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QUICK FACT SHEET ON THE ECONOMICS OF COLORADO FOURTEENERS

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The natural beauty of Colorado's mountains provides memorable and seemingly "priceless" experiences for many. Rural communities and the Colorado economy in general also benefit from mountain recreation. However, recreation use also imposes a "cost" to the mountains, and over time, the costs may cause irreparable damage on the natural resource that we treasure. Economics can provide an understanding of the environmental benefits and costs that occur on Fourteeners, and we provide some of the first research studies to quantify the value of these mountains. This information can be used to garner financial support from policy makers to manage the mountains in a sustainable way.

This paper serves as a quick summary of preliminary research findings of our study on the economics of Colorado Fourteeners. For more in-depth results, we recommend reading our more thorough summary report: *The Economics of Colorado Fourteeners: Research Summary, Publication 07-19*.

Summary of an Economic Study of Colorado Fourteeners

In 2005, after main trail access to three popular Fourteeners was closed, it became clear to us that Fourteener access was a very important—and timely—economic issue for Colorado. We distributed

approximately 900 surveys at 11 key Fourteener trail-heads in 2006 and 2007 across the state of Colorado. We selected these 11 sites that we felt that collectively represented the non-surveyed Fourteeners in terms of geography, degree of hiking and climbing difficulty, and visitor use patterns. This stratification allowed us to generate a representative sample. We began data analysis at the end of 2006, and although data are still being collected, we have made the following *preliminary* results:

1) Fourteener Visitor Expenditure Patterns in Colorado ²

We analyzed expenditure data for the entire sample to determine amount of visitor spending on Colorado Fourteeners. These results are summarized in Table 2. This is a substantial amount of spending by visitors, and averages about twice the per person expenditures on National Forest land according to the U.S. Forest Service National Visitor Use Monitoring data (<http://www.fs.fed.us/recreation/programs/nvum/>). The per party expenditures are about one and half times larger than the typical National Park Service overnight visitor (Stynes, 2006). The median time spent hiking the Fourteeners is about six hours, with the average being 13.4 hours. We observed that the mean is pulled upward by several very large observations, which may be the result of individuals extending their days to summit

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² Results of this study were published in the Spring 2007 edition of the Western Economic Forum (Keske and Loomis, 2007).

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several peaks during a day, or even an overnight while on the trail.

Table 2. Fourteener Visitor Expenditure Patterns in Colorado

Categories	Per Group/ per Trip	Per Group/ per Day	Per Person/ per Day
Camping	\$5.15	\$2.58	\$1.54
Equipment Rental	\$7.79	\$3.90	\$2.34
Equipment Purchase	\$44.98	\$22.49	\$13.48
Groceries	\$36.91	\$18.45	\$11.06
Restaurant Food	\$72.35	\$36.18	\$21.69
Gasoline	\$55.38	\$27.69	\$16.60
Hotel	\$95.39	\$47.69	\$28.60
Supplies	\$8.41	\$4.20	\$2.52
Car Rental	\$31.21	\$15.60	\$9.35
Total	\$357.56	\$178.78	\$107.18

The expenditures may be high compared to other studies due to logistics required to summit the mountains. While most Fourteeners are day trips, many trips require an overnight stay the night before to allow for an early morning trailhead departure (e.g., 5am) in order to be off the summit prior to the afternoon lightning storms. Even Front Range Fourteeners that are within two hours of Denver still require an overnight stay. Furthermore, Fourteeners located in the San Juan Range in southwestern Colorado or the Sangre de Cristos in southern Colorado frequently require two-night stays for non-local residents. These results were published in the Spring 2007 Western Economic Forum journal.

The “non-market” value of the Fourteeners, measured in consumer surplus, is also higher than typical outdoor recreation, even compared to more specialized activities such as rock climbing. The average individual consumer surplus per trip was calculated at \$307, with a median of \$246. The 90% confidence interval on mean WTP is \$266 to \$361 per trip. For comparison, a study by Ekstrand (1994) found that rock climbers at Eldorado Canyon outside of Boulder generated consumer

surplus values of \$27.95 per day in 1991 (equivalent to \$40 in 2006). Grijalva and Berrens (2003) also estimated a value of rock climbing in Texas at between \$47 and \$56 per day trip. More comparable is the study by Grijalva, et al. (2002) that involves climbing in wilderness areas, where they found a WTP of only \$20 to \$25 per person to avoid closing climbing sites in several National Forest, National Park and BLM Wilderness areas.

