



Red Sticker Appendix D - OHMC Survey Report

March 5, 2019

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Executive Summary

In 2013, California Air Resources Board (CARB) staff presented to the Board a regulatory proposal to control evaporative emissions from off-highway recreational vehicles (OHRV). At that time, the Board approved the proposal for more stringent evaporative controls for certified emissions-compliant OHRV models only. The new evaporative standards do not apply to OHRV that are certified with no emissions controls, which are commonly referred to as red sticker vehicles. The Board directed CARB staff to conduct an assessment of the emissions impact of these uncontrolled red sticker OHRV. A primary component of this assessment was an off-highway motorcycle (OHMC) owner survey. The purpose of this survey was to:

- quantify OHMC usage and activity
- understand the differences in OHMC seasonal operation
- evaluate the effectiveness of the red sticker program, and
- update the emissions inventory

Owners were asked to answer questions to better understand OHMC characteristics, usage, activity, and rider preferences. The survey included 21 questions pertaining to the specific OHMC referenced on the postcard and identified at the beginning of the survey. Responses were received from over 3,000 OHMC riders in California.

The majority of OHMCs owners in California primarily used their vehicle for recreational purposes. Only 7 percent of red sticker OHMC owners used their vehicle for competition, while 90 percent of red sticker owners used their red sticker OHMC primarily for recreation. Red sticker owners registered in ozone non-attainment areas rode during the summer by either operating on private land (54 percent) traveling further to ride (43 percent) or operating on unenforced public land (25 percent).

Note: The complete survey questionnaire is included in Appendix 1 of this document for reference.

Methodology

The University of California, Davis, conducted an online survey of registered OHMCs in California in collaboration with CARB. Survey questions were developed with extensive input from industry members along with California State Parks Off-Highway Motor Vehicle Recreation Division (OHMVR). Postcards were mailed to OHMC owners as an invitation to participate in the online survey. State Parks OHMVR provided day-use passes as an incentive to respondents.

Sample Selection

The 2013 Department of Motor Vehicles (DMV) registration database was utilized to select the survey population. Data used from the DMV registration database included OHMC make, model, model year, registration status code, county of residence, and mailing address. A random sample representative of

OHMC riders in California was selected based on three factors: spatial allocation, registration status, and OHMC type.

Each rider's location was determined by the county in which the rider was registered. Samples were targeted to mimic the distribution of riders in the state. Both actively and inactively registered OHMC owners were surveyed in order to evaluate operational patterns for all types of registration status.

Four distinct OHMC types were surveyed: red sticker, green sticker, dual sport, and historic. OHMCs are certified as red sticker if they do not meet emissions standards; these bikes are also subject to seasonal usage restrictions in areas of the state that do not meet federal ozone standards. OHMCs that are compliant with emissions standards are certified as green sticker and can be used statewide without seasonal restrictions. Historic OHMCs include model year 1997 and older OHMCs. Dual sport are registered for on-road riding and therefore comply with the more stringent on-road emissions standards.

Response number quotas were established for each OHMC type with input from California State Parks, members of industry, and UC Davis. Quotas were defined as targets representative of the 2013 DMV registration for OHMCs in California. The response target was 2,900 OHMCs statewide, with 1,200 red sticker, 720 green sticker, 480 dual sport, and 500 historic motorcycles that were sold prior to the implementation of exhaust emissions standards in 1997.

A pilot sample of 2,000 riders was conducted to evaluate response rates. Based on the response rate observed during the pilot sample, it was estimated that distributing 46,247 postcards would meet the survey response number requirements to constitute a representative statewide sample of OHMC riders. In total, 2,274 day use passes were provided to respondents that completed the survey. More than 700 additional respondents completed the survey but declined the offer of a free day use pass.

Postcard Design

An initial and final reminder postcard was sent to each surveyed rider. Postcards were not branded with the CARB logo in an attempt to remove bias that riders may have toward CARB. California State Parks OHMVR provided free day use passes for any off-highway vehicle (OHV) park in California as an incentive for OHMC owners to participate in the survey. Approximately half of the postcards were mailed with language denoting a “free gift valued at \$5”, the remaining postcards marked an incentive of a “free day use pass to any California State Park State Vehicular Recreational Area”.



Figure 1a. Front of postcard used in the survey is the front of the postcard.

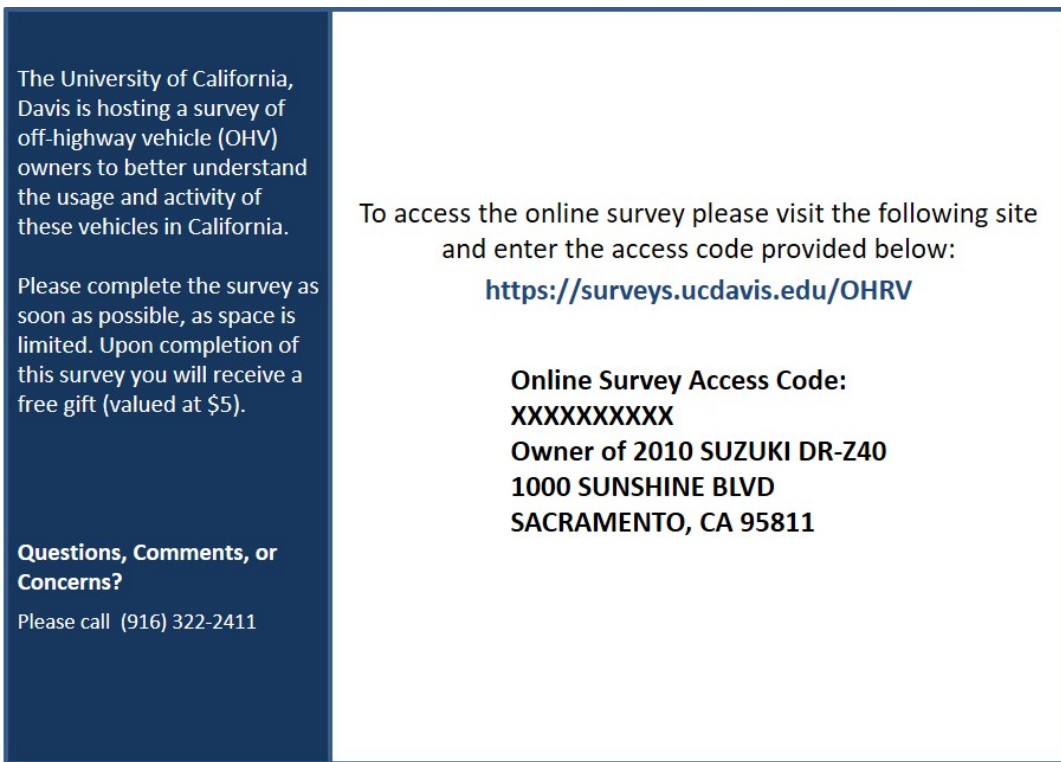


Figure 1b. Back side of the postcard used in the survey, version 1.

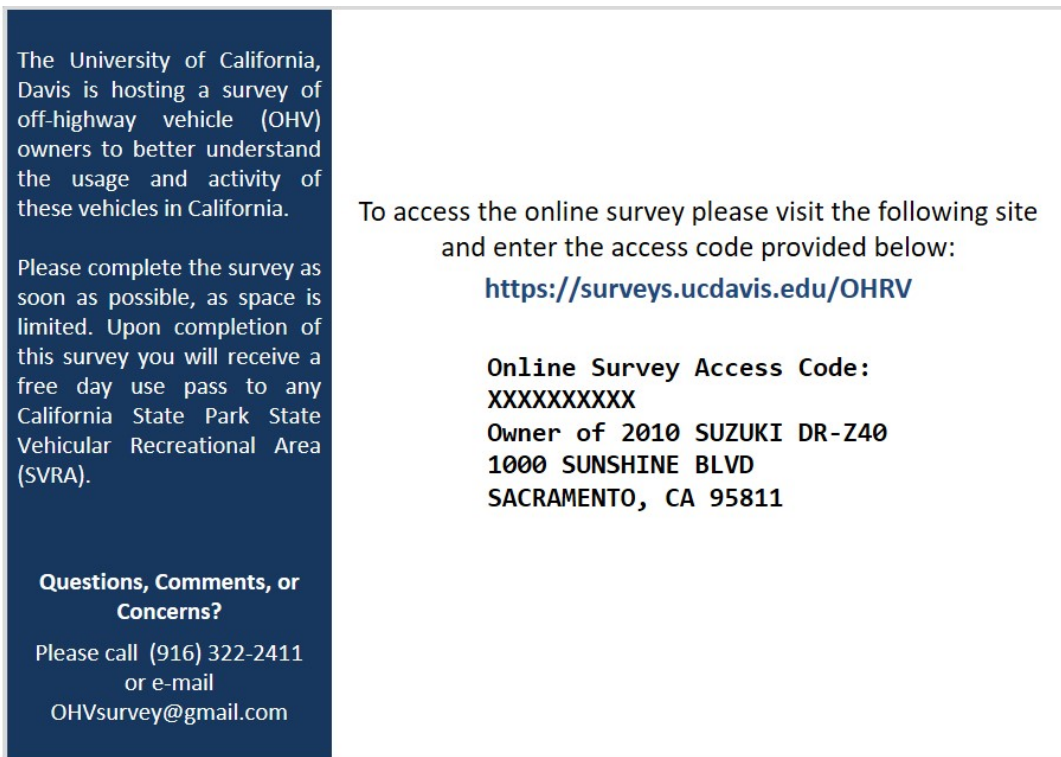


Figure 1c. Back side of the postcard used in the survey, version 2.

Timeline

The pilot sample of 2,000 riders was conducted in March 2015. Initial postcards for the primary survey of 46,427 riders began mailing in November 2015. Final reminder postcards finished mailing in May 2016. The online survey closed in June 2016. A small, supplemental activity survey was conducted in January 2017. (See Appendix 2)

Response Evaluation Procedure

CARB staff reviewed the entire OHMC survey response database to assess whether individual responses were valid. Responses deemed to be invalid were excluded from the final survey results. A total of 51 responses were removed from the full survey response population of 3,245. Detailed reasons for respondent removal from the analyzed sample population included:

- Data from incorrect vehicle types (on-road vehicles and all-terrain vehicles)
- Open response answers that:
 - Stated that the OHMC was predominantly used for on-road
 - Applied to a different vehicle than the survey intended
- Respondent began the survey but dropped out before completing question 1

The next section of this report details the breakdown of survey responses, followed by a question-by-question summary of responses.

Survey Response Breakdown

By Type and Question

In total, 3,194 rider responses were collected. The most responses were received from red sticker OHMCs (1,239), followed by green sticker (757), historic (609), and dual sport (589). Over 80 percent of respondents that began the survey completed the entire survey. For this analysis, a survey is considered to be complete after finishing Question 18. All questions following Question 18 were opinion based and the answers were used only for information gathering purposes.

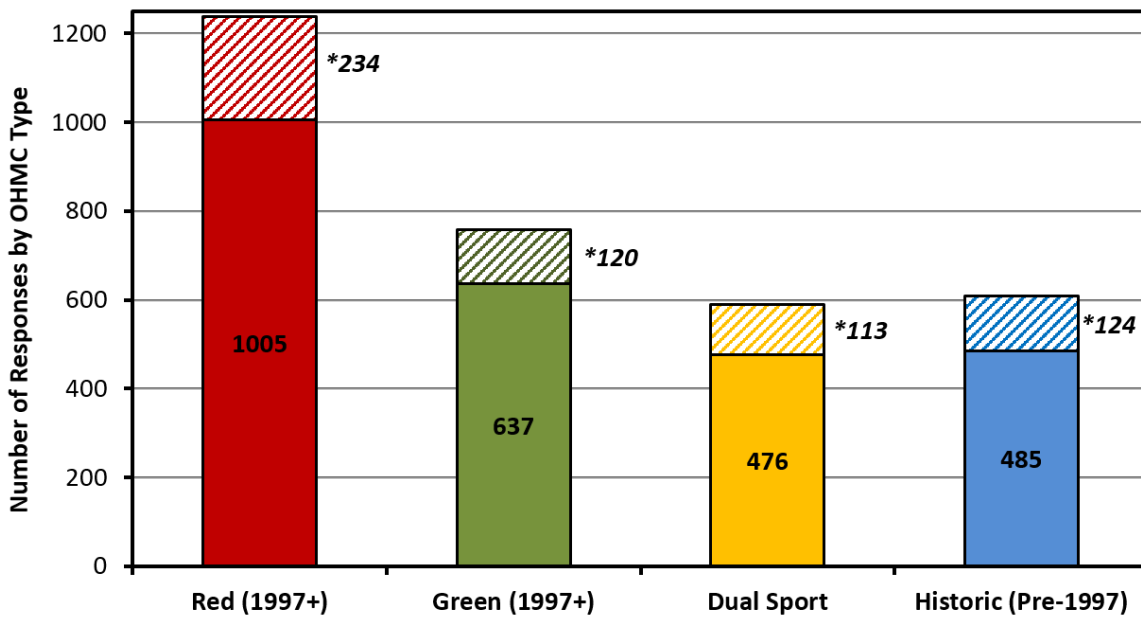


Figure 2. Number of total survey responses by OHMC type. Partial responses (completed fewer than 18 questions) denoted by hatching and asterisk

Table 1. OHMC survey responses by question.

Survey Question	Red Sticker Responses	Green Sticker Responses	Dual Sport Responses	Historic Responses	Grand Total
GI	1239	757	589	609	3194
1	1168	724	567	549	3008
2A	1163	724	562	547	2996
2B	1154	721	555	542	2972
3	1154	719	558	542	2973
4	1142	717	545	538	2942
5	1128	706	519	527	2880
6	1116	707	535	524	2882
7	1116	706	534	524	2880
8	1114	704	530	524	2872
8A	1114	704	530	524	2872
9	1112	702	528	524	2866
10	1097	690	517	517	2821
11	1009	640	478	487	2614
11A	1009	640	478	487	2614
12	1008	640	478	487	2613
13	1008	639	478	487	2612
14	1007	638	478	486	2609
15	1006	637	477	486	2606
16	1005	637	476	485	2603
17	1005	637	476	485	2603
18	1005	637	476	485	2603
19	998	634	476	483	2591
20	995	634	475	482	2586

By Spatial Distribution

The map below displays survey responses by county, with shading indicating the percentage of the target quota that was met for each county. In the majority of the counties, over 90 percent of the target sample population was met. Those not meeting the target had a small population of OHMC owners in the DMV database. Although the sample quota was not met in these counties, there were fewer than 5 responses remaining in each to meet the designated county sample quota.

Table 2 shows response counts by county. The counties with the most responses were Los Angeles (17 percent of total responses), San Diego (9 percent), Orange (8 percent), and San Bernardino (6 percent).

