develop this plan.
- The visitor use management plan for the Forests may focus on addressing visitor behavior, vehicle capacity and perceptions of crowding at trailheads, and expanding the volunteer and stewardship program, as well as other issues at the managers' discretion.
- More specifically, for visitor behavior issues (especially regarding trail etiquette, controlling dogs off leash, and managing dog waste), the following recommendations could be considered and developed more carefully in a management plan:
 - Explore zoning and enforcement options with stakeholders and visitors to reduce conflict between recreation users.
 - Develop, implement, monitor, and adapt different communication and outreach techniques for influencing visitor behavior.
- In relation to vehicle capacity and perceptions of crowding at parking areas:
 - Include capacity issues in a comprehensive visitor use management plans (and monitoring plan) and set specific goals and acceptable levels of crowding or capacity at different locations on the Forests. Incorporate the recently developed 'Parking Philosophy' into the management plan to clarify management and monitoring strategies related to parking and perceptions of crowding at the Forests.
 - To address vehicle capacity and perceptions of crowding at parking areas, managers should consider assessing capacity in the comprehensive visitor use management plan and setting specific goals and acceptable levels of crowding. Managers should also incorporate recently developed 'Parking Philosophy' into the management plan.
- In relation to enhancing stewardship and volunteer capacity:
 - Continue to develop the Forests' stewardship and volunteer program, specifically with aims to foster a sense of ownership of issues at the Forests among more

visitors, increase volunteer involvement in monitoring, informing, and influencing visitor behavior, and to enhance communication opportunities. Consider hiring additional staff to support this effort.

- Develop a ‘Friends of the Forests’ group to expand the collaborative management potential of the Forests and provide management support without creating more work for managers. Conduct a formal assessment to consider different approaches to developing, structuring, and maintaining a Friends group and considering how their input would be included in management decisions and actions.

2. Forest managers should develop a formal communications plan for the Forests that defines specific communication and outreach goals, strategies, and messages to increase communication effectiveness with visitors and other stakeholders and address issues like visitor behavior, conflict, alternative transportation, and parking lot capacity.

- The communications plan should be integrated with the visitor use management plan to set priorities and strategies for communication and outreach efforts.
- Some initial considerations for inclusion in the communications plan include:
 - Improve directional signage and maps/kiosks around the Forests.
 - Determine techniques to encourage or direct visitors to look at the kiosks through attention-getting strategies or directing them to kiosks through choke points.
 - Use a variety of sources, outlets, media, people, and strategies to communicate with visitors and key stakeholder groups.
 - Explore and implement ways to get more visitors to sign up for Forest updates.
 - Provide more information about the Forests to visitors, particularly about management decisions, research, recreation programs or events, goals and missions of the Forests, and ecological or natural history information.
 - Continue current communication strategies with Forest-adjacent landowners regarding harvests and related noise issues.
 - Monitor the effectiveness of communication strategies and outlets, including ongoing changes to the Forests’ brochure, website, maps, and other outlets.

3. Forest managers should develop a formal monitoring plan that is integrated into the comprehensive Forest visitor use management plan and related communications plan.

- Decisions about monitoring depend on goals, priorities and desired conditions developed in a formal planning process while developing management and communication plans.
- Initial considerations for monitoring may focus on issues of priority noted in this report:
 - Visitor behavior (e.g., giving warning upon approach)
 - Vehicle capacity at different parking areas
 - Communication effectiveness on visitor knowledge and behavior
- Volunteers, OSU faculty/classes, and other stakeholders could be engaged in the monitoring process to encourage the role of citizen science on the Forests.

