



## Executive Summary

Capulin Volcano National Monument hosted 61,373 recreation visits in 2003. These visits represent 19,100 party trips to the area (Table E1). The two largest segments in terms of days spent in the region were day visitors from outside the area (59%) and visitors staying overnight in area hotels (20%). Park visitors accounted for 4,600 room nights in area motels.

On average, park visitors spent \$58 per party per day in the local area with spending varying considerably across four visitor segments — from \$163 per night for visitors staying in area motels to \$25 per party for day visitors. Visitors staying in motels account for 57% of the total park visitor spending, followed by non-local day visitors (25%). The majority of the visitor spending is for lodging (\$347,000), followed by restaurants (\$276,000) and gas/oil (\$244,000).

Park visitors spent \$1.3 million dollars within an hour driving distance of the park (approximately 50 miles). (Repeated information) Pass through visitors, not staying overnight in the local area, and visitors on day trips account for 70% of trips and 26% of park visitor spending.

**Table E1. Capulin Volcano National Monument visits and spending by segment, 2003**

| Segment                | Recreation<br>visits (000's) | Party<br>Trips<br>(000's) | Party<br>days/nights<br>(000's) | Average<br>spending<br>(per party<br>night) | Total<br>spending<br>(000's) | Pct of<br>spending |
|------------------------|------------------------------|---------------------------|---------------------------------|---|------------------------------|--------------------|
| Local day trip         | 2.2                          | 0.8                       | 0.8                             | \$25.1                                      | \$21                         | 2%                 |
| Non-local day trip     | 43.8                         | 13.5                      | 13.5                            | \$25.1                                      | \$339                        | 26%                |
| Motel                  | 8.8                          | 3.0                       | 4.6                             | \$162.5                                     | \$749                        | 57%                |
| <u>Other overnight</u> | <u>6.5</u>                   | <u>1.8</u>                | <u>3.9</u>                      | <u>\$55.3</u>                               | <u>\$214</u>                 | <u>16%</u>         |
| <b>Total</b>           | <b>61.4</b>                  | <b>19.1</b>               | <b>22.8</b>                     | <b>\$58.0</b>                               | <b>\$1,323</b>               | <b>100%</b>        |

The economic impacts of this spending were estimated with the National Park Service's Money Generation Model version 2 (MGM2). The MGM2 model uses park visitation data, spending averages from the 2003 Capulin Volcano National Monument Visitor Survey and the MGM2 rural area multipliers to estimate spending, income and jobs attributable to the park. The \$1.3 million spent by park visitors generated \$349,000 in direct personal income (wages and salaries) for local residents and supported 28 jobs in tourism-related businesses. Including secondary effects the total impact of park visitor spending on the local economy was \$457,000 in personal income and 33 jobs. These figures do not include the impacts of park employees, park operations or construction activity.

**Table E2. Economic impacts of Capulin Volcano NM visitor spending, 2003**

| <u>Economic Sector</u>           | <u>Direct Sales<br/>(\$000's)</u> | <u>Jobs</u> | <u>Personal<br/>Income<br/>(\$000's)</u> | <u>Value<br/>Added<br/>(\$000's)</u> |
|----------------------------------|-----------------------------------|-------------|--|--------------------------------------|
| <b>Direct Effects</b>            |                                   |             |  |                                      |
| Motel, hotel cabin or B&B        | 302                               | 7.4         | 88                                       | 133                                  |
| Campgrounds                      | 45                                | 1.1         | 13                                       | 20                                   |
| Restaurants & bars               | 276                               | 8.3         | 87                                       | 121                                  |
| Amusements                       | 132                               | 3.7         | 45                                       | 74                                   |
| Local transportation             | 15                                | 0.5         | 8  | 10                                   |
| Retail Trade                     | 190                               | 6.4         | 97                                       | 151                                  |
| Wholesale Trade                  | 27                                | 0.3         | 11                                       | 18                                   |
| <u>Local Production of goods</u> | <u>11</u>                         | <u>0</u>    | <u>0</u>                                 | <u>1</u>                             |
| <b>Total Direct Effects</b>      | <b>998</b>                        | <b>27.9</b> | <b>349</b>                               | <b>528</b>                           |
| <u>Secondary Effects</u>         | <u>322</u>                        | <u>4.7</u>  | <u>108</u>                               | <u>200</u>                           |
| <b>Total Effects</b>             | <b>1320</b>                       | <b>32.6</b> | <b>457</b>                               | <b>728</b>                           |
| Multiplier                       | 1.3                               | 1.2         | 1.3                                      | 1.4                                  |

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## **Impacts of Visitor Spending on the Local Economy: Capulin Volcano National Monument, 2003**

### **Introduction**

The purpose of this study is to document the local economic impacts of visitors to Capulin Volcano National Monument (CAVO) in 2003. The local region is defined to include Union and Colfax counties in northeastern New Mexico. Economic impacts are measured as the direct and secondary sales, income and jobs in the region resulting from spending by park visitors. The economic estimates are produced using the Money Generation Model version 2 (MGM2) (Stynes and Propst, 2000).