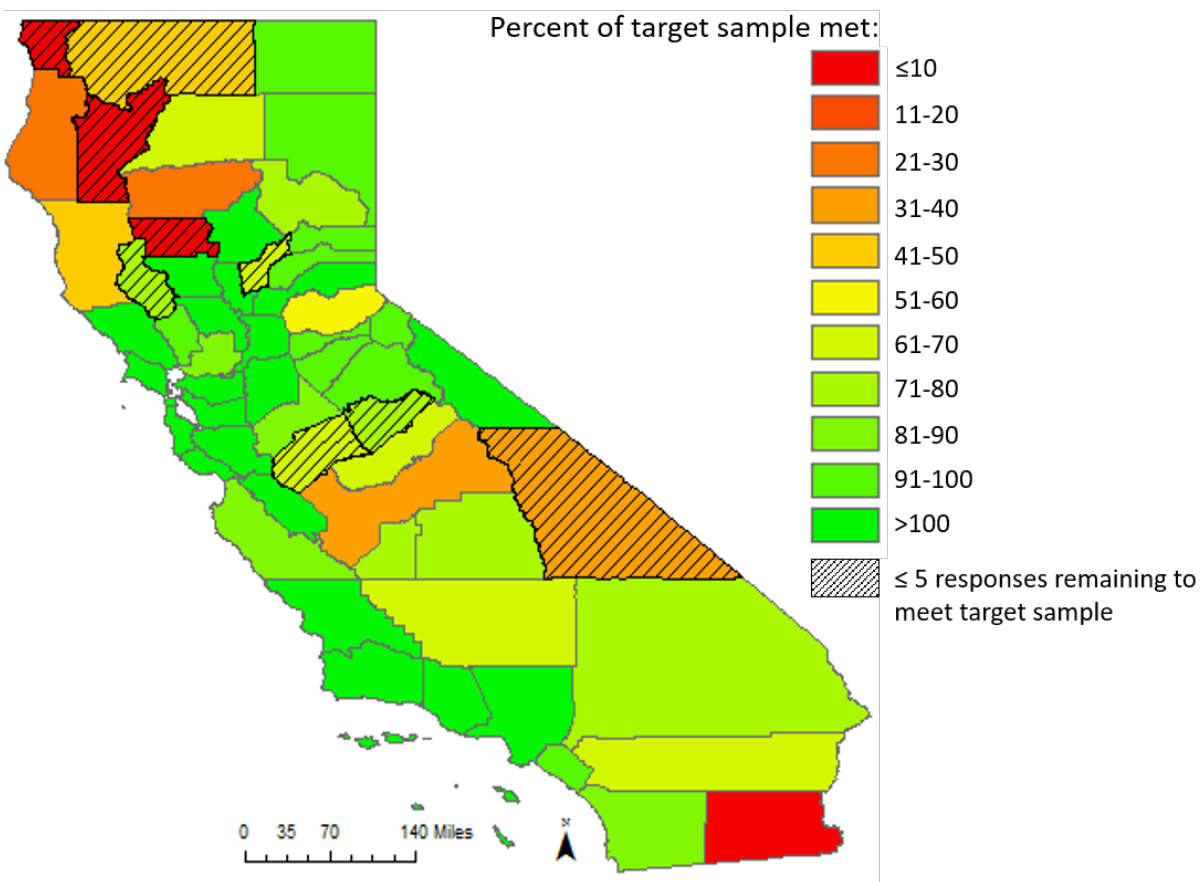


Figure 3. Number of total survey responses by OHMC type. Partial responses (completed fewer than 18 questions) denoted by hatching and asterisk

Table 2: Response counts by county.

County	Responses	Percent of Total Responses
ALAMEDA	132	4%
AMADOR	13	0%
BUTTE	40	1%
CALAVERAS	11	0%
COLUSA	3	0%
CONTRA COSTA	110	3%
EL DORADO	26	1%
FRESNO	23	1%
GLENN	2	0%
HUMBOLDT	9	0%
IMPERIAL	1	0%
INYO	3	0%
KERN	71	2%
KINGS	12	0%
LAKE	14	0%
LASSEN	6	0%
LOS ANGELES	543	17%
MADERA	12	0%
MARIN	25	1%
MARIPOSA	4	0%
MENDOCINO	11	0%
MERCED	12	0%
MONO	8	0%
MONTEREY	32	1%
NAPA	15	0%
NEVADA	33	1%
ORANGE	253	8%
PLACER	81	3%
PLUMAS	4	0%
RIVERSIDE	174	5%
SACRAMENTO	115	4%
SAN BENITO	14	0%
SAN BERNARDINO	176	6%
SAN DIEGO	277	9%
SAN FRANCISCO	28	1%
SAN JOAQUIN	64	2%
SAN LUIS OBISPO	63	2%
SAN MATEO	75	2%
SANTA BARBARA	72	2%
SANTA CLARA	164	5%
SANTA CRUZ	49	2%
SHASTA	24	1%
SISKIYOU	5	0%
SOLANO	37	1%
SONOMA	64	2%
STANISLAUS	47	1%
SUTTER	12	0%
TEHAMA	3	0%
TULARE	40	1%
TUOLUMNE	14	0%
VENTURA	143	4%
YOLO	20	1%
YUBA	5	0%

By Model Year

The majority of responses for OHMC types newer than 1997 were from owners of model year 2003 through 2007 OHMCs (52 percent). Most historic OHMC owners responded about OHMCs 1985 or newer (60 percent).

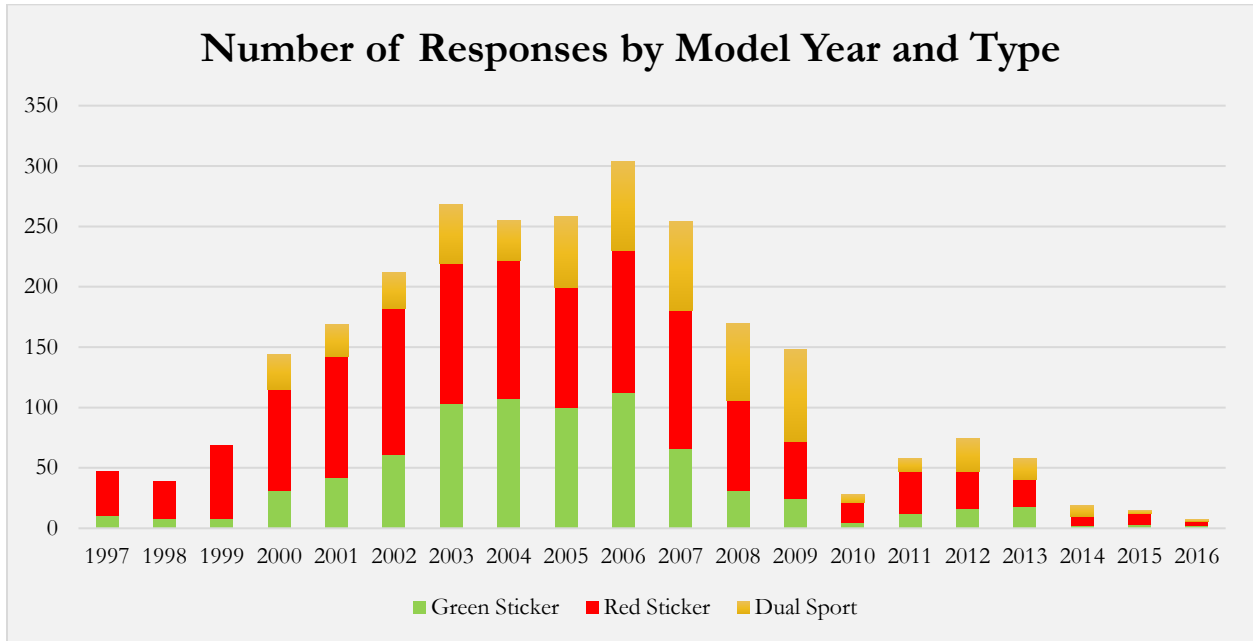


Figure 4. Response count by model year for red sticker, green sticker, and dual sport OHMCs

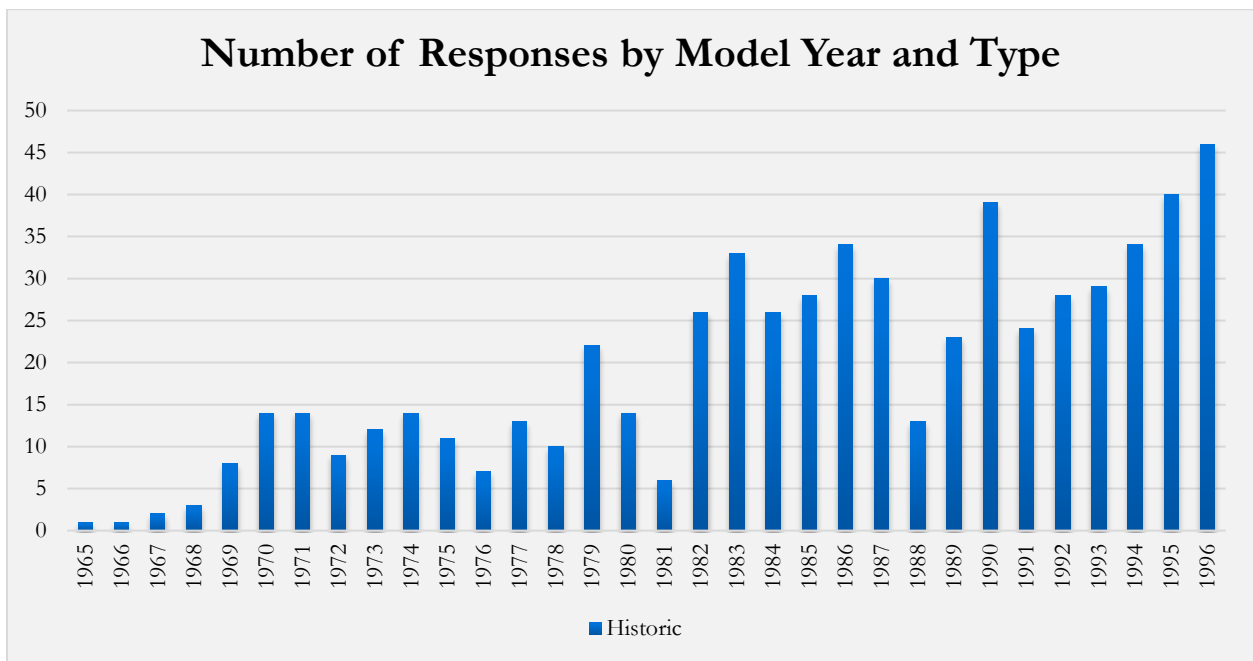


Figure 5. Response count by model year for historic OHMCs.

By Status Code

The majority of riders surveyed were marked as active DMV registrations, meaning they had a current registration sticker. Riders with inactive DMV registration status were also included in the survey. Inactive registrations include those with overdue/expired registration and those that have filed a planned non-operation status with DMV. Dual sport status codes were not available for this study.

Table 3: Registration status by OHMC type.

DMV Registration Status	Active	Inactive
Green Sticker	86%	14%
Red Sticker	83%	17%
Historic	76%	24%

Survey Responses by Question

Survey results by question are presented below. Questions are displayed in italics in the order they were asked, exactly as they were asked throughout the online survey. Results are generally presented by OHMC type.

General Information Question: OHMC Primary Function

Q: What is the primary function of the vehicle listed above?

Over 90 percent of red sticker, green sticker, and historic OHMC respondents use their OHMC primarily for recreation. Seven percent of red sticker owners noted their OHMC is primarily used for competition purposes, compared to 1 percent of green sticker and 2 percent of historic OHMC owners. Twenty-one percent of dual sport owners primarily operate on-road.

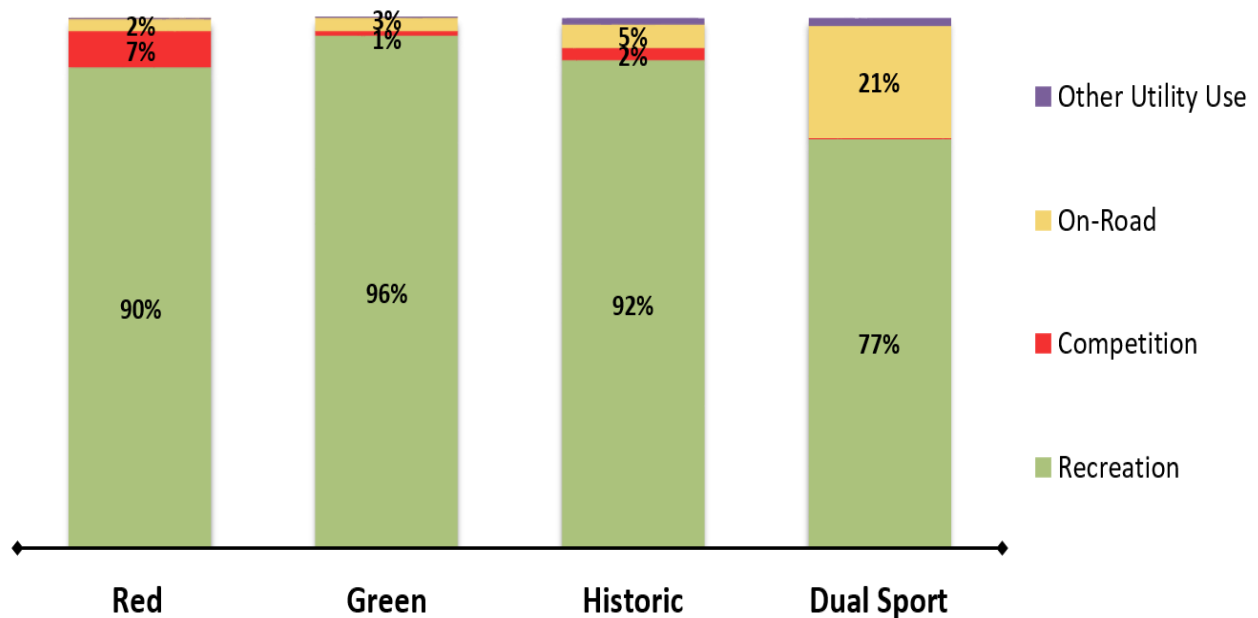


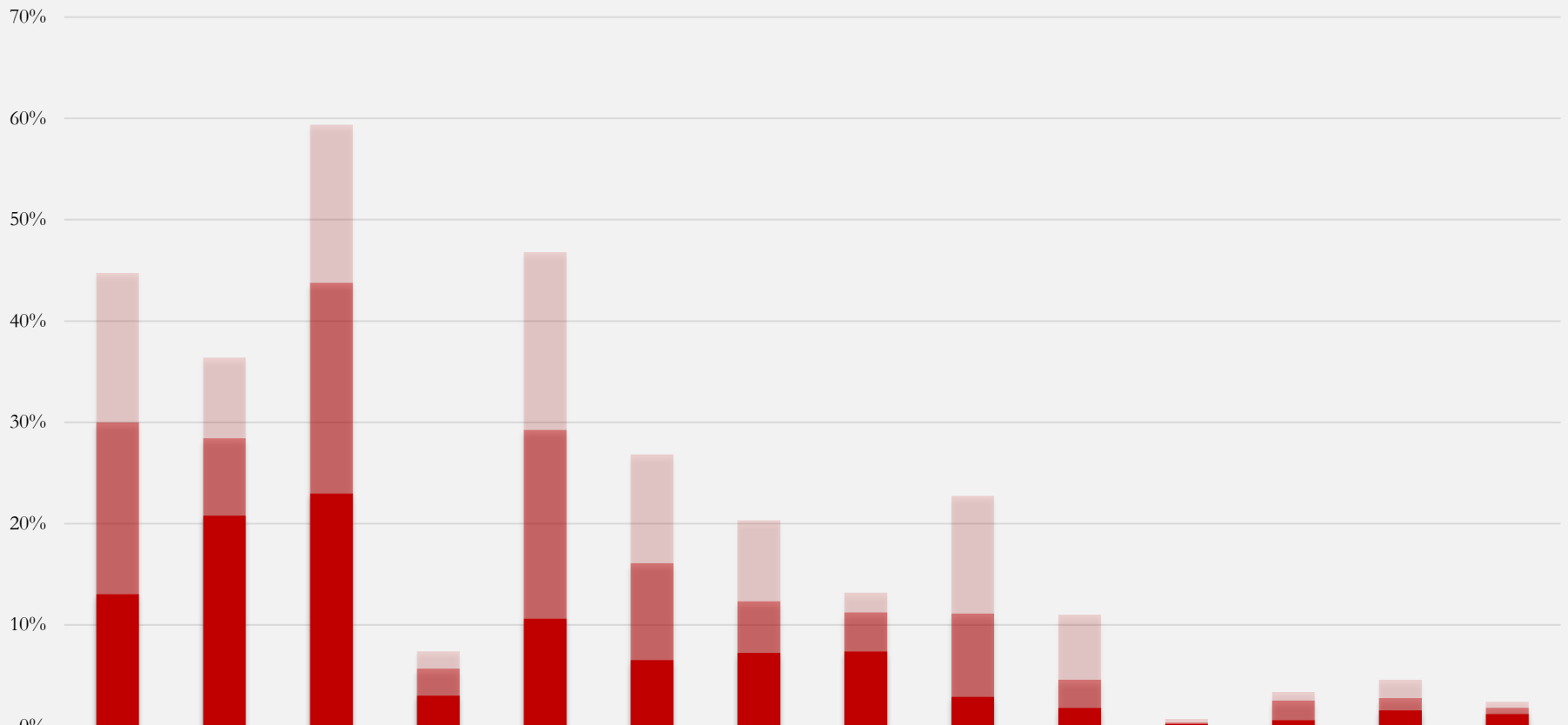
Figure 6. OHMC primary function by OHMC type.