More detailed findings*

**This section includes more details about the survey findings that were presented above.*

Response rates

- The most common reasons given by *onsite* visitors who declined taking the questionnaire were that they did not have time, they were too tired, and/or the questionnaire was too long. The surveyors noted that no user-type (i.e., hiker, mountain biker, dog walkers, etc.) was more likely to refuse to participate. However, mountain bikers and runners were more likely to pass by the surveyors without stopping generally because they were either wearing headphones and could not hear the surveyors speaking to them or they were travelling too fast to be contacted. Additional observations of visitors suggested that, overall, the proportion of activity types of visitors were similar to that of survey respondents.
- Some activity groups may have been underrepresented based on survey locations and other factors (e.g., hunters). Forest managers could use additional survey efforts targeted at these populations if desired.
- There was no non-response bias check conducted among nonrespondents in the *household* survey efforts.

Visitation characteristics

- Many participants had and continue to participate in other activities, such as nature viewing and birdwatching, though these are not the main reasons for visiting among most respondents. The most common ‘other’ activities mentioned by respondents include photography, mushroom hunting, trail work, and picnicking.
- The distributions of activity groups were similar in the 2017 study compared to the 2009 study. The most notable difference is that 51% of *onsite* respondents in 2017 said their typical primary activity was hiking or walking, compared to 42% of respondents in 2009. Slightly more respondents in 2017 indicated that their primary typical activity at the Forests was dog walking compared to respondents in 2009. Compared to 2009, slightly fewer respondents in 2017 reported that they had gone dog walking, trail running, mountain biking, horseback riding, or hunting *ever* at the Forests.
- Activity group distribution was similar for *household* respondents as *onsite* respondents. Although, a slightly higher percent of *household* respondents selected horseback riding, nature viewing, and hunting as their primary typical activity than did *onsite* respondents.
- Approximately 90% of all respondents rated their skill level for their primary typical activity as intermediate, advanced, or expert. The distributions were similar across the *onsite* survey locations and primary activity type groups. Compared to 2009 *onsite* respondents, in 2017, slightly more *onsite* respondents indicated an advanced or expert skill level and slightly fewer respondents in 2017 indicated an intermediate level than in 2009. The percent of novice and beginners were the same across years.

- Longer term visitors (those who have been visiting for at least 1 year) visit the Forests more frequently than newer visitors. However, the average duration of a typical visit was not significantly different between newer and longer-term visitors.
- Respondents at Gate 400, Sulphur Springs, and Dan's Trail spent the most time (> 2 hours per visit) recreating at the Forests. Respondents at Hwy 99, Oak Creek, Lewisburg Saddle, and Peavy reported spending less than 2 hours recreating at the Forests on average.
- Visitors riding horses and mountain bikes stayed the longest, at least 2 hours on average.
- Among *onsite* respondents, 66% of respondents who lived adjacent to the Forests and 45% of respondents who live within a ½ mile of the Forests typically walk or jog to the Forests. The majority (at least 91%) of *onsite* respondents who lived at least a mile away drove to the Forests. Ten percent of respondents who lived within a mile of the Forests rode their bikes to the Forests, more than respondents from any other distance.
- 40% of all *onsite* respondents who bring a dog to the Forests restrain their dogs when encountering other visitors and 29% leash the dogs in busy areas. Nearly 20% of *onsite* respondents with dogs keep them off leash at all times and 14% keep them on leash at all times. At least 30% of *onsite* respondents at all locations reported restraining their dogs when encountering other visitors.
- 37% of *household* respondents who bring dogs to the Forests reported that they keep dogs on leash all the time and the same portion of *household* respondents restrain dogs when encountering other visitors.

Demographic characteristics of respondents

- More respondents in 2017 were females compared to the 2009 study. More than half (55%) of *onsite* and 47% of *household* respondents were females, compared to 51% of respondents in the 2009 survey. Nearly 50% of Benton County residents are female.
- *Onsite* respondents were significantly younger than *household* respondents with an average age of 49 and 62, respectively. The median age of *onsite* respondents in 2009 was 46, compared to 52 for 2017 *onsite* respondents and 63 for 2017 *household* respondents. The median age in Benton County in 2016 was 33 years. Most (87%) of *household* respondents were at least 50 years of age and 48% of *onsite* respondents were younger than 50 years.
- Forest visitors have obtained higher levels of education compared to the general population in Benton County. The majority (80% of *onsite* and 85% of *household*) of respondents had at least a 4-year degree. In Benton County, 54% of residents 25 years or older have at least a 4-year degree.
- Visitors at the Forests tend to have higher annual *household* income compared to Benton County as a whole. The median annual income of *household* respondents was between \$100,000 and \$150,000 and between \$75,000 and \$100,000 for *onsite* respondents. The median income in 2016 for Benton County was \$52,015.