### **Capulin Volcano National Monument**

Capulin Volcano National Monument was established in 1916 to preserve the Capulin Volcano in northeastern New Mexico. Capulin Volcano rises more than 1,000 feet above the surrounding landscape. The entry fee to the park is \$5 per vehicle. Capulin Volcano is about a 20-minute drive from Interstate Highway 25, which connects to Colorado to the North and Albuquerque to the South (Figure 1). The park is about an hour driving distance to the Oklahoma and Texas borders to the East.

Total recreation visit to Capulin Volcano National Monument was 61,373 in 2003 (Table 1). Peak visitation is from June to August, which account for 62% of the annual recreation visits. There are no overnight lodging facilities inside the park.

### **The Region**

Capulin Volcano is located near the border of Union and Colfax Counties in northeastern New Mexico. The local region is defined to include these two counties. The two county area represents roughly a one hour driving distance, or 50 mile radius of the park. Impacts represent the changes in sales, jobs and income within the two county region that are associated with park visitor spending. Spending by visitors outside this region is not included in the local impact estimates.

**Figure 1. Capulin Volcano National Monument**

**Table 1. NPS Public Use Statistics for Capulin Volcano NM, 2003**

| Month           | Recreation visits | Percent   |
|-----------------|-------------------|-----------|
| January         | 1,043             | 2%        |
| February        | 981               | 2%        |
| March           | 2,965             | 5%        |
| April           | 1,882             | 3%        |
| May             | 5,498             | 9%        |
| June            | 11,727            | 19%       |
| July            | 16,232            | 26%       |
| August          | 10,251            | 17%       |
| September       | 4,049             | 7%        |
| October         | 3,271             | 5%        |
| November        | 1,706             | 3%        |
| <u>December</u> | <u>1,768</u>      | <u>3%</u> |
| Totals          | 61,373            | 100%      |

Source: NPS Public Use Statistics (2004)

The population of the two-county area in 2002 was 18,163. The average per capita income was \$22,568. Total personal income was \$409 million, and there were a total of 11,017 full-time and part-time jobs in 2002 (Bureau of Economic Analysis, 2004). Government, retail trade, and tourism-related sectors are the primary employers in this predominantly rural region (Table 2). The accommodation sector reported \$13 million in personal income in 2002 while food services (restaurants) reported \$8 million.

## Methods

Visitor spending and economic impacts are estimated with the Money Generation Model, version 2 (MGM2). Three major inputs to the model are:

- 1) number of visits to the park, broken down into distinct visitor segments,
- 2) spending averages for each segment, and
- 3) economic ratios and multipliers for the local region

The MGM2 model provides a spreadsheet template for combining park use, spending and regional multipliers to compute changes in sales, personal income, jobs and value added in the region. Visitor characteristics and spending are estimated from the 2003 Capulin Volcano National Monument Visitor Survey (Shields, Schuett and Hollenhorst, 2004). Recreation visits are taken from the NPS Public Use Statistics for 2003. The MGM2 rural area multipliers capture the structure of the local economy.