Question 1: Characteristics Influencing OHMC Purchase

*Q: What are the top 3 (or more) characteristics that influenced your decision to purchase this OHRV?
(Drag items from a list into the box)*

The top 3 overall factors that influenced respondents OHMC purchase were: OHMC was easy to maintain / low cost of repair, ability to ride year round on public land, and engine power.

Top 3 OHV Characteristics Influencing Purchase Decision (Red Sticker)



	Easy to maintain, low cost of repair	Year around riding on public land	Engine Power	Ability to register for on-road use	Responsive Handling	Minimal weight	Cost of OHV	Appropriate Size for Child	Suspension Travel	Availability of aftermarket parts	Ability to safely carry passengers and cargo	Ability to make engine modifications	To identify with professional race teams	Electronic engine tuning options
Red Rank 3	15%	8%	16%	2%	18%	11%	8%	2%	12%	6%	0%	1%	2%	1%
Red Rank 2	17%	8%	21%	3%	19%	10%	5%	4%	8%	3%	0%	2%	1%	1%
Red Rank 1	13%	21%	23%	3%	11%	7%	7%	7%	3%	2%	0%	1%	2%	1%

Figure 7. Characteristics Influencing Purchase Decision of a Red Sticker Bike

Top 3 OHV Characteristics Influencing Purchase Decision (Green Sticker)

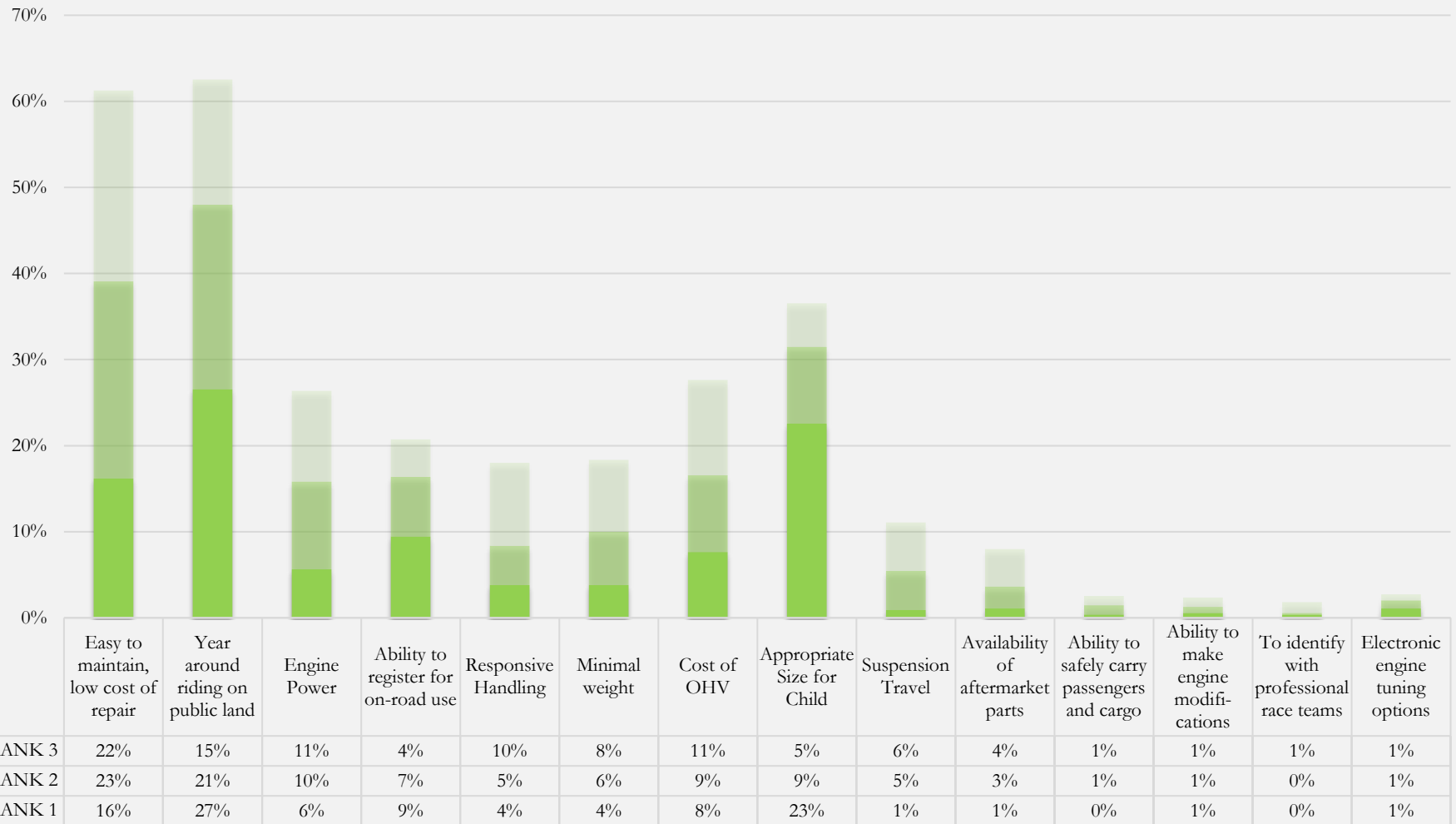


Figure 8. Characteristics Influencing Purchase Decision of a Green Sticker Bike

Top 3 OHV Characteristics Influencing Purchase Decision (Dual Sport)

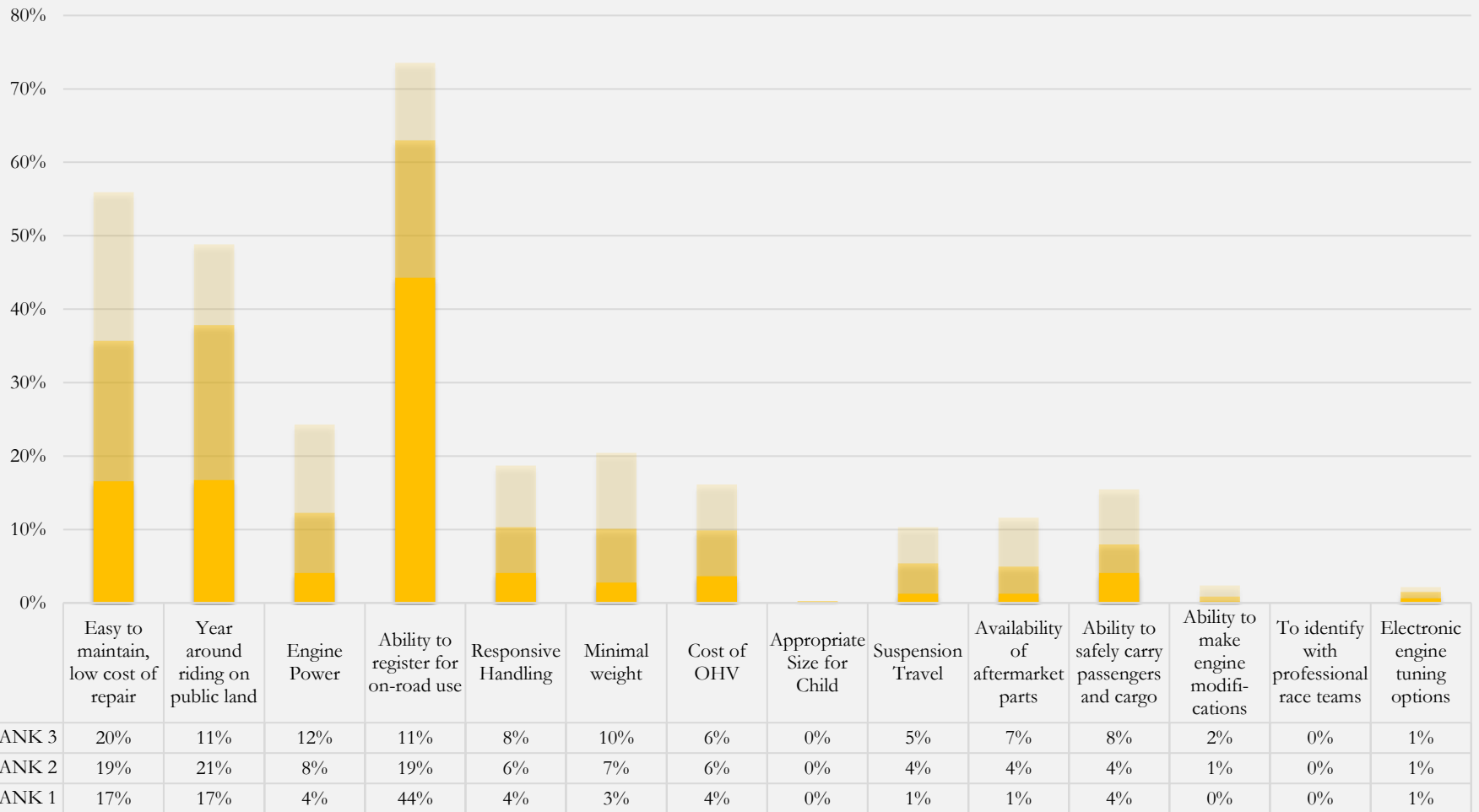


Figure 9. Characteristics Influencing Purchase Decision of a Dual Sport Bike

Top 3 OHV Characteristics Influencing Purchase Decision (Historic)

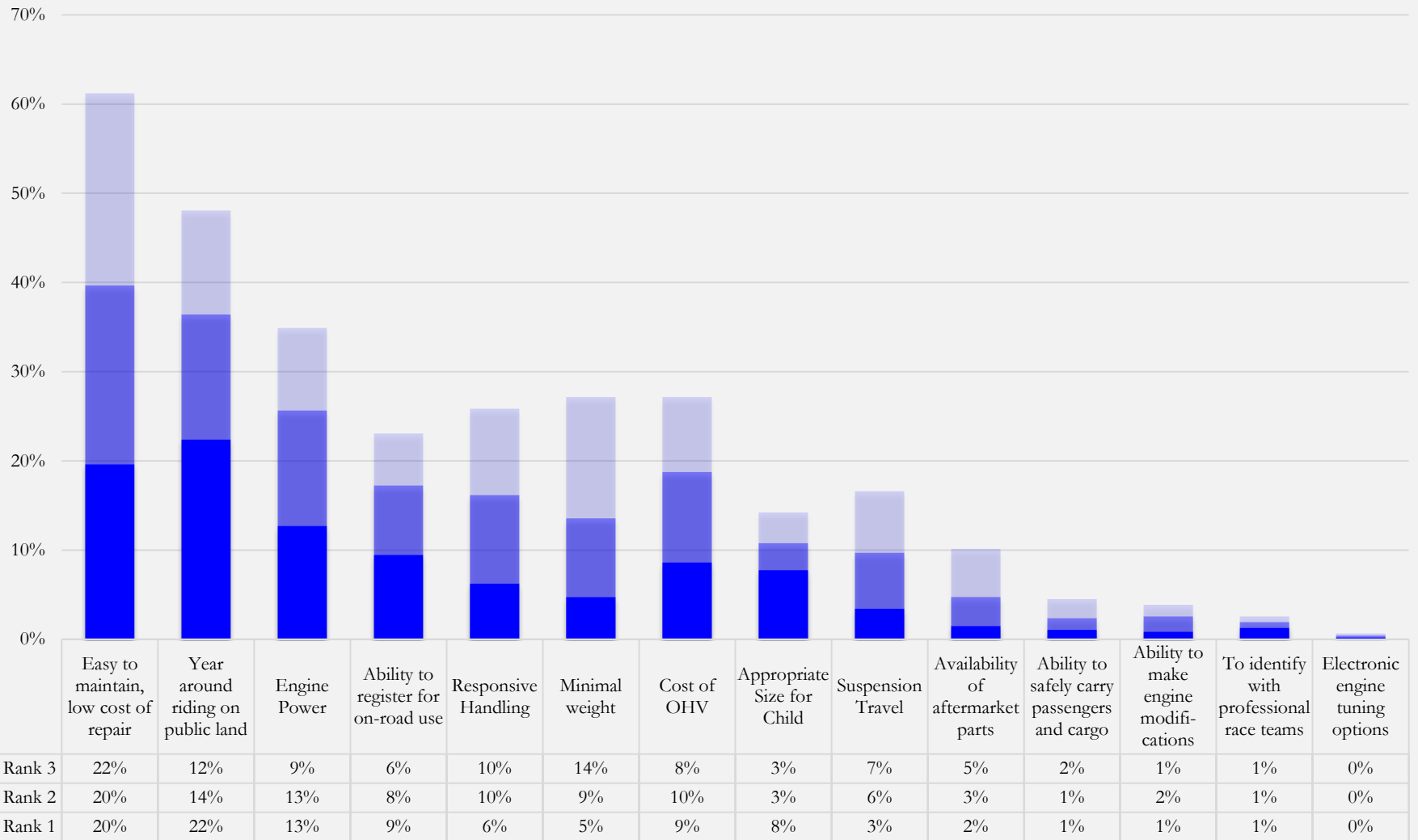


Figure 10. Characteristics Influencing Purchase Decision of a Historic Bike

Question 2: Hours of Operation

Q: How many hours is this OHRV ridden on a typical day of off-highway riding, not including stopping/resting time? (Drag slider to appropriate # of hours)

Respondents averaged 3.8 hours per day of riding on a typical day of off-highway riding. Red sticker owners had the highest average hours of operation (4.1) for all OHMC types.

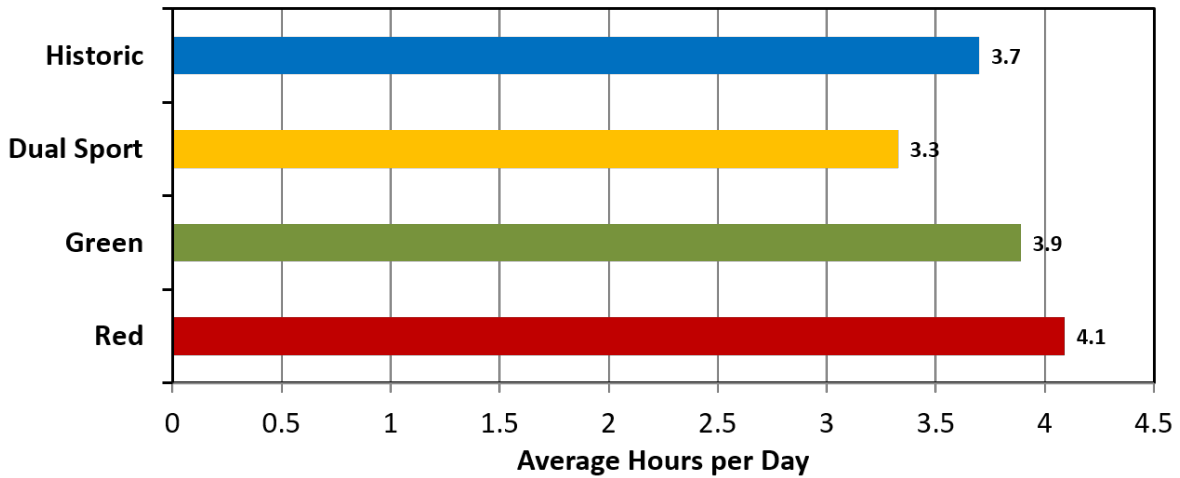


Figure 11. Average hours per day of riding by OHMC type.