- Most respondents (91% of *onsite* and 90% of *household* respondents) identified their racial/ethnic identify as white/Caucasian. The largest Benton County racial/ethnic groups are White (87.3%), Hispanic (7.3%), Asian (6.5%), and two or more races (3.8%).
- None of the *household* respondents and 14% of *onsite* respondents were students.

Recreation experiences at the Forests

- In 2017, more respondents were satisfied with most characteristics than in 2009. Specifically, in 2017, compared to 2009, respondents were more satisfied with safety from logging/Forestry operations, the availability of trashcans at trailheads, the availability of free brochures at trailheads, the number of directional signs on trails/roads, the quality of trail maintenance, and the amount of dog and horse waste seen.
- Comments about visitor satisfaction revealed a high degree of appreciation for access to the Forests and especially the variety of trails and recreation opportunities there. Other comments reflect that there is room for improvement in managing dogs at the Forests (e.g., waste and not being under vocal control), addressing negative encounters with mountain bikers and people with dogs (generally not giving warning upon approach), and improving the trail system with enhanced signage and information about trail options, distances, and connectivity.
- Given the higher importance and relatively lower satisfaction of certain attributes among *onsite* respondents, more attention could be paid to the amount of dog waste seen, the availability of single-track trails and the number of directional signs on trails and roads in the Forests. Further analysis of the importance of and satisfaction with different characteristics suggests managers could focus on:
 - Hwy 99, Sulphur Springs, Oak Creek, and Lewisburg Saddle to provide adequate parking space for vehicles or for promoting alternate transportation options.
 - Oak Creek, Lewisburg Saddle, and Gate 400 for ensuring visitor safety and communicating about logging and Forestry activities.
 - Hwy 99, Sulphur Springs, and Gate 400 to improve the availability of trash cans at trailheads.
 - Hwy 99 trailhead for providing free brochures at the trailhead.
 - Oak Creek, Sulphur Springs, and Gate 400 for improving trail maintenance.
 - Oak Creek and Sulphur Springs for areas to provide more single-track trails.
 - Dan's Trail and Gate 400 for controlling the amount of horse waste seen.
 - **Note, the above recommendations assume that respondents primarily recreate at the location where they were contacted to complete the survey, and that their responses about satisfaction refer to that specific site.*
- For *household* respondents, efforts to improve visitor satisfaction should focus on the amount of dog waste seen, the availability of single-track Forest trails, the number of directional signs on trails/roads, and perhaps the amount of litter seen.

- Perceptions of crowding based on the number of vehicles at parking areas tended to be higher on the weekends and afternoons, and at Lewisburg Saddle (44%) and Oak Creek (34%) parking areas.
- Perceptions of crowding based on the number of people at trailheads and along Forest roads and trails were minimal.
- On average, *onsite* and *household* respondents reported seeing about 5 other people on the trails at the Forests. *Onsite* respondents reported seeing about 4 other people on the roads inside the Forests and *household* respondents reported typically seeing about 5 other people on roads inside the Forests.
- *Onsite* respondents saw an average of 4 people at the trailhead.
- *Onsite* respondents reported seeing approximately 8 vehicles at the trailhead they used on the day surveyed.
- *Household* respondents reported seeing an average of 1-2 vehicles on Forest roads.
- Among all respondents in 2017, the most observed and problematic conflict events were related to people with dogs not under vocal control, mountain bikers riding too fast, and mountain bikers and visitors with dogs failing to give verbal warning upon approach.
- Specifically, among *onsite* respondents:
 - 66% observed visitors with dogs not under vocal control, 44% considered it a problem.
 - 61% observed mountain bikers riding too fast, 31% considered it a problem.
 - 59% observed mountain bikers failing to give verbal warnings upon approach, 30% considered it a problem.
 - 53% observed visitors with dogs failing to give a verbal warning upon approach, 26% considered it a problem.
- Specifically, among *household* respondents:
 - 79% observed visitors with dogs not under vocal control, 61% considered it a problem.
 - 77% observed mountain bikers riding too fast, 45% considered it a problem.
 - 63% observed mountain bikers failing to give verbal warnings upon approach, 37% considered it a problem.
 - 58% observed visitors with dogs failing to give a verbal warning upon approach, 36% considered it a problem.
- More respondents in 2017 observed conflict events associated with mountain bikers than in 2009 (especially for riding too fast), though fewer respondents in 2017 considered each of these events a problem compared to 2009 respondents. Conflict events related to horseback riders on the Forests were observed by fewer respondents and considered a problem by fewer respondents in 2017 compared to 2009. There was also minimal