2) *Fourteener Access on Closed Mountains*³

In 2005 the main trailhead to three mountains in the Mosquito Gulch Range (Mounts Lincoln, Democrat, and Bross) were closed to public access. The closure was instituted by several private landowners, many of whom were concerned about liability issues, particularly around mine sites.

Elimination of hiker access invokes two economic issues. First, for the local economies in Park County, and southern Summit County, Fourteener closure may result in serious reduced tourism and economic benefits during the summer. As a result of potential loss of revenues, in 2005 the town of Alma and the State of Colorado sought to pass legislation that would essentially indemnify the local landowner from any lawsuits related to injury or death from the old mine sites.

In early 2006 the State of Colorado signed legislation HB 06-1049 into law, effectively placing this policy into effect. In exchange, the landowner agreed to open up access to the public, and in some cases the town of Alma has leased much of the area from private landowners. HB 06-1049 was also supported by a number of local organizations and non-profit hiking and climbing organizations.

With the help of several volunteer groups, we distributed over 200 surveys at nearby Quandary Peak, which we deemed to be a close substitute to the three closed Fourteeners, in terms of proximity, terrain and difficulty. We used the values obtained from the 129 surveys returned and “transferred the benefits” to the closed Fourteeners. We obtained initial expenditure values of \$191.62 per person expenditures in a 25-mile radius of the mountain, and \$221.53 in the state of Colorado. Trimming down some of the categories (such as rental cars) yielded more modest values of \$115.48 and \$168 of expenditures locally and state-wide, respectively. Ironically, the consumer surplus

³ Results of this study have been accepted for publication in the Special Mountain Edition of *Tourism Economics*, forthcoming in 2007.

was also \$168 (remember, this is *in addition* to the \$168 expenditures). This study yields three very significant findings:

- 1) Fourteener closure has the potential to significantly impact local economies.
- 2) Fourteener climbers place a high value on access to the peaks (a consumer surplus of \$168 is very high compared to previously mentioned wilderness studies).
- 3) Much of the money is spent locally, and it is worthwhile for local communities to develop creative solutions to ensure that peaks remain open.

References

Ekstrand, E. (1994) Economic benefits of resources used for rock climbing at Eldorado Canyon State Park, Colorado. Ph.D. Dissertation, Department of Agricultural and Resource Economics, Colorado State University, Fort Collins, CO.

Grijalva, T. & Berrens, R. (2003) Valuing Rock Climbing and Bouldering Access, in: Hanley, N., Shaw, D. & Wright, R. *The New Economics of Outdoor Recreation* (Northampton, MA: Edward Elgar).

Grijalva, T., Berrens, R., Bohara, A., Jakus, P. & Shaw, D. (2002) Valuing the loss of rock climbing access in wilderness area, *Land Economics*, 78(1), pp. 103-120.
Keske, C.M. and J.B. Loomis. High Economic Values from High Peaks of the West. *Western Economic Forum*. Spring 2007 6(1): 34-41.

Keske, C.M. and J.B. Loomis. Regional Economic Contribution and Net Economic Values of Opening

Access to Three Colorado Fourteeners. *Tourism Economics: Special Edition on Mountain Tourism*. Forthcoming in 2007.

Stynes, D. 2007. MGM Website Address. <http://web4.msue.msu.edu/mgm2/default.htm>. Accessed March 9, 2007.

USDA Forest Service Rocky Mountain Region (R2). Results from Wilderness Recreation Forums. December 11, 2006. http://www.fs.fed.us/r2/recreation/wilderness/core_team/index.shtml

About the Authors

Dr. Catherine Keske is an assistant professor in the Department of Agriculture and Resource Economics at Colorado State University. Dr. Keske is particularly known for her economic research in land protection and conservation easements. She is an avid supporter of outdoor recreation and she has climbed roughly half of the Colorado Fourteeners. She also volunteers for several outdoors groups, including the Colorado Fourteeners Initiative. Dr. Keske is also on the Board of Directors and Executive Committee for the Mountain Area Land Trust, based in Evergreen, Colorado.

Dr. John Loomis is a professor in the Department of Agriculture and Resource Economics at Colorado State University. He is considered one of the foremost experts in non-market valuation, recreation, and public lands management, and he is the author of the book "Integrated Public Lands Management". Dr. Loomis is an active outdoorsman who enjoys hiking, skiing, and mountain biking.