Q: What is this number based on?

The majority of respondents (89 percent) estimated their hours of operation rather than using a trip meter.

Table 4. Basis for hours per day of riding value.

	Red	Green	Dual Sport	Historic
Trip Meter	18%	12%	9%	5%
Estimate	82%	88%	91%	95%

Question 2B: Types of Riding

Q: What percentage of this time is spent doing the following activities? (Click or drag bars to appropriate percentage - Must total 100)

For all OHMC types, the majority of riding time was spent on recreation. Red sticker riders average 6 percent of their time racing and 7 percent practicing for racing events. Green sticker and historic OHMC

riders' average less than 6 percent total time spent racing or practicing for racing events. Dual sport riders spend, on average, 24 percent of their riding time commuting.

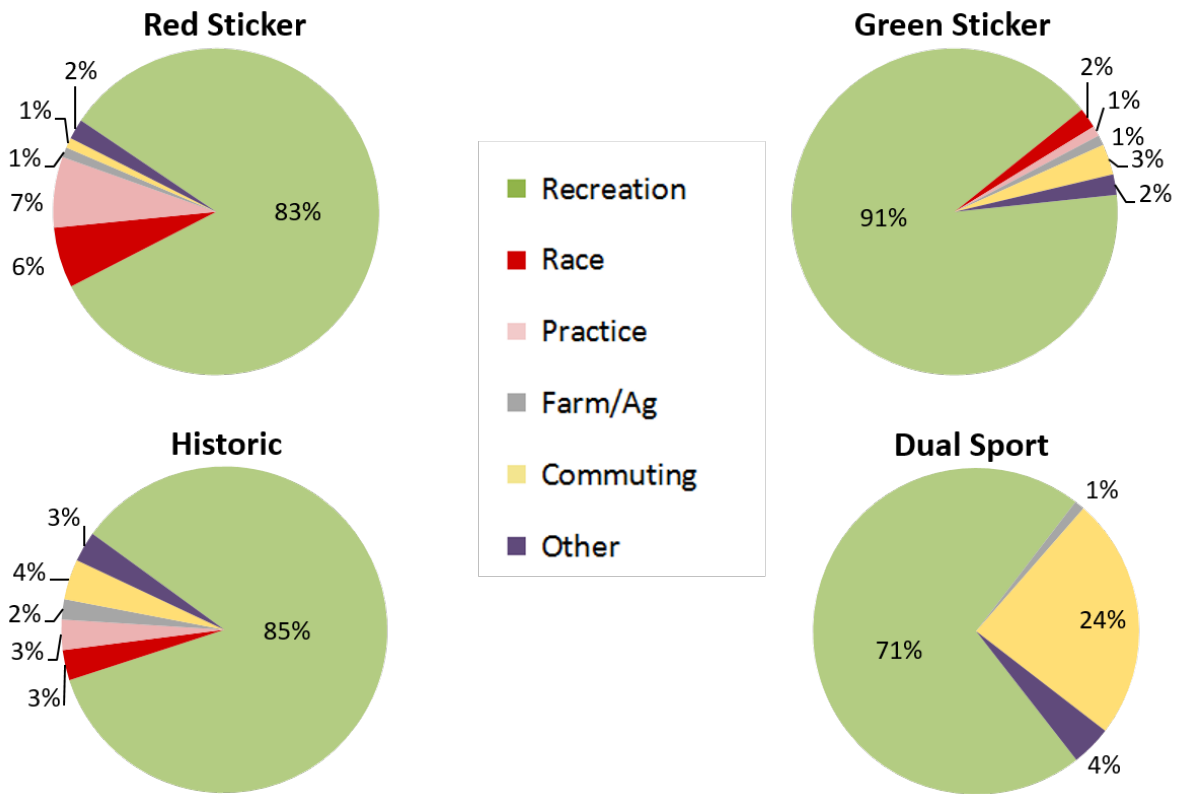


Figure 12. Percentage of time spent on specified activities by OHMC type.

Question 3: Miles per Day of Operation

Q: How many miles do you ride this OHRV on a typical day of off-highway riding? (Drag slider to appropriate # of miles)

On a typical day of off-highway riding, the average activity was 37.5 miles per day. Red sticker owners averaged the most miles per day (39.5 miles), historic averaged the fewest (33.3 miles).

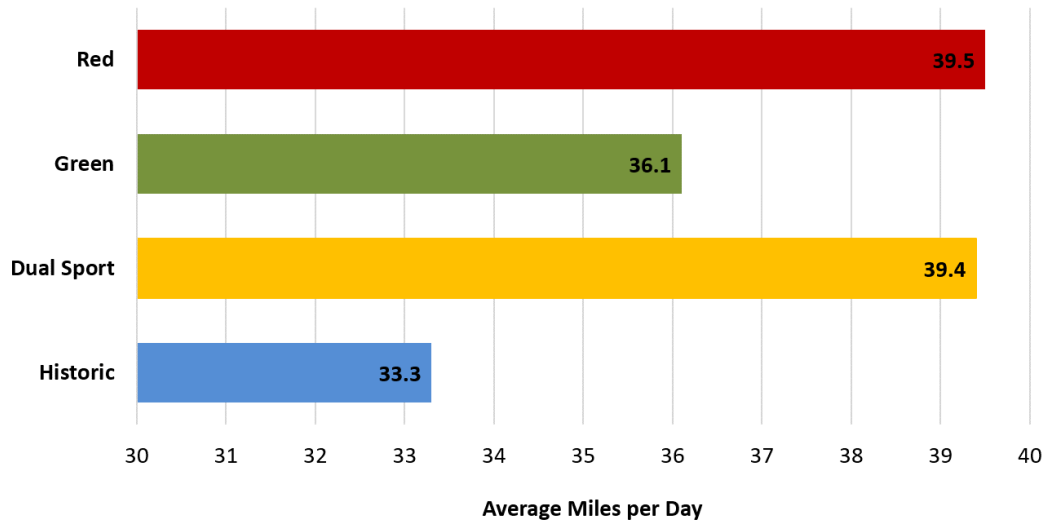


Figure 13. Miles per day of operation by OHMC type.

Question 4: Days per Month of Operation

Q: What are the average number of days per month you ride this OHRV off-highway during each of the following seasons? (Enter a number from 0-31)

OHMC riders operated, on average, 5 days per month per season. Red and green sticker respondents rode the fewest days in the summer and the most in the fall.

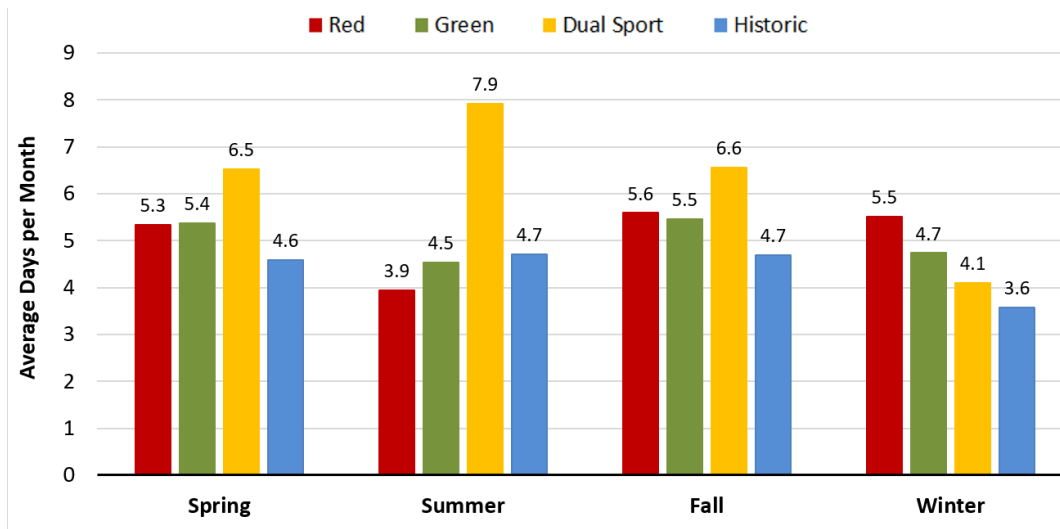


Figure 14. Days per month of operation by season and OHMC type.

Based on the results obtained from Question #4, a supplemental survey was conducted in January 2017. See Appendix 2 for the details and results of the supplemental survey.

Question 5: Distance Travelled to Ride

Q: What is the average distance (in miles) that you travel from your home roundtrip to ride this OHRV off-highway during each of the following seasons? (Drag sliders to appropriate # of miles)

On average, riders in California traveled 97 miles from their home roundtrip to ride their OHMC. Red sticker riders, on average, traveled further to ride than all other OHMC riders. The distance traveled to ride is furthest in the fall and winter (100 miles).

Table 5. Distance traveled to ride by OHMC type and season.

OHMC Type	Spring (miles)	Summer (miles)	Fall (miles)	Winter (miles)
Green	96	90	99	97
Red	106	97	108	112
Dual Sport	82	85	83	75
Historic	95	93	100	98
Season Average	97	92	100	100

Question 6: Riding Area Usage by Season

Q: In what seasons do you ride this OHRV off-highway at the following locations? (Select all that apply)

State operated OHV parks were the most popular public riding areas for red sticker, green sticker, and historic riders year round. US Forest Service land was the most popular public land utilized by dual sport riders. Red sticker riders operated on private tracks approximately 15 percent more frequently than green sticker and historic riders.

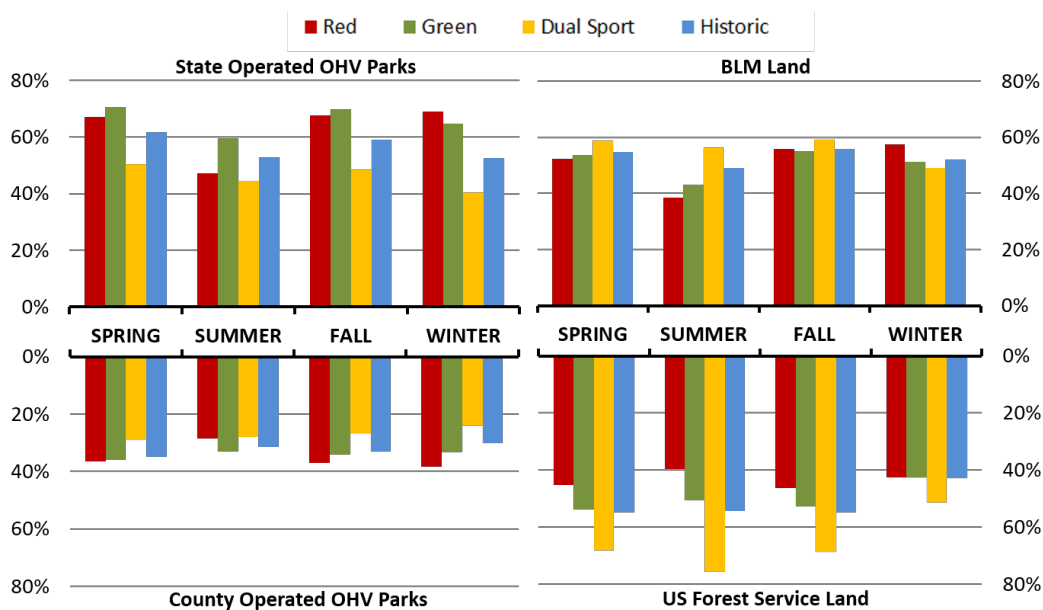


Figure 15. Seasonal operation at public riding areas by OHMC type.

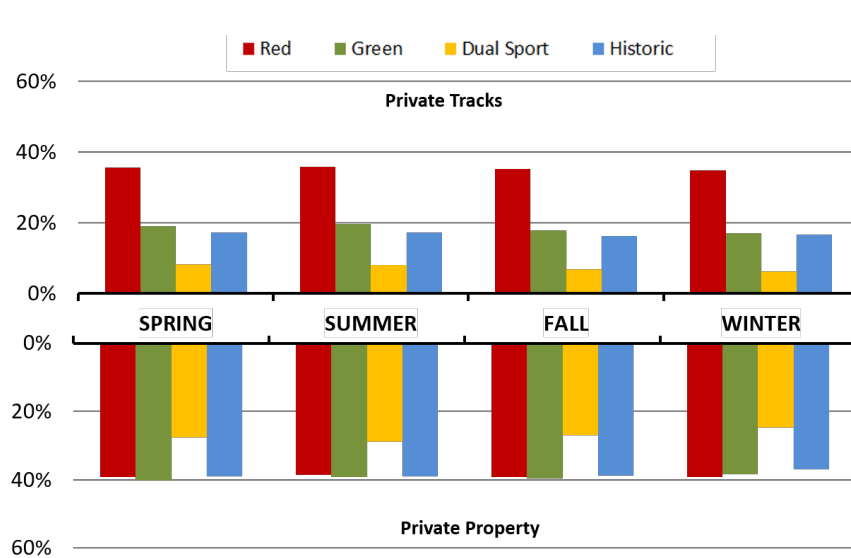


Figure 16. Seasonal operation at private riding areas by OHMC type.

Question 7: Factors Determining Riding Location

Q: What factors are most important in determining where you ride? (Select all that apply)

Factors determining riding locations for each group, in order of importance, include: riding season, length of trails, and difficulty of trails for red sticker riders; length of trails, family friendly, and difficulty of trails for green sticker riders; proximity to house, length of trails, and difficulty of trails for dual sport riders; and length of rails, proximity to house, and difficulty of trails for historic riders. Cost and race track availability were the least important factors for all OHMC types of those listed on the survey.

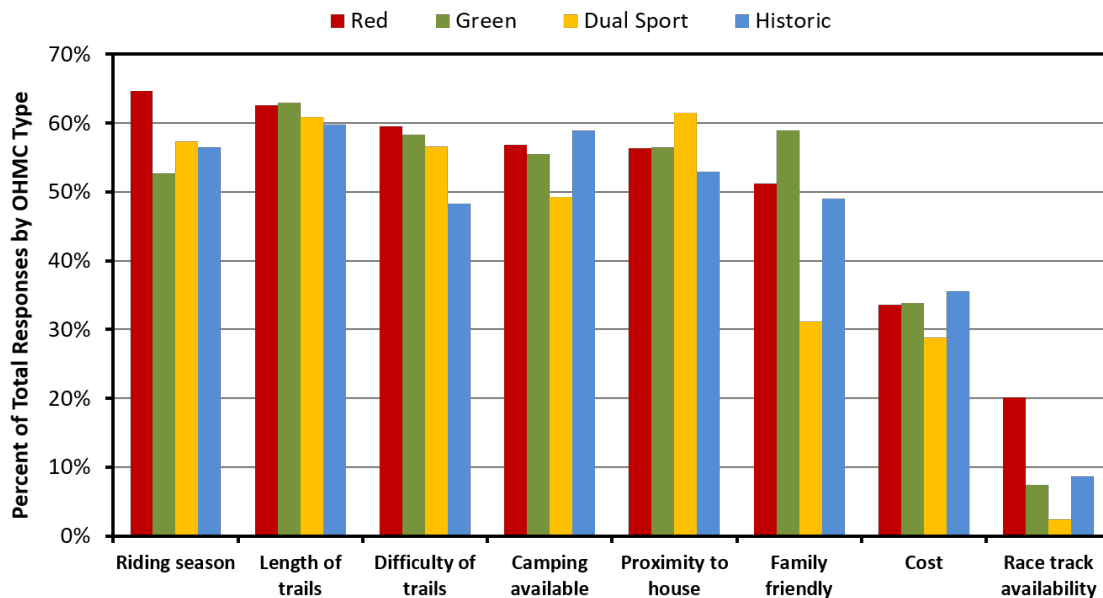


Figure 17. Factors important in determining riding location by OHMC type.