change in conflict events observed and reported as a problem concerning people on foot (without dogs) between the two survey years.

- The site on the Forests with greatest potential for conflict involving mountain bikes is at Dan's Trail. This is because it was the location where respondents most frequently noted conflict events with mountain bikers.
- Conflict events related to visitors with dogs appear to be of greatest concern at Oak Creek, and to a slightly lesser extent at Dan's Trail, Lewisburg Saddle, and Hwy 99.
- Similar to 2009, conflict between mountain bikers and horseback riders was evident in the 2017 survey.
 - Many horseback riders observed mountain bikers riding too fast (86%), not yielding the right of way (86%), and failing to give verbal warning upon approach (88%), with a similar portion of horseback riders rating these events problematic.
 - 32% of mountain bikers observed horseback riders failing to give verbal warning upon approach and 26% of mountain bikers observed horseback riders being rude or discourteous. However, only approximately 10% of mountain bikers found these events problematic.
- There was also evidence of two-way out-group conflict between mountain bikers and people on foot with dogs.
 - Nearly 75% of mountain bikers observed people with dogs not under vocal control and 45% considered it a problem. At least 50% of mountain bikers also noticed people with dogs being rude, not yielding the right of way, and failing to give verbal warning upon approach. At least 20% of mountain bikers considered each of these events a problem.
 - More than 60% of respondents in the dog walking activity group observed mountain bikers riding too fast and failing to give verbal warning upon approach, and 28% -30% of them considered each of these events problematic.
- We offer insights from published literature about crowding and conflict at the Forest in the context of other recreation areas. Ultimately, managers will decide when conflict and crowding are problematic based on specific management objectives, desired future conditions for the Forests, and population and recreation visitation growth trends.
- However, data from the 2017 survey does indicate that crowding at the Forests is fairly minimal, though it is becoming a concern for the number of vehicles at certain trailheads
- Also, conflict involving mountain bikers and visitors with dogs (especially off leash) are also at a level that signals a potential problem that at least requires some monitoring to track the issue and consideration of potential management actions if these events increase to an unacceptable level.

Attitudes about management strategies and communication

- Support for some management strategies increased in 2017 compared to 2009. In 2017, 61% of *onsite* respondents supported developing more trails designated only for people on foot, 51% supported developing trails primarily for mountain biking, and 22%

supported an increase in the enforcement of trail rules and regulations, compared to 53%, 45%, and 8% among 2009 respondents, respectively.