**Table 2. Economic activity by NAICS industry in Union and Colfax County, New Mexico, 2002**

| Sectors                                      | Personal<br>income<br>(\$ 000) | Percent     | Jobs          |
|--|--------------------------------|-------------|---------------|
| Farm   | 17,455                         | 4%          | 1,198         |
| Forestry, fishing, related activities        | D                              |             | D             |
| Mining                                       | D                              |             | D             |
| Utilities                                    | D                              |             | D             |
| Construction                                 | 14,967                         | 4%          | 649           |
| Manufacturing                                | 6,860                          | 2%          | 282           |
| Wholesale trade                              | 2,479                          | 1%          | 128           |
| Retail trade                                 | 22,270                         | 5%          | 1,149         |
| Transportation and warehousing               | D                              |             | D             |
| Information                                  | 3,037                          | 1%          | 122           |
| Finance and insurance                        | D                              |             | D             |
| Real estate and rental and leasing           | D                              |             | D             |
| Professional and technical services          | 7,788                          | 2%          | 330           |
| Management of companies and enterprises      | 1,077                          | 0%          | 44            |
| Administrative and waste services            | D                              |             | 231           |
| Educational services                         | D                              |             | D             |
| Health care and social assistance            | D                              |             | D             |
| Arts, entertainment, and recreation          | 7,986                          | 2%          | 200           |
| Accommodation and food services              | 20,920                         | 5%          | 1,484         |
| Accommodation                                | 12,929                         | 3%          |               |
| Food services                                | 7,991                          | 2%          |               |
| Other services, except public administration | 14,087                         | 3%          | 823           |
| <u>Government and government enterprises</u> | <u>73,495</u>                  | <u>18%</u>  | <u>2,032</u>  |
| <b>Total</b>                                 | <b>255,296</b>                 | <b>100%</b> | <b>11,017</b> |

Source: Bureau of Economic Analysis, 2004; D indicates not shown to avoid disclosure of confidential information

### Capulin Volcano National Monument Visitor Survey, 2003

A park visitor survey was conducted at Capulin Volcano from July 10 to 16, 2003. The Visitor Survey Project (VSP) study measured visitor demographics, trip characteristics, travel expenditures, and visitor ratings of facility importance and quality. Questionnaires were distributed to a sample of 357 visitors. A total of 263 questionnaires were returned for a 74% response rate. Data generated from the visitor survey were used to develop spending profiles, segment shares and trip characteristics for Capulin Volcano visitors. Some results reported here may differ slightly from the VSP report (Shields, Schuett and Hollenhorst, 2004) due to handling of outliers and missing values, and some adjustments to represent year-round use.

Based on the visitor survey, the majority of visitors to Capulin Volcano are first-time visitors from out-of-state. Half of the summer visitors came from the state of Texas (46%), followed by Oklahoma (11%) and Colorado (6%). Only sixteen percent of visitors made the trip

primarily to visit Capulin Volcano. Three out of four respondents were traveling through the area on trips to other destinations. Fifty-five percent reported that the monument was one of several destinations and 40% reported that Capulin Volcano was not a planned destination (Shields, Schuett and Hollenhorst, 2004).

See Shields, Schuett and Hollenhorst (2004) for a more detailed description of survey methods and other descriptive results. The economic analysis of the survey data focuses on the development of spending profiles for distinct subgroups of visitors. Spending estimates are expanded to all visitors in 2003. The estimates of total spending are then applied to local economic models to estimate the associated jobs and income in the region.

### **MGM2 Visitor Segments**

Visitors are divided into distinct segments to help explain differences in spending across user groups. Overnight visitors are distinguished from day visitors based on lodging types reported in the Capulin Volcano NM Visitor Survey questionnaire. Day visitors were divided between local and non-local visitors based on ZIP codes. Visitors living in the 810, 877, or 884 three digit ZIP code areas are considered local visitors. Two overnight trip segments were established for Capulin Volcano NM.

**Local day trips:** Day visitors who reside within the local region,

**Non-local day trips:** Visitors from outside the region, not staying overnight in the area.

This segment includes day trips to the park and many pass-through travelers staying overnight outside the two county region.

**Motel:** Visitors staying in hotels, motels, cabins, or B&B's within the region

**Other Overnight:** Visitors staying in campgrounds, with friends or relatives, or other types of lodging within the region.

### **Converting Recreation Visits to Trips and days in the Region**

The NPS Public Use Statistics provide estimates of the total number of recreation visits to the park in 2003. Visits to Capulin Volcano are based on counts of persons entering the visitor center<sup>1</sup>. A recreation visit is the count of one person entering the park. To estimate spending, recreation visits are converted into the number of distinct trips or days in the region and then distributed to the four visitor segments. This avoids double counting spending of visitors who may enter the park multiple times on the same trip and also takes into account additional days a visitor may spend in the area outside the park.

Recreation visits are converted to party nights<sup>2</sup> as follows:

Vehicle entries to the park = recreation visits / party size

Party trips = vehicle entries / number of park entries per trip

<sup>1</sup> From May through October, Visitor Center counts are increased by 5% to cover visitors to the grounds who do not enter the Visitor Center (NPS Public Use Statistics Office, 2004).

<sup>2</sup> A party night is a travel group staying one night in the area. For day trips, estimates are in party days. The travel group is defined to include all individuals in the same vehicle or staying in the same room or campsite.