Question 8: Fuel Used

Q: How many gallons of fuel do you use for this OHRV during a typical day of off-highway riding? (Drag slider to appropriate # of gallons)

Red sticker averaged the most fuel used in a day of off-highway riding (3.5 gallons) followed by historic, dual sport, and green sticker.

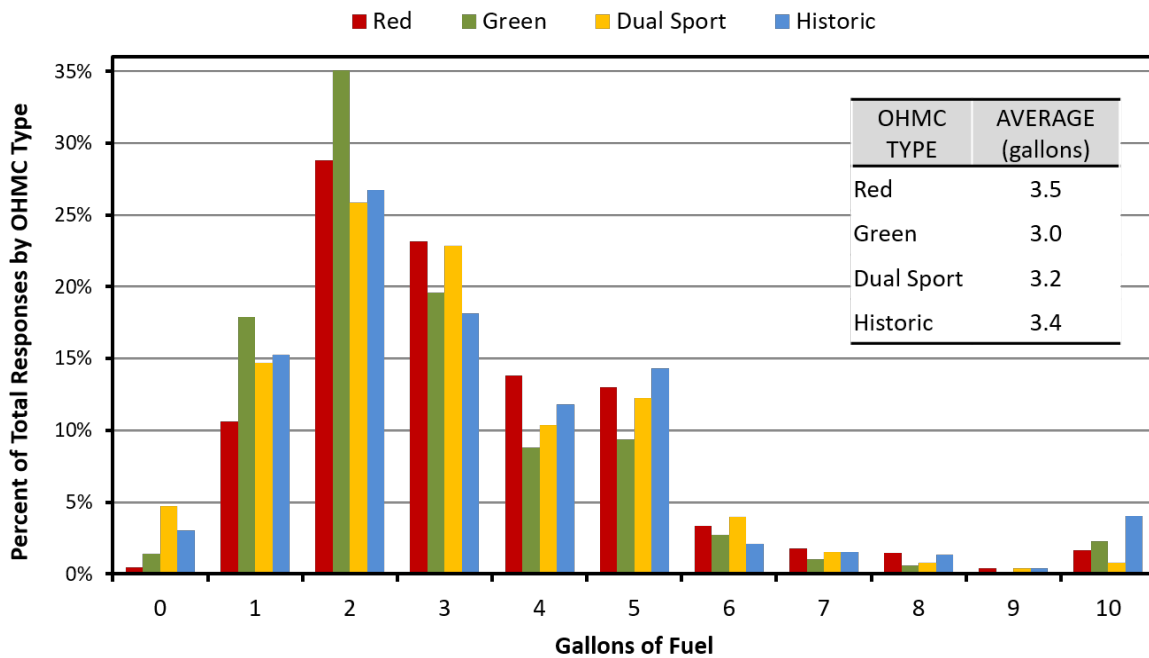


Figure 18. Fuel used on a day of off-highway riding by OHMC type.

Question 8A: Refueling Method

Q: How do you refuel this OHRV during a typical day of off-highway riding?

Red sticker (49 percent), green sticker (47 percent), and historic (63 percent) riders primarily refueled using a portable fuel container. Dual sport riders refueled at a gas station the majority of the time (53 percent).

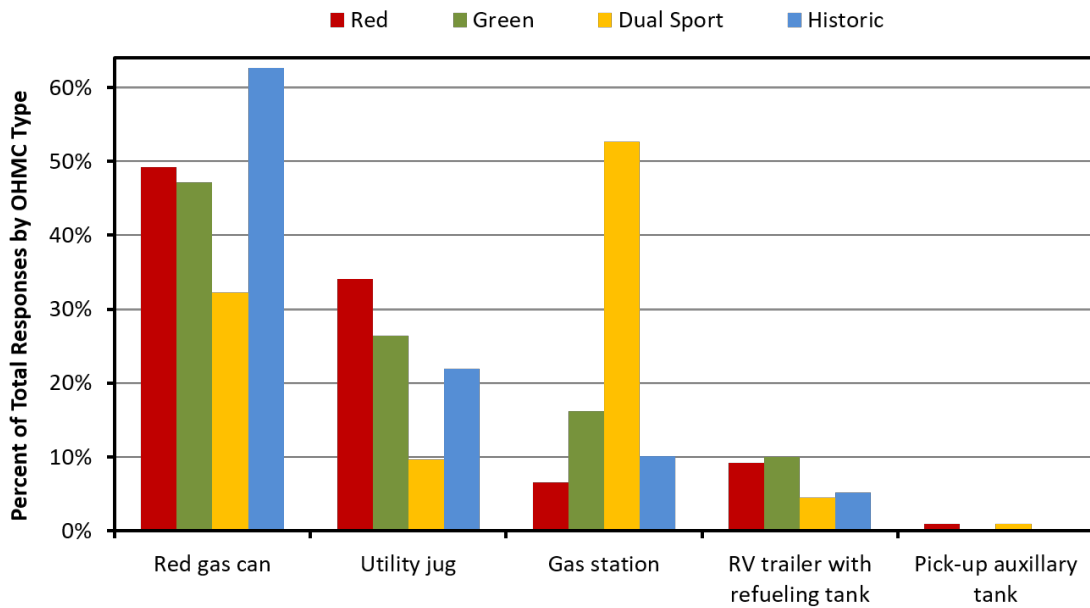


Figure 19. Refueling method by OHMC type.

Question 9: Vehicle Tips

Q: How many times during a typical day of off-highway riding was this OHRV laid on its side (e.g. due to a fall, when resting, during travel, etc.)?

The majority of OHMC riders responded that they did not lay their OHMC on its side during a day of riding (61 percent). Only 25 percent of riders laid their vehicle on the side once in a day of riding.

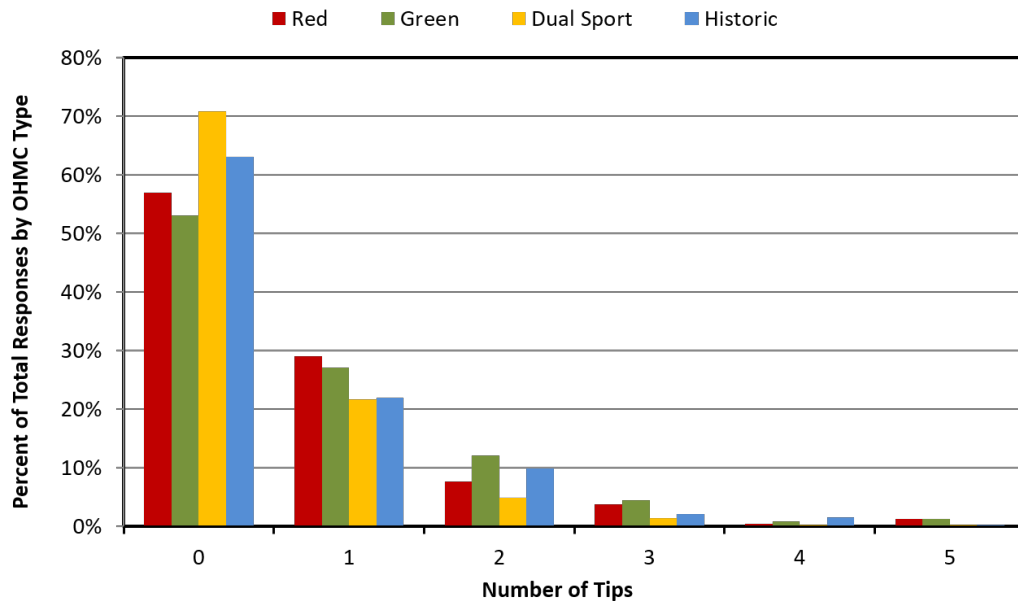


Figure 20. Number of times OHMC was laid on its side by OHMC type.

Question 10: Frequently Visited Riding Areas

Q: Starting with the most frequently visited location, please select up to 5 areas you ride this OHRV?
(Scroll down or use keyboard in dropdown menu to find and add additional riding areas)

Survey respondents selected specific riding areas and results were summarized by riding area type. Red and green sticker riders most frequently visited State Vehicular Recreation Areas (SVRA) followed by Bureau of Land Management (BLM) land and US Forest Service (USFS) land. Historic riders most frequently visited BLM land and dual sport riders' preferred USFS land.

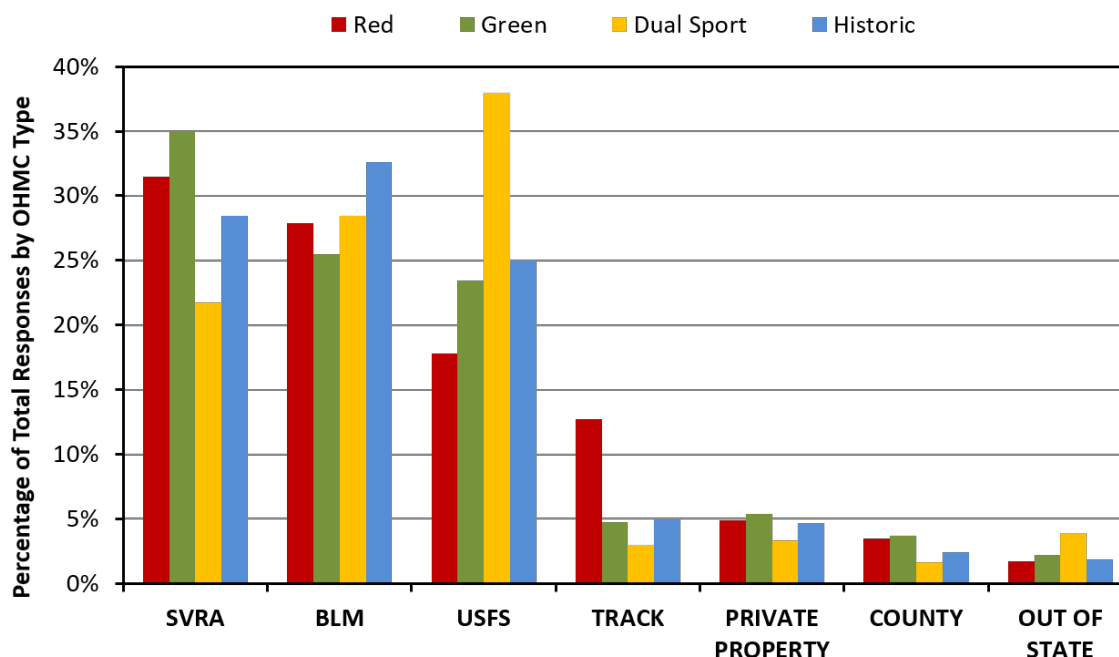


Figure 21. Riding areas by OHMC type.

Question 11: Participation in Competitive/Race Events

Q: Do you ride this OHRV in organized, off-highway competitive/race events?

The majority of respondents did not ride in off-highway competitive/race events. 26 percent of red sticker respondents raced, followed by 14 percent of historic respondents, 12 percent of green sticker respondents, and 3 percent of dual sport respondents.

Table 6. Participation in race/competitive events by OHMC type.

	Dual Sport	Green	Historic	Red
Yes, I am a non-factory sponsored professional racer	1%	1%	1%	2%
Yes, I consider myself an amateur racer	2%	11%	13%	24%
No	97%	88%	86%	74%

Question 11A: Competition/Race Frequency

Q: In question 11, you indicated that you ride in organized competitive / race events. How many times a year do you race?

Riders that responded that they ride in competitive/race events on question 11 were asked to indicate how many times a year they race. The majority of those who raced did so 1 to 5 times per year, with the average being 7 races a year.

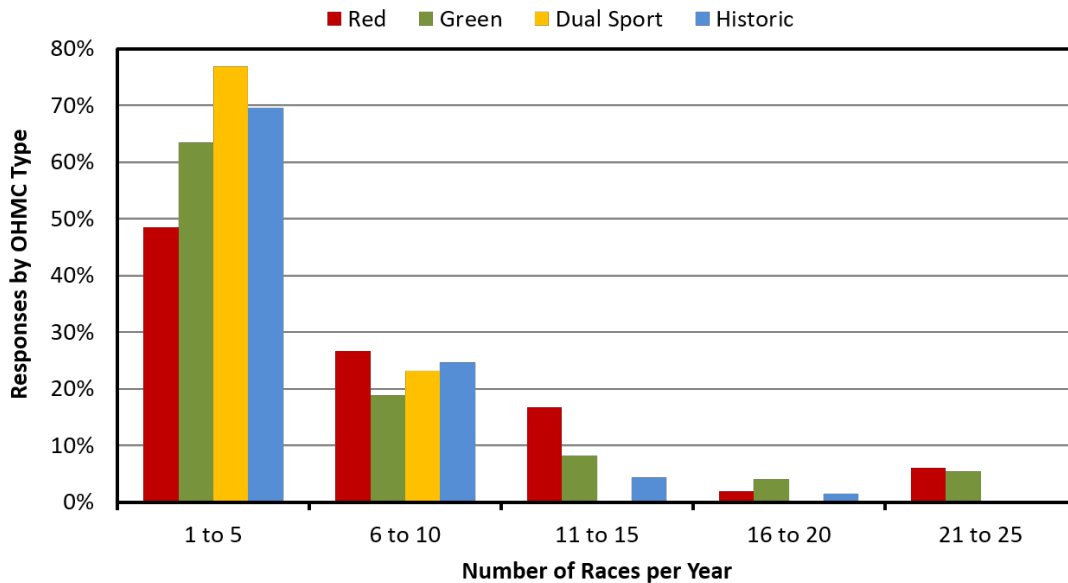


Figure 22. Number of races by OHMC type.

Question 12: County Stored

Q12: What county is this OHRV primarily stored in?

OHMC owners responded that they stored their vehicle in the county that they were registered 94.5 percent of the time. The remaining 5.5 percent stored their OHMC in a county different than where they were registered.

Question 13: Days of Week Operated

Q13: What days of this week do you primarily ride this OHRV?

Saturday and Sunday were the most popular days of operation for OHMC owners, followed by Friday. Dual sport operated approximately 5 percent more during the week than other OHMC types.

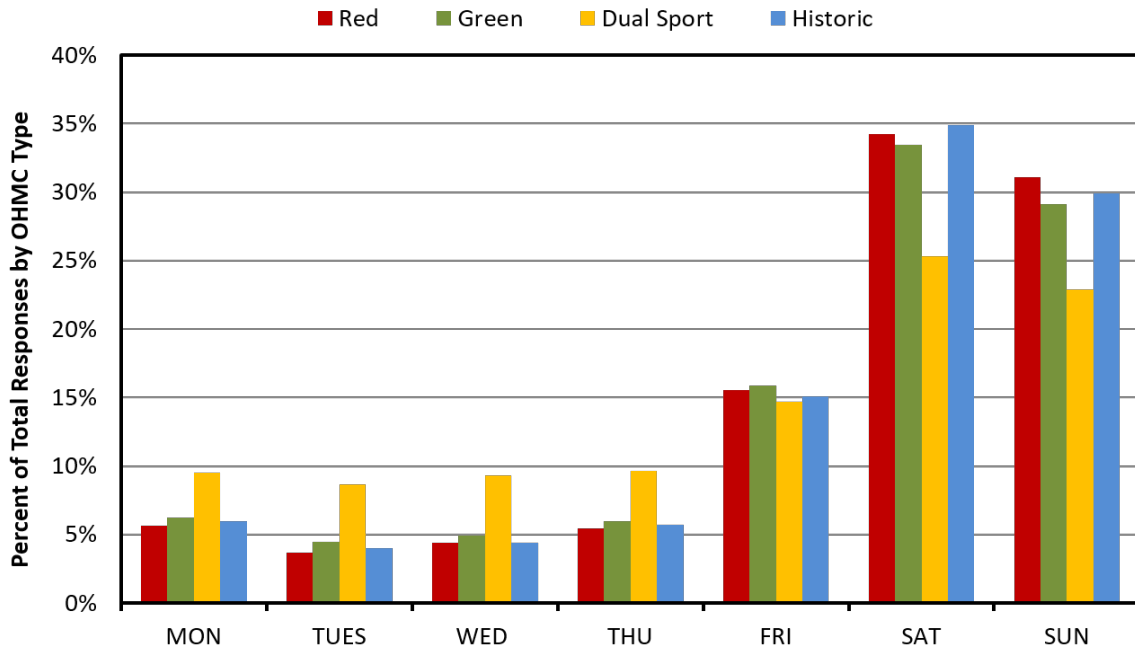


Figure 23. Days of operation by OHMC type.