- Support for other management strategies decreased in 2017 compared to 2009. Among *onsite* respondents, 41% supported providing more signage to inform visitors of appropriate behavior, and 17% supported requiring dogs be kept on leash everywhere in the Forests, compared to 47% and 19%, respectively, in 2009.
- Perhaps the most notable difference between respondents in 2009 and 2017 is that nearly half as many respondents in 2017 (36%) supported not changing anything compared to respondents in 2009 (65%). This indicates that visitors may be more tolerant and supportive of management in general.
- The majority of *onsite* (76%) and *household* (73%) respondents had seen the free brochure with the map at the trailhead kiosks, and 84% of *onsite* and 85% of *household* respondents said the information in the brochure was useful.
- 53% of newer visitors (who have been visiting less than one year) looked at the trailhead kiosk, compared to 22% of longer-term visitors. More respondents looked at the trailhead kiosk at Dan's Trail and Gate 400 than other sites.
- More people on foot (35%) and on horseback (63%) said they looked at the kiosk than any other activity group. At least 70% of all activity groups said they found the information provided in kiosks to be useful.
- Comments showed that respondents wanted to see the maps and other information in the brochure improved. The maps could be clearer, updated, and enlarged to show more detail of each trail, and include more information about trail mileage, conditions, and activity appropriateness for different trails. Note, maps have been improved to reflect these concerns.
- Comments about information on the trailhead kiosks reflected similar attitudes about the maps and trail information, in addition to an interest in more information about other topics such as research happening on the Forests, closures due to logging, and information about wildlife and wildlife settings.
- Among *onsite* respondents, the most preferred information sources were trail signs (76%), trailhead kiosks (72%), and the OSU Research Forests' website (58%). Their least preferred sources were neighborhood meetings (17%), community programs (22%), and local magazines (23%).
- Among *household* respondents, the most preferred information sources were trailhead kiosks (70%), trail signs (70%), email (66%), and the OSU Research Forest website (66%). Their least preferred sources were local magazines (11%), Facebook (22%), and community programs (23%).
- The topics rated as effectively communicated by managers by the most *onsite* respondents included regulations for recreating at the Forests (39%), the location and timing of timber harvest closures (43%), and information needed to plan a visit (43%).

- The topics about the Forests rated as effectively communicated by Forest managers among the least number of *onsite* respondents included management decisions (25%), research at the Forests (35%), and recreation programs or events (35%).
- The topics about the Forests rated as effectively communicated by managers among the most *household* respondents included location and timing of timber harvest closures (59%), regulations for recreating at the Forests (50%), information needed to plan a visit (47%), and the goals and missions that guide management of the Forests (45%).
- The topics rates as effectively communicated by the least number of *household* respondents included management decisions (27%), research at the Forests (38%), and recreation programs or events (39%).
- Many respondents selected ‘neither’ for most of the topics regarding communication, often around 50% of respondents for several topics. This suggests that many visitors may not have a strong opinion or awareness of information about the different topics listed. However, visitors are interested in learning more about the different research and management activities at the Forests, including the reasoning for management decisions and the purpose and findings from research activities at the Forests.
- Among all respondents, those who indicated that they do receive updates about the Forests were more likely to rate every informational program topic as effectively communicated compared to those who do not receive information updates about the Forests. Although the data does not allow specific inferences into why respondents did or did not rate the informational programs about different topics as effective, receiving updates about the Forests may have a positive effect on perceptions of informational program effectiveness. Goals to increase perceptions of informational program effectiveness should include efforts to increase the number of people who receive updates about the Forests.

Additional comments from respondents

- Open-ended comments mentioned a wide variety of issues. The most prominent issues discussed were those related to dogs, trails, parking/facilities, and information use (maps, signs, kiosks, education). Many comments also simply expressed gratitude for the ability to use the Forests for recreation. Problems with dogs off leash not under vocal control and signs of dog waste were identified as a problem by many respondents. Comments reflected an interest in having more trails, especially single-track trails for mountain bikes or other activity intended purposes (e.g., trail running). Restroom facilities, trash cans, and parking lot improvements were requested by a fair number of respondents.

Additional management recommendations

- This survey does not account for opinions of people who choose to no longer recreate at the Forests or those who intentionally avoid contact with other visitors or managers. Managers may want to pursue the underrepresented groups through more targeted survey efforts (e.g., emailing an online version of the questionnaire to registered hunters or to equestrian groups and users) or focus groups with people known to have stopped recreating at the Forests or who have significantly altered their recreation patters there for reasons that could be of interest to managers.