Party nights in the area = party trips \* length of stay in the area

Total party nights and spending are sensitive to length of stay and re-entry factors. Lengths of stay indicate how many nights of spending will be counted for each visitor. Re-entry factors correct for multiple counting of visitors who may enter the park more than once on the same-trip.

## Results

The economic analysis is based on 190 respondents<sup>3</sup>. The majority of park visitors fall into the non-local day trip segment. Statistics for the two overnight segments are based on only 45 cases in total. The spending averages for these two segments will therefore be somewhat unreliable, although the results are consistent with those at similar parks. In spite of the small samples, the two groups of overnight visitors are maintained as distinct segments, as they involve significantly different spending patterns.

### Measures of Visitation

Overnight visitors spent an average of 1.8 nights in the local region. The average visitor party size was 3.2. Very few visitors made multiple entries to the park on their trip.

**Table 3. Capulin Volcano NM visit conversion parameters by lodging segments**

|                         | Local<br>day trip | Non-local<br>day trip | Motel | Other<br>Overnight | All<br>Visitors |
|-------------------------|-------------------|-----------------------|-------|--------------------|-----------------|
| Length of stay          | 1.0               | 1.0                   | 1.5   | 2.1                | 1.2             |
| Party size <sup>a</sup> | 2.7               | 3.2                   | 2.8   | 3.4                | 3.2             |
| Entry rate              | 1.0               | 1.0                   | 1.04  | 1.05               | 1.0             |
| Number of cases         | 6                 | 139                   | 26    | 19                 | 190             |

Note. Cases with party size larger than 8 persons, length of stay longer than 7 nights, missing values across all spending categories, and party night spending higher than \$1,000 are excluded.

<sup>a</sup> Party sizes were reduced by 10% across all segments to account for smaller party sizes during the off-season.

Using these conversion parameters, 61,373 recreation visits in 2003 were converted to 19,351 vehicle entries or 19,134 party-trips to the park (Table 4). Visitors to Capulin Volcano in 2003 generated 22,792 party days in the region. Non-local day visitors contributed 59% of total party nights, followed by motel users (20%) and other overnight users (17%).

### Visitor spending

Spending averages were estimated from the Capulin Volcano Visitor Survey. Spending averages were computed on a party trip basis for each segment and then converted to a party

<sup>3</sup> A total of 73 of the 263 respondents to the survey were omitted from the economic analysis due to missing data, inconsistent responses or other reasons. Omitted cases included 23 respondents who did not report spending, 22 cases involving large parties (more than 8 people), 4 cases staying more than 7 days and 4 cases reporting more than \$1,000 in spending on a per party per day basis.

night basis for overnight visitors by dividing by the average length of stay. The survey covered expenditures that occur within an hour's driving distance or about a 50 mile radius of the park.

**Table 4. Visit measures for Capulin Volcano NM by segment, 2003 (000's)**

| Measure                | Local day trip | Non-local day trip | Motel | Other Overnight | Total  |
|------------------------|----------------|--------------------|-------|-----------------|--------|
| Recreation visits      | 2,240          | 43,813             | 8,846 | 6,473           | 61,373 |
| Vehicle entries        | 830            | 13,480             | 3,117 | 1,925           | 19,351 |
| Party trips            | 830            | 13,480             | 2,997 | 1,828           | 19,134 |
| Party days/nights      | 830            | 13,480             | 4,610 | 3,872           | 22,792 |
| Pct of rec. visits     | 4%             | 71%                | 14%   | 11%             | 100%   |
| Pct of vehicle entries | 4%             | 70%                | 16%   | 10%             | 100%   |
| Pct of party trips     | 4%             | 70%                | 16%   | 10%             | 100%   |
| Pct of party nights    | 4%             | 59%                | 20%   | 17%             | 100%   |

Note. Segment shares from the VSP survey for overnight visitors were decreased by 10% to reflect fewer overnight visitors during the off-season.

Visitors on day trips spent \$25 per party in the local region, a third of which took place inside the park (Table 5). Visitors staying at hotels, cabins or B&B's spent approximately \$250 per trip or \$162 per night with an average room rate of \$65 per night (Table 6). Other overnight visitors spent \$117 per party per trip in the region, or \$55 per party per day.