Question 14: Fuel Tank Level

Q: On average, how full is the fuel tank in this OHRV when placed in storage?

Most commonly, red, green and historic OHMC owners stored their vehicle with the fuel tank ¼ full (31 percent). Dual sport owners typically stored their vehicle ½ full (25 percent).

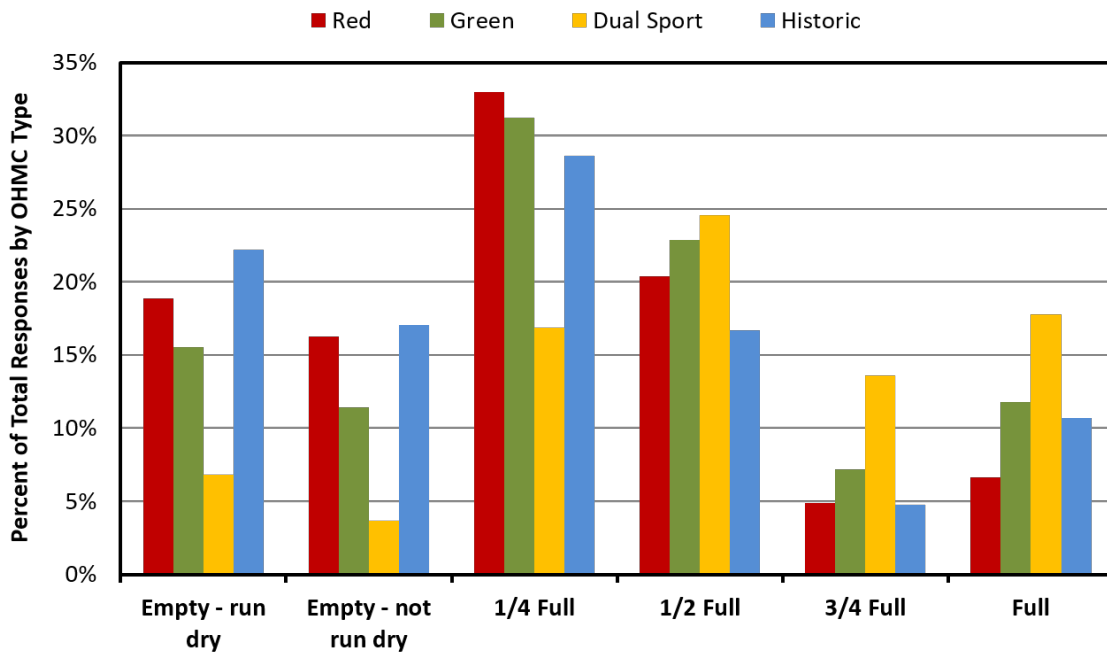


Figure 24. Fuel tank level during storage by OHMC type.

Question 15: Specific Storage Location

Q: Where do you primarily store this OHRV?

Respondents generally stored their OHMCs in an attached garage (56 percent), followed by a detached garage (21 percent).

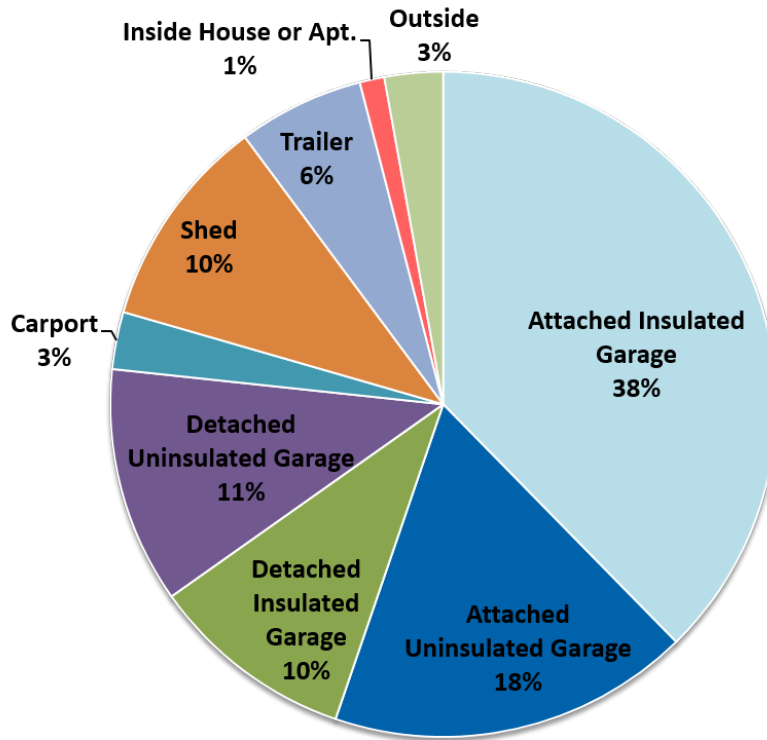


Figure 25. Storage locations for all OHMC types.

Question 16: Engine Enhancing Modifications

Q: Have you performed any of the following enhancing engine modifications to this OHRV's engine?
(Check all that apply)

Half of red sticker owners responded that they performed modifications on their exhaust system. This was also the most common modification for green sticker and historic OHMC owners. Other common modifications included suspension system (41 percent red sticker) and hand/foot controls (33 percent red sticker). Approximately 50 percent of green, historic and dual sport owners responded that they had not made any of the listed modifications, compared to 32 percent of red sticker OHMC owners.

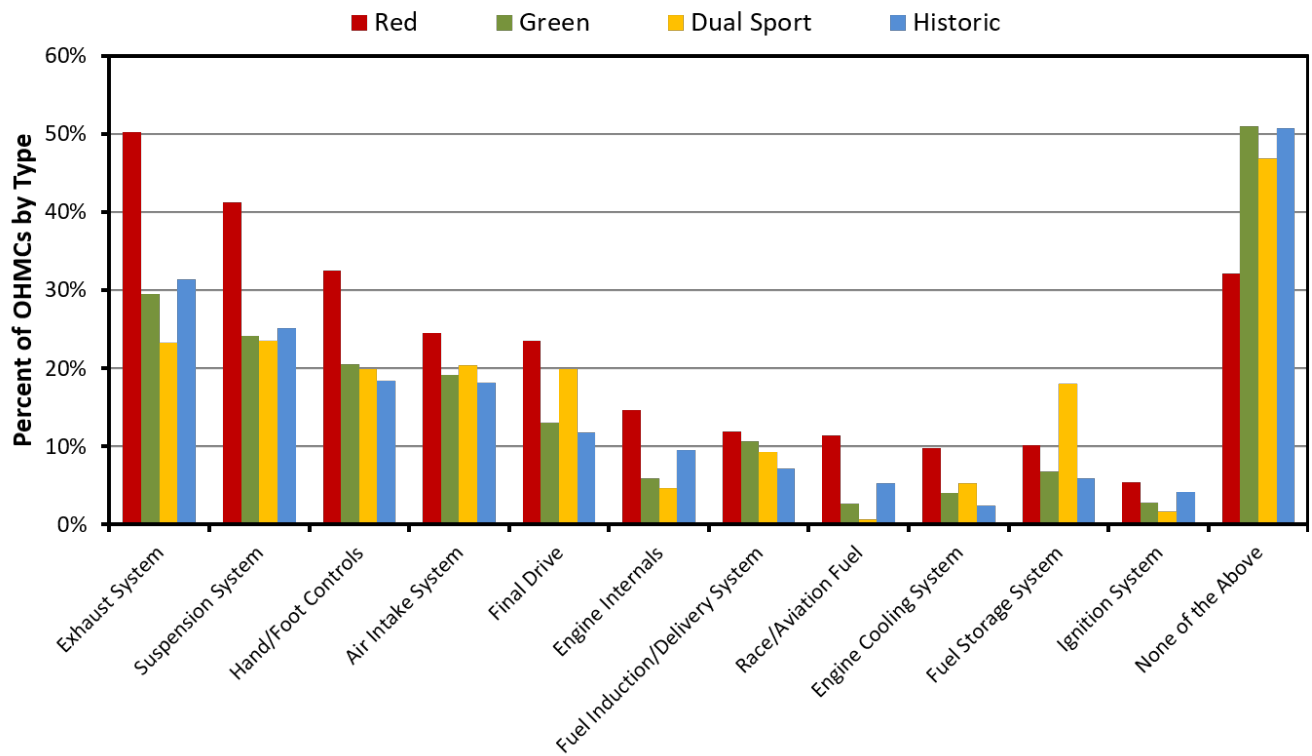


Figure 26. Engine modifications by OHMC type.

Question 17: Maintenance Frequency

Q: How do you determine when to perform maintenance/service on this OHRV?

Most commonly, OHMC owners performed maintenance according to the manufacturer’s recommended schedule. Furthermore, at least 25 percent of each group performs maintenance on their OHMCs more often than the manufacturer’s recommended schedule. Collectively, more than 70% of all OHMCs are maintained to the manufacturer’s minimum requirements.

Table 7. Maintenance schedule by OHMC type.

Maintenance Frequency	Red	Green	Dual Sport	Historic	Overall
More frequently than the manufacturer's recommended schedule	35%	26%	28%	28%	30.3%
According to the manufacturer’s recommended schedule	44%	49%	53%	35%	45.4%
When time permits	15%	15%	13%	19%	15.2%
When the OHRV quits running correctly	6%	10%	6%	17%	10.1%

Question 18: Other OHRVs in Household

Q: Please identify any other OHRVs in your household. (Select all that apply)

The majority of OHMC owners surveyed - 86 percent of red sticker, 87 percent of green sticker, 71 percent of dual sport, and 84 percent of historic – own another OHRV. The most common additional OHRV owned was a green sticker OHMC for red, green and historic OHMC owners. Dual sport owners were more likely to own a second dual sport bike.

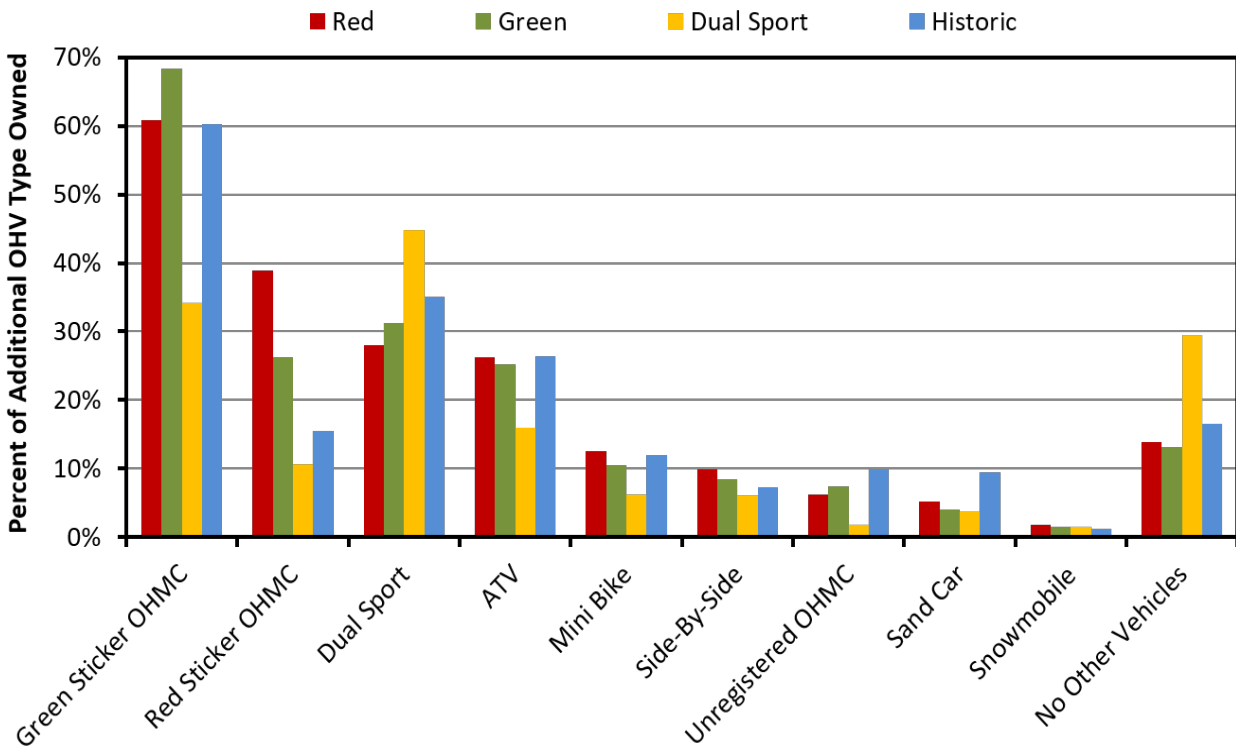


Figure 27. Additional OHRVs owned by survey respondents by OHMC type.

Question 19: Impact of Red Sticker Program

Q: In what ways do you feel limited by California’s red-sticker program? (Select all that apply)

Red sticker owners felt the most limited by California’s red sticker program because: it reduced the number of days they rode (56 percent), they had to travel further to ride (43 percent), and they could only ride on private property/tracks during the summer (39 percent). Only 14 percent of red sticker riders did not feel limited by the red sticker program.

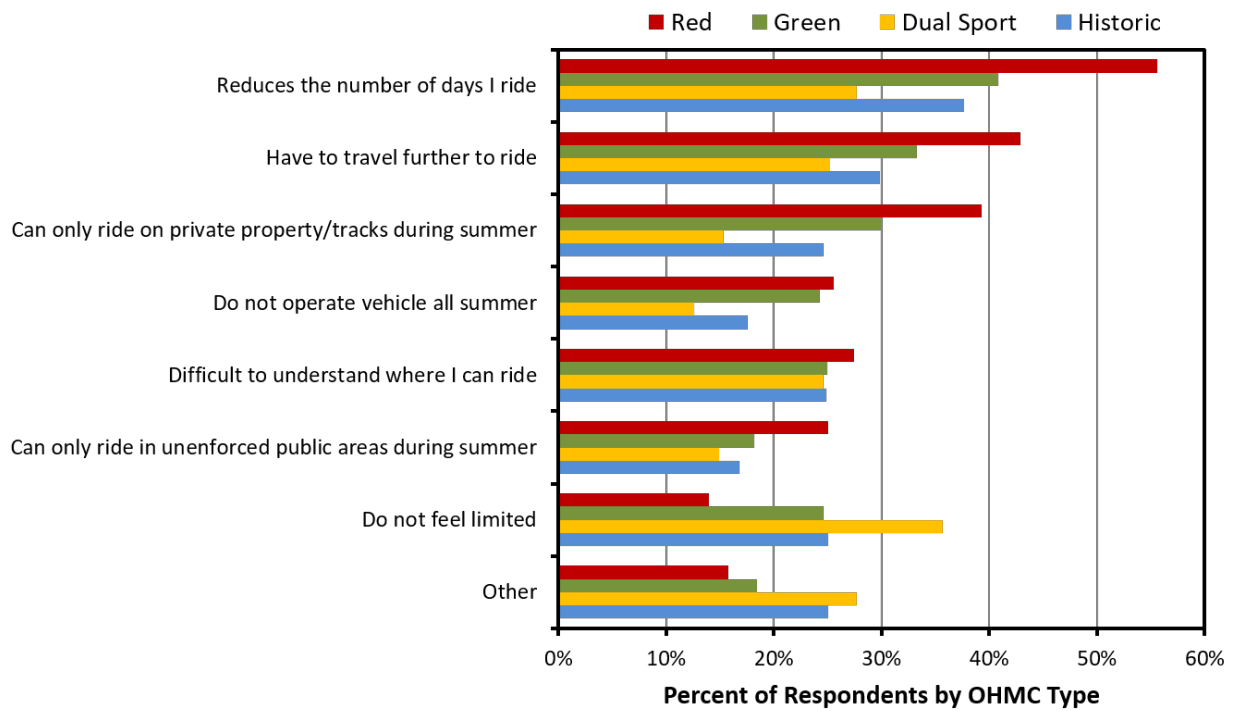


Figure 28. Impact of red sticker program by OHMC type.

Question 20: Riding Area Support

Q: To increase the availability of public riding areas I would support: (Mark all that apply)

Of the items listed, support for increased admission fees was the greatest (35 percent) followed by higher registration fees (19 percent). Over 40 percent of respondents indicated they would not support any of the items listed to increase the availability of public riding areas.

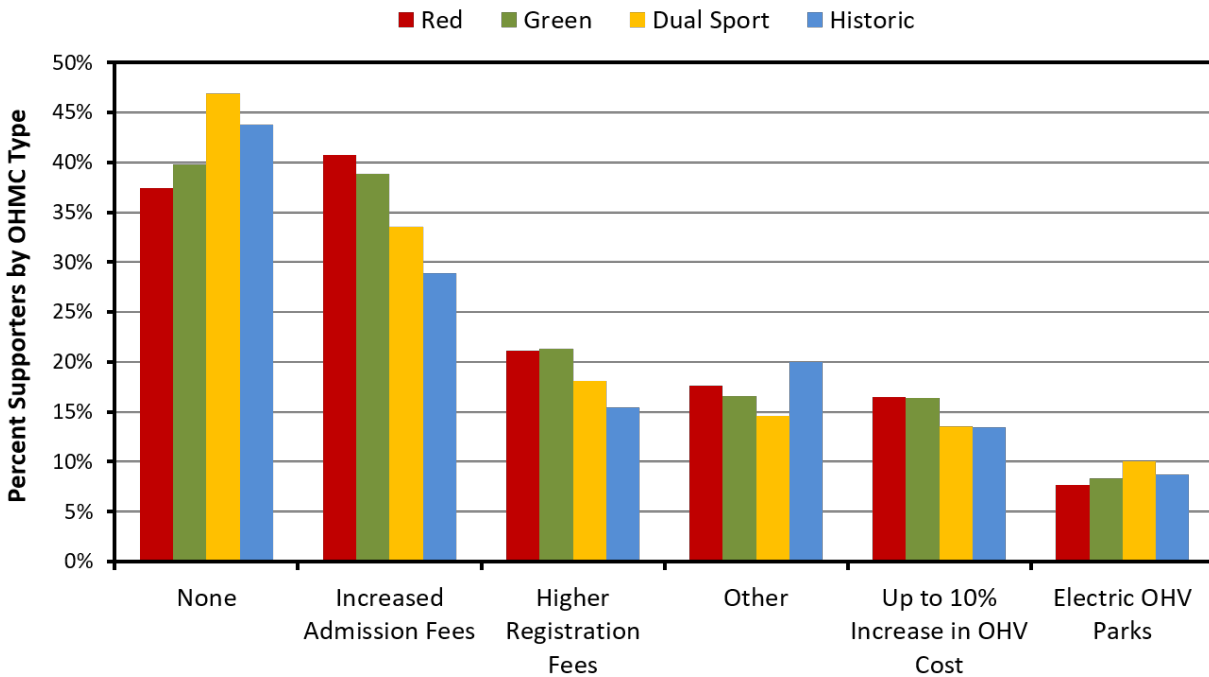


Figure 29. Riding area support by OHMC type.

Question 21: Open Response

Q: Do you have any additional comments regarding OHRV use that you would like to share?

This question provided an opportunity for respondents to share additional comments that might not have been addressed in the survey. In total, 1,360 comments were received. Of those evaluated, the majority related to the need for additional/closer riding areas and reductions in riding areas currently available to OHMC owners.

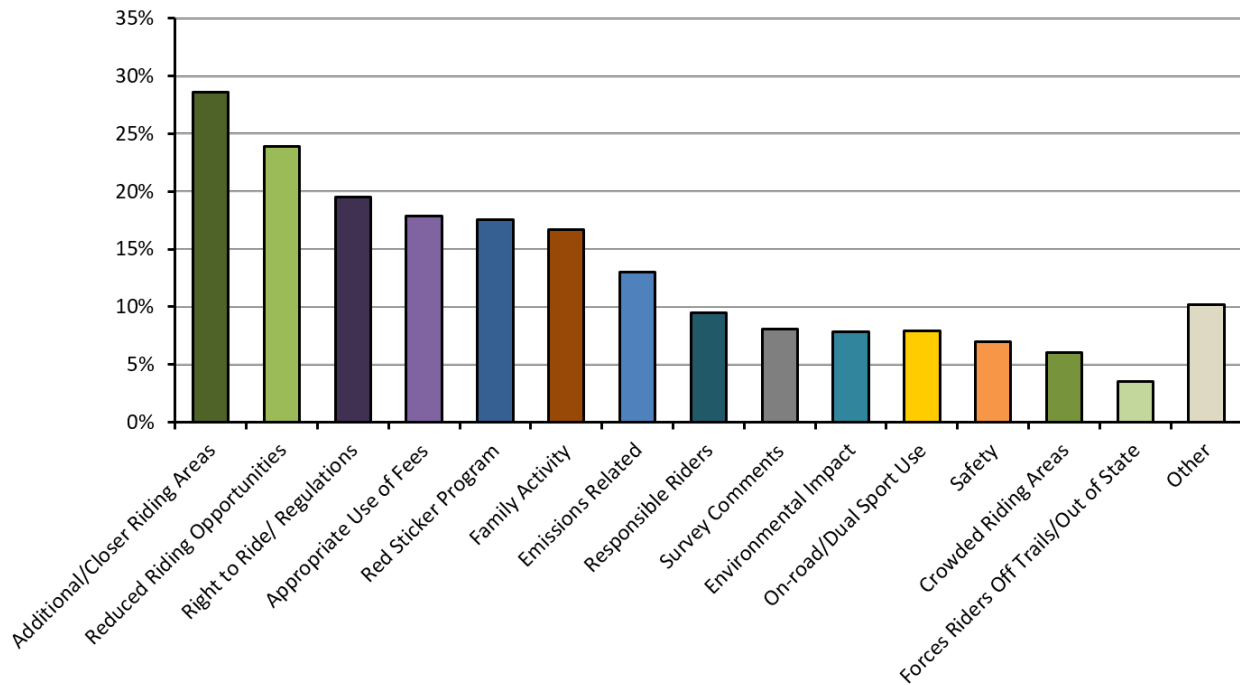


Figure 30. Open response evaluation by common subject matter.

Appendix 1

CARB - Primary OHMC Survey

Thanks for your willingness to participate. Unfortunately, we have already reached the maximum number of SVRA passes available for your demographic. Although no more passes are available, your response would still be appreciated if you are willing. Would you like to continue?

- Yes
- No

General Information

Please answer this survey based explicitly on the OHRV listed below (which was also listed on the postcard) over the last 12 months:

Make Model Year (Survey participant would have their year/make/model auto-populated here)

Is this the correct model?

- Yes
- No

Please correctly identify your OHRV.

Make

Model

Year

What is the primary function of the vehicle listed above?

- Recreational Use – Adult
- Recreational Use – Youth
- Competition – Adult
- Competition – Youth
- Agricultural Use
- On-Road Use
- Other Utility Use
- I no longer ride this OHRV

Q1. What are the top 3 (or more) characteristics that influenced your decision to purchase this OHRV?
(Drag Items from list into box)

Ranking
_____ Engine power
_____ Responsive handling
_____ Suspension travel
_____ Appropriate size for a child
_____ Year around riding on public land
_____ Ability to safely carry passengers and cargo
_____ Ability to make engine modifications
_____ Minimal weight
_____ Electronic engine tuning options
_____ Cost of OHRV
_____ Ability to register for on-road use
_____ Availability of aftermarket parts
_____ To identify with professional race teams
_____ Easy to maintain, low cost of repair

Q2. How many hours is this OHRV ridden on a typical day of off-highway riding, not including stopping/resting time? (Drag slider to appropriate # of hours)

Q2a. What is this number based on?

- Hour meter
- Estimate

Q2dual is only shown to dual sport riders

Q2dual How many hours is this OHRV ridden on a typical day of on-road riding, not including stopping/resting time? (Drag slider to appropriate # of hours)

Q2b. What percentage of this time is spent doing the following activities (Click or drag bars to appropriate percentage - Must total 100)

- _____ Practicing for race events
- _____ Racing
- _____ Recreational riding
- _____ Farm/Ag Use
- _____ Commuting
- _____ Other

Q3. How many miles do you ride this OHRV on a typical day of off-highway riding? (Drag slider to appropriate # of miles)

Q3dual is only shown to dual sport riders

Q3dual How many miles do you ride this OHRV on a typical day of on-road riding? (Drag slider to appropriate # of miles)

Q3a What is this number based on?

- Trip meter
- Estimate

Q4. What are the average number of days per month you ride this OHRV off-highway during each of the following seasons? (Enter a number from 0-31)

	# of days
Spring (Mar- May)	
Summer (Jun- Aug)	
Fall (Sep - Nov)	
Winter (Dec- Feb)	

Q5. What is the average distance (in miles) that you travel from your home roundtrip to ride this OHRV off-highway during each of the following seasons? (Drag sliders to appropriate # of miles)

- _____ Spring(Mar - May)
- _____ Summer(Jun - Aug)
- _____ Fall(Sep - Nov)
- _____ Winter(Dec - Feb)

Q6. In what seasons do you ride this OHRV off-highway at the following locations? (Select all that apply)

	Year-round	Spring (March- May)	Summer (June- August)	Fall (September- November)	Winter (December- February)	Never
State operated OHV parks	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
BLM land	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
U.S. Forest Service Land	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Privately operated tracks (i.e. closed course)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Private property	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
County operated OHV parks	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Q7. What factors are most important in determining where you ride? (Select all that apply)

- Proximity to house
- Difficulty of trails
- Cost
- Race track availability
- Family friendly
- Riding season
- Length of trails
- Camping available
- None of the above

Q8. How many gallons of fuel do you use for this OHRV during a typical day of off-highway riding? (Drag slider to appropriate # of gallons)

Q8a How do you refuel this OHRV during a typical day of off-highway riding?

- Red gas can
- Pick-up auxiliary tank
- RV trailer with refueling tank
- Gas station
- Utility jug

Q9. How many times during a typical day of off-highway riding was this OHRV laid on its side (e.g. due to a fall, when resting, during travel, etc.)?

Q10. Starting with the most frequently visited location, please select up to 5 areas you ride this OHRV. (Scroll down or use keyboard in dropdown menu to find and add additional riding areas)

Ranking
_____ Private Track (not listed below)
_____ Private Property
_____ Carnegie
_____ Clay Pit
_____ Heber Dunes
_____ Hollister Hills
_____ Hungry Valley
_____ Mammoth Bar
_____ Oceano Dunes
_____ Ocotillo Wells
_____ Prairie City
_____ Arroyo Salado
_____ Bishop
_____ Chappie-Shasta
_____ Clear Creek
_____ Colorado Desert
_____ Dumont Dunes
_____ Eastern Mojave Desert
_____ El Mirage
_____ Fort Sage
_____ Imperial Dunes
_____ Jawbone Canyon

- _____ Johnson Valley
- _____ Knoxville
- _____ Lark Canyon
- _____ Olancha Dunes
- _____ Parker Strip
- _____ Plaster City
- _____ Rasor
- _____ Samoa Dunes
- _____ South Cow Mountain
- _____ Spangler Hills
- _____ Stoddard Valley
- _____ Superstition Mountain
- _____ Angeles National Forest
- _____ Cleveland National Forest
- _____ El Dorado National Forest
- _____ Inyo National Forest
- _____ Klamath
- _____ Los Padres National Forest
- _____ Mendocino National Forest
- _____ Plumas National Forest
- _____ San Bernardino National Forest
- _____ Sequoia National Forest
- _____ Sierra National Forest
- _____ Six Rivers
- _____ Stanislaus National Forest
- _____ Shasta-Trinity National Forest
- _____ Tahoe National Forest
- _____ 408 MX
- _____ Argyll MX Park
- _____ AV Motoplex Motocross
- _____ Barona Oaks
- _____ Black Butte Lake
- _____ Cahuilla Creek
- _____ Cal City MX Park
- _____ Club Moto
- _____ Competitive Edge MX
- _____ Cycleland Speedway
- _____ E Street MX

- Eugene Chappie
- Frank Raines
- Glen Helen Raceway
- Hangtown MX
- Honey Lake MX
- Honolulu Hills
- Lake Elsinore Motocross
- La Grange
- Mammoth Motocross
- Metcalf Motorcycle Park
- Milestone Ranch
- Oasis Motocross
- Pala Raceway
- Park Moabi
- Perris Raceway
- Piru MX
- Porterville OHV Park
- Racetown 395 MX
- Ridgecrest Motocross
- Riverfront MX Park
- Rubicon Trail
- Sacramento Raceway
- Starwest Motocross
- Tulare Cycle Park
- Ukiah Speedway
- Zaca Station
- Out of State

Q50. What percent of time do you operate your OHRV at each riding area during each of the following seasons?

- Private Track (not listed below)
- Private Property
- Carnegie
- Clay Pit
- Heber Dunes
- Hollister Hills
- Hungry Valley
- Mammoth Bar
- Oceano Dunes
- Ocotillo Wells
- Prairie City
- Arroyo Salado
- Bishop
- Chappie-Shasta
- Clear Creek
- Colorado Desert
- Dumont Dunes
- Eastern Mohave Desert
- El Mirage
- Fort Sage
- Imperial Dunes
- Jawbone Canyon
- Johnson Valley
- Knoxville
- Lark Canyon
- Olancha Dunes
- Parker Strip
- Plaster City
- Rasor
- Samoa Dunes
- South Cow Mountain
- Spangler Hills
- Stoddard Valley
- Superstition Mountain
- Angeles National Forest
- Cleveland National Forest
- El Dorado National Forest
- Inyo National Forest
- Klamath
- Los Padres National Forest
- Mendocino National Forest
- Plumas National Forest

- _____ San Bernardino National Forest
- _____ Sequoia National Forest
- _____ Sierra National Forest
- _____ Six Rivers
- _____ Stanislaus National Forest
- _____ Shasta-Trinity National Forest
- _____ Tahoe National Forest
- _____ 408 MX
- _____ Argyll MX Park
- _____ AV Motoplex Motocross
- _____ Barona Oaks
- _____ Black Butte Lake
- _____ Cahuilla Creek
- _____ Cal City MX Park
- _____ Club Moto
- _____ Competitive Edge MX
- _____ Cycleland Speedway
- _____ E Street MX
- _____ Eugene Chappie
- _____ Frank Raines
- _____ Glen Helen Raceway
- _____ Hangtown MX
- _____ Honey Lake MX
- _____ Honolulu Hills
- _____ Lake Elsinore Motocross
- _____ La Grange
- _____ Mammoth Motocross
- _____ Metcalf Motorcycle Park
- _____ Milestone Ranch
- _____ Oasis Motocross
- _____ Pala Raceway
- _____ Park Moabi
- _____ Perris Raceway
- _____ Piru MX
- _____ Porterville OHV Park
- _____ Racetown 395 MX
- _____ Ridgecrest Motocross
- _____ Riverfront MX Park
- _____ Rubicon Trail
- _____ Sacramento Raceway
- _____ Starwest Motocross
- _____ Tulare Cycle Park
- _____ Ukiah Speedway
- _____ Zaca Station

_____ Out of State

Q51. In what seasons do you ride this OHRV off-highway at the following locations?