**Table 5. Capulin Volcano NM Visitor spending by trip segment, 2003 (\$ per party trip)**

| Spending category          | Day trip <sup>a</sup> | Motel               | Other Overnight |
|----------------------------|-----------------------|---------------------|-----------------|
| Inside the park            |                       |                     |                 |
| Admissions, recreation     | 3.59                  | 4.38                | 1.84            |
| <u>All other purchases</u> | <u>4.88</u>           | <u>6.46</u>         | <u>7.89</u>     |
| Sub total                  | 8.46                  | 10.85               | 9.74            |
| Outside the park           |                       |                     |                 |
| Hotels/motel               | 0.00                  | 100.70 <sup>a</sup> | 0.00            |
| Camping fees               | 0.00                  | 0.00                | 24.74           |
| Guide fees                 | 0.04                  | 0.38                | 0.89            |
| Restaurants/bars           | 6.21                  | 59.73               | 4.63            |
| Groceries/take out         | 0.90                  | 9.31                | 19.11           |
| Gas and oil                | 5.95                  | 23.04               | 49.32           |
| Other transportation       | 0.00                  | 3.85                | 2.11            |
| Admissions/recreation      | 0.83                  | 15.81               | 0.95            |
| <u>All other purchases</u> | <u>2.74</u>           | <u>26.38</u>        | <u>5.63</u>     |
| Sub total                  | 16.67                 | 239.20              | 107.37          |
| <b>Grand total</b>         | <b>25.13</b>          | <b>250.05</b>       | <b>117.11</b>   |
| Pct inside the park        | 34%                   | 4%                  | 8%              |
| Number of cases            | 145                   | 26                  | 19              |

a. As there were very few local visitors in the sample, local and non-local day trips are combined to estimate a single day trip spending profile.

**Table 6. Capulin Volcano NM Visitor spending by trip segment, 2003 (\$ per party day)**

| Spending Category                            | Day Trip    | Motel        | Other Overnight |
|--|-------------|--------------|-----------------|
| Motel, hotel cabin or B&B                    | \$ 0.00     | \$ 65.46     | \$ 0.00         |
| Camping fees                                 | 0.00        | 0.00         | 11.68           |
| Restaurants & bars                           | 6.21        | 38.83        | 2.19            |
| Groceries, take-out food/drinks              | 0.90        | 6.05         | 9.02            |
| Gas & oil                                    | 5.95        | 14.98        | 23.29           |
| Local transportation                         | 0.00        | 2.50         | 0.99            |
| Admissions & fees                            | 4.46        | 13.38        | 1.74            |
| <u>Souvenirs and other expenses</u>          | <u>7.61</u> | <u>21.35</u> | <u>6.39</u>     |
| Total  | 25.13       | 162.53       | 55.30           |
| Standard error of mean                       | 2.52        | 12.80        | 11.61           |
| Party day spending – 95% confidence interval |             |              |                 |
| Lower bound                                  | \$ 20.19    | \$ 140.89    | \$ 32.54        |
| Upper bound                                  | \$ 30.07    | \$ 191.06    | \$ 78.06        |

<sup>a</sup> 95% Confidence Interval = mean ± 1.96\* stand error of mean

Total visitor spending is calculated by multiplying the number of party-nights in the area (Table 4) by the spending averages for each segment (Table 6). The calculations are carried out segment by segment, summing across the four segments to obtain the total. Visitors to Capulin Volcano in 2003 spent \$1.32 million in the local area (Table 7). Visitors spent \$302,000 in motels, \$276,000 in restaurants, and \$244,000 for gas/oil. Groups staying in area motels contributed about 57 percent of the total spending followed by non-local day visitors (26%).

**Table 7. Total spending of Capulin Volcano NM visitors in 2003 (\$000's)**

| Spending category                   | Local day visitor | Non-local day visitor | Hotel visitors | Other overnight users | Total      | Pct by category |
|-------------------------------------|-------------------|-----------------------|----------------|-----------------------|------------|-----------------|
| Motel, hotel cabin or B&B           | 0.0               | 0.0                   | 301.8          | 0.0                   | 302        | 23%             |
| Camping fees                        | 0.0               | 0.0                   | 0.0            | 45.2                  | 45         | 3%              |
| Restaurants & bars                  | 5.2               | 83.8                  | 179.0          | 8.5                   | 276        | 21%             |
| Groceries, take-out food/drinks     | 0.7               | 12.1                  | 27.9           | 34.9                  | 76         | 6%              |
| Gas & oil                           | 4.9               | 80.2                  | 69.0           | 90.2                  | 244        | 18%             |
| Local transportation                | 0.0               | 0.0                   | 11.5           | 3.8                   | 15         | 1%              |
| Admissions & fees                   | 3.7               | 60.1                  | 61.7           | 6.7                   | 132        | 10%             |
| <u>Souvenirs and other expenses</u> | <u>6.3</u>        | <u>102.6</u>          | <u>98.4</u>    | <u>24.7</u>           | <u>232</u> | <u>18%</u>      |
| Total                               | 20.9              | 338.8                 | 749.3          | 214.1                 | 1,323      | 100%            |
| Pct by segments                     | 2%                | 26%                   | 57%            | 16%                   | 100%       |                 |