- Private Track (not listed below)
- Private Property
- Carnegie
- Clay Pit
- Heber Dunes
- Hollister Hills
- Hungry Valley
- Mammoth Bar
- Oceano Dunes
- Ocotillo Wells
- Prairie City
- Arroyo Salado
- Bishop
- Chappie-Shasta
- Clear Creek
- Colorado Desert
- Dumont Dunes
- Eastern Mohave Desert
- El Mirage
- Fort Sage
- Imperial Dunes
- Jawbone Canyon
- Johnson Valley
- Knoxville
- Lark Canyon
- Olancha Dunes
- Parker Strip
- Plaster City
- Razor
- Samoa Dunes
- South Cow Mountain
- Spangler Hills
- Stoddard Valley
- Superstition Mountain
- Angeles National Forest
- Cleveland National Forest
- El Dorado National Forest
- Inyo National Forest
- Klamath
- Los Padres National Forest
- Mendocino National Forest
- Plumas National Forest
- San Bernardino National Forest

- _____ Sequoia National Forest
- _____ Sierra National Forest
- _____ Six Rivers
- _____ Stanislaus National Forest
- _____ Shasta-Trinity National Forest
- _____ Tahoe National Forest
- _____ 408 MX
- _____ Argyll MX Park
- _____ AV Motoplex Motocross
- _____ Barona Oaks
- _____ Black Butte Lake
- _____ Cahuilla Creek
- _____ Cal City MX Park
- _____ Club Moto
- _____ Competitive Edge MX
- _____ Cycleland Speedway
- _____ E Street MX
- _____ Eugene Chappie
- _____ Frank Raines
- _____ Glen Helen Raceway
- _____ Hangtown MX
- _____ Honey Lake MX
- _____ Honolulu Hills
- _____ Lake Elsinore Motocross
- _____ La Grange
- _____ Mammoth Motocross
- _____ Metcalf Motorcycle Park
- _____ Milestone Ranch
- _____ Oasis Motocross
- _____ Pala Raceway
- _____ Park Moabi
- _____ Perris Raceway
- _____ Piru MX
- _____ Porterville OHV Park
- _____ Racetown 395 MX
- _____ Ridgecrest Motocross
- _____ Riverfront MX Park
- _____ Rubicon Trail
- _____ Sacramento Raceway
- _____ Starwest Motocross
- _____ Tulare Cycle Park
- _____ Ukiah Speedway
- _____ Zaca Station
- _____ Out of State

Q10b. is shown if the rider indicated in Q10 that they ride on private tracks

Q10b In question 10, you indicated that you ride off-highway on a private track(s). Please provide the name(s) of the private track(s).

Q10c. is shown if the rider indicated in Q10 that they ride on private tracks

Q10c You indicated that you ride on the private track named "{\$Im://Field/1}". Please state the county of the track.

- Alameda County
- Alpine County
- Amador County
- Butte County
- Calaveras County
- Colusa County
- Contra Costa County
- Del Norte County
- El Dorado County
- Fresno County
- Glenn County
- Humboldt County
- Imperial County
- Inyo County
- Kern County
- Kings County
- Lake County
- Lassen County
- Los Angeles County
- Madera County
- Marin County
- Mariposa County
- Mendocino County
- Merced County
- Modoc County
- Mono County
- Monterey County
- Napa County
- Nevada County
- Orange County
- Placer County
- Plumas County
- Riverside County
- Sacramento County
- San Benito County
- San Bernardino County
- San Diego County

- City and County of San Francisco
- San Joaquin County
- San Luis Obispo County
- San Mateo County
- Santa Barbara County
- Santa Clara County
- Santa Cruz County
- Shasta County
- Sierra County
- Siskiyou County
- Solano County
- Sonoma County
- Stanislaus County
- Sutter County
- Tehama County
- Trinity County
- Tulare County
- Tuolumne County
- Ventura County
- Yolo County
- Yuba County

Q10d. is shown if the rider indicated in Q10. that they ride on private properties

Q10d. In question 10, you indicated that you ride off-highway on private properties. Please state the counties of the operation. (Please select as many as is applicable. Multiple counties may be selected by using the Ctrl key)

- Alameda County
- Alpine County
- Amador County
- Butte County
- Calaveras County
- Colusa County
- Contra Costa County
- Del Norte County
- El Dorado County
- Fresno County
- Glenn County
- Humboldt County
- Imperial County
- Inyo County
- Kern County
- Kings County
- Lake County
- Lassen County
- Los Angeles County
- Madera County
- Marin County
- Mariposa County
- Mendocino County
- Merced County
- Modoc County
- Mono County
- Monterey County
- Napa County
- Nevada County
- Orange County
- Placer County
- Plumas County
- Riverside County
- Sacramento County
- San Benito County
- San Bernardino County
- San Diego County
- City and County of San Francisco
- San Joaquin County
- San Luis Obispo County

- San Mateo County
- Santa Barbara County
- Santa Clara County
- Santa Cruz County
- Shasta County
- Sierra County
- Siskiyou County
- Solano County
- Sonoma County
- Stanislaus County
- Sutter County
- Tehama County
- Trinity County
- Tulare County
- Tuolumne County
- Ventura County
- Yolo County
- Yuba County

Q11. Do you ride this OHRV in organized, off-highway competitive/race events?

- Yes, I am a non-factory sponsored professional racer
- Yes, I am a factory sponsored professional racer
- Yes, I consider myself an amateur racer
- No

Q11a. is shown if the rider answered Yes to Q11.

Q11a. In question 11, you indicated that you ride in organized competitive / race events. How many times a year do you race?

Q12. What county is this OHRV primarily stored in?

- Alameda County
- Alpine County
- Amador County
- Butte County
- Calaveras County
- Colusa County
- Contra Costa County
- Del Norte County
- El Dorado County
- Fresno County
- Glenn County
- Humboldt County
- Imperial County
- Inyo County
- Kern County
- Kings County
- Lake County
- Lassen County
- Los Angeles County
- Madera County
- Marin County
- Mariposa County
- Mendocino County
- Merced County
- Modoc County
- Mono County
- Monterey County
- Napa County
- Nevada County
- Orange County
- Placer County
- Plumas County
- Riverside County
- Sacramento County
- San Benito County
- San Bernardino County
- San Diego County
- City and County of San Francisco
- San Joaquin County
- San Luis Obispo County
- San Mateo County
- Santa Barbara County
- Santa Clara County

- Santa Cruz County
- Shasta County
- Sierra County
- Siskiyou County
- Solano County
- Sonoma County
- Stanislaus County
- Sutter County
- Tehama County
- Trinity County
- Tulare County
- Tuolumne County
- Ventura County
- Yolo County
- Yuba County
- Out of State

Q13. What days of the week do you primarily ride this OHRV

- Monday
- Tuesday
- Wednesday
- Thursday
- Friday
- Saturday
- Sunday

Q14. On average, how full is the fuel tank in this OHRV when placed in storage?

- Empty - run dry
- Empty - not run dry
- 1/4 Full
- 1/2 Full
- 3/4 Full
- Full

Q15. Where do you primarily store this OHRV?

- Attached garage - insulated
- Attached garage - uninsulated
- Detached garage - insulated
- Detached garage - uninsulated
- Car port
- Shed
- Trailer
- Inside house or apartment
- Outside

Q16. Have you performed any of the following enhancing engine modifications to this OHRV's engine?

Check all that apply

- Race or aviation fuel
- Ignition system
- Fuel storage system
- Engine internals
- Air intake system
- Engine cooling system
- Suspension system
- Hand/foot controls
- Fuel induction/delivery system
- Final Drive
- Exhaust system
- None of the above

Q17. How do you determine when to perform maintenance/service on this OHRV?

- According to the manufacturer's recommended schedule
- More frequently than manufacturer's recommended schedule
- When time permits
- When the OHRV quits running correctly

Q18. Please identify any other OHRVs in your household. (Select all that apply)

- Off-Highway Motorcycle(s) (Green Sticker)
- Off-Highway Motorcycle(s) (Red Sticker)
- Off-Highway Motorcycle(s) (Unregistered)
- Dual Sport(s) (Street legal for on/off highway use)
- Side-By-Side(s) / UV(s) / ROV(s) (steering wheel/non-straddle seat)
- ATV(s) (handle bars/straddle seat)
- Sand Car(s) / Dune Buggy(ies)
- Snowmobile(s)
- Mini Bike(s) (Pit Bike)
- No other vehicles

Q18a. What percentage of your total annual off-highway riding time is each OHRV in your household used? (Click or drag bars to appropriate percentage - Must total 100)

_____ (each selection chosen in Q18 populates here)

Q19. In what ways do you feel limited by California's red-sticker program? (Select all that apply)

- Have to travel further to ride
- Reduces number of days I ride
- Can only ride on private property/tracks during summer
- Can only ride in unenforced public areas during summer
- Do not operate vehicle all summer
- Difficult to understand when I can ride
- Do not feel limited
- Other _____

Q20. To increase the availability of public riding areas I would support: (Mark all that apply)

- Increased riding area admission fees
- New electric OHRV parks
- Up to 10% increase in OHRV cost
- Higher Registration Fees
- None of the above
- Other _____

Feedback: You are almost finished. One last question.

Q21. Do you have any additional comments regarding OHRV use that you would like to share?

- No thanks

Q22. Congratulations! You have completed the OHRV survey and qualify to receive a free day use pass to any California State Park State Vehicular Recreational Area (SVRA). How would you like to receive your pass?

- Electronically, delivered by email
- Electronically, now as a printable image
- Physical pass delivered by mail
- I'm not interested in receiving the pass

Q22a. shown if rider chooses to receive a free day use pass

Q22a Please provide your email address to receive your Free State Park day pass: Required

Q22b. shown if rider indicates they would like their free day pass sent by mail

Q22b. Please provide your mailing address to receive your Free State Park day pass. Required

Name
Address
Address 2
City
State
Postal Code

Appendix 2

CARB - Supplemental OHMC Survey (January 2017)

Initial Activity Analysis

A subset of the primary survey questions involved numerical responses used to calculate OHMC activity. These questions included: hours per day of off-road riding, miles per day of off-road riding, and days per month of off-road operation. Responses for these questions were evaluated by plotting frequency distributions and comparing response trends with the 2009 California off-highway vehicle survey conducted by California State University, Sacramento. A total of 444 OHMC owner responses from the 2009 survey were used for comparison.

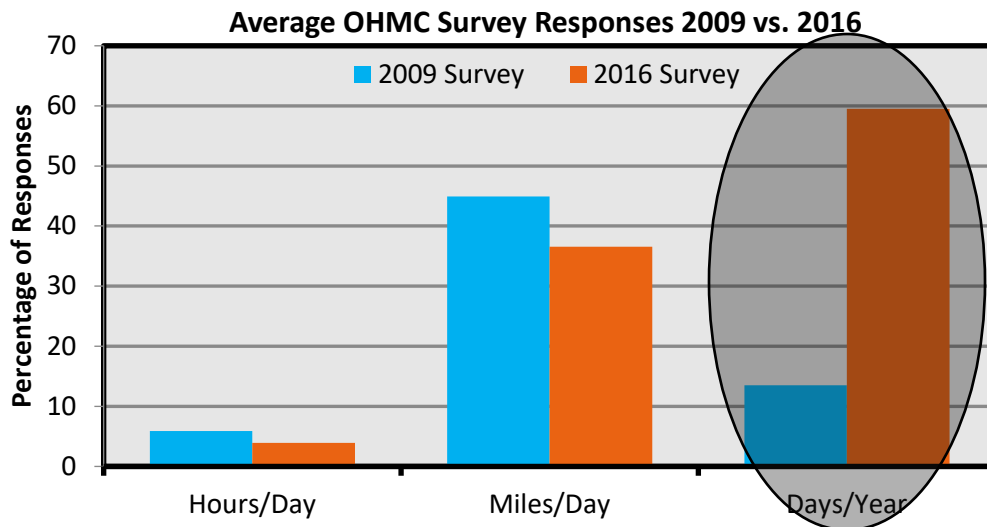


Figure A2-1: Survey response comparison between 2009 and 2016 surveys.

Results were reasonable and similar between the two surveys except for the days of off-road operation as shown circled above in Figure A2-1. This question was potentially misinterpreted by some respondents who may have answered with days per season instead of days per month.

Supplemental Activity Analysis

In order to confirm the validity of responses, a supplemental survey of 912 riders, who provided their e-mail addresses for the primary survey, was conducted in January 2017.

Q: How many miles did you ride your OHRV off-highway in 2016?

and

Q: How many days per month did you ride your OHRV off-highway in 2016? (all 12 months listed with drop-down of 1-31 days)

or

Q: In total, how many days did you ride your OHRV off-highway in 2016?

From the 418 responses received, 293 were utilized.

The supplemental survey indicated that OHMC riders operated, on average, 14 days per year. Red and green sticker respondents rode the most days each year, while Historic OHMC owners rode slightly less than the average.

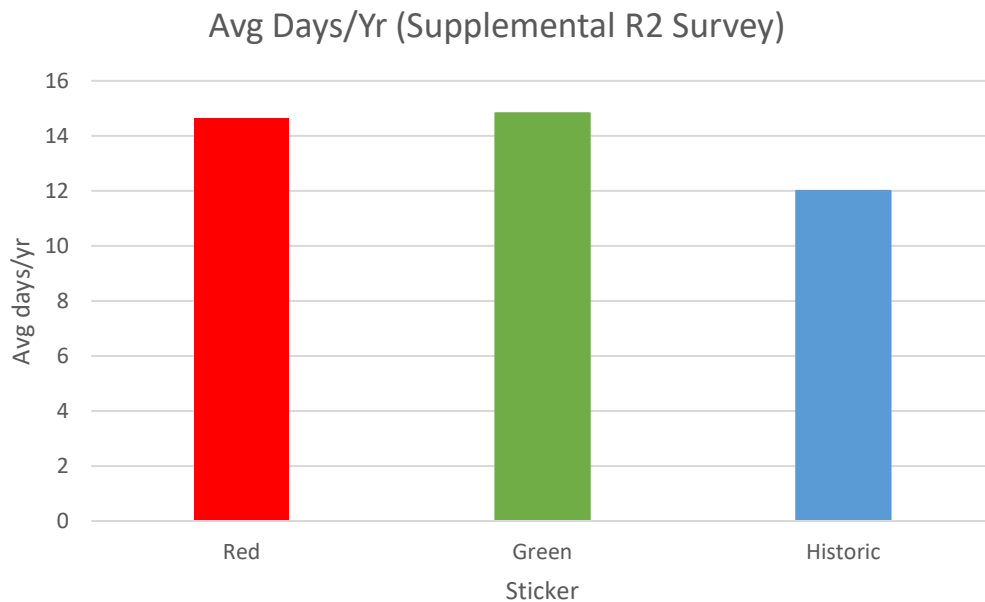


Figure A2-2: Days per year of operation (Supplemental Survey)