**Economic Impacts of Visitor Spending**

The \$1.32 million spent by Capulin Volcano NM visitors had a direct economic impact on the region of \$1.0 million in direct sales, \$349,000 in personal income (wages and salaries), \$528,000 in value added, and supported 28 jobs in the region<sup>4</sup> (Table 8). Direct effects occur in businesses selling goods and services directly to park visitors. The lodging sector received the largest amount of direct sales (\$347,000), followed by restaurants (\$276,000) and retail trade (\$190,000).

Direct effects are less than total spending, as only the retail and wholesale margins on visitor purchases of goods accrue to the local economy. The local region surrounding Capulin Volcano captures 75% of visitor spending. One quarter of visitor spending leaks out of the local economy to cover the costs of imported goods bought by visitors<sup>5</sup>.

The sales multiplier for the region is 1.32, meaning that an additional \$0.32 in sales is generated through secondary effects for every dollar of direct sales. Secondary effects generate an additional 5 jobs, about \$108,000 in personal income and \$200,000 in value added. Including direct and secondary effects, the total impacts of Capulin Volcano visitor spending in 2003 on the local economy is \$1.3 million in sales, \$457,000 in personal income, \$728,000 in value added, and 33 jobs.

**Table 8. Economic impacts of Capulin Volcano NM visitor spending, 2003**

| Economic Sector                  | Direct Sales<br>(\$000's) | Jobs      | Personal Income<br>(\$000's) | Value Added<br>(\$000's) |
|----------------------------------|---------------------------|-----------|------------------------------|--------------------------|
| <b>Direct Effects</b>            |                           |           |                              |                          |
| Motel, hotel cabin or B&B        | \$ 302                    | 7         | \$ 88                        | \$ 133                   |
| Campgrounds                      | 45                        | 1         | 13                           | 20                       |
| Restaurants & bars               | 276                       | 8         | 87                           | 121                      |
| Amusements                       | 132                       | 4         | 45                           | 74                       |
| Local transportation             | 15                        | 1         | 8                            | 10                       |
| Retail Trade                     | 190                       | 6         | 97                           | 151                      |
| Wholesale Trade                  | 27                        | 0         | 11                           | 18                       |
| <u>Local Production of goods</u> | <u>11</u>                 | <u>0</u>  | <u>0</u>                     | <u>1</u>                 |
| <b>Total Direct Effects</b>      | <b>998</b>                | <b>28</b> | <b>349</b>                   | <b>528</b>               |
| <u>Secondary Effects</u>         | <u>322</u>                | <u>5</u>  | <u>108</u>                   | <u>200</u>               |
| <b>Total Effects</b>             | <b>\$ 1,320</b>           | <b>33</b> | <b>\$ 457</b>                | <b>\$ 728</b>            |
| Multiplier                       | 1.32                      | 1.17      | 1.31                         | 1.38                     |

<sup>4</sup> Personal income covers wages and salaries, including payroll benefits. Value added is the sum of personal income accruing to area households, profits and rents of area businesses, and indirect business taxes. Jobs include full and part time jobs (See Appendix A for definitions of economic terms).

<sup>5</sup> For example, if a visitor buys \$50 dollars worth of clothing at a local store, the store receives the retail margin (assume \$20 dollars), the wholesaler or shipper (if local) may receive \$5 dollars, and the remaining producer price of the clothing (\$25 dollars) leaks immediately outside the local economy, unless the clothing is manufactured in the local region.

It should be noted that the majority of visitors to Capulin Volcano did not make their trip primarily to visit the national monument. Only 16% of the VSP sample indicated that visiting the monument was the primary purpose of their trip. Three-fourths of visitors were stopping as part of trips to other destinations. Nevertheless, we may assume that many of the overnight stays by park visitors and the majority of the park visitor spending would not occur in the region in the absence of the park.

## Study Limitations and Errors

The accuracy of the MGM2 estimates rest on the three primary inputs: visits, spending averages, and multipliers. The MGM2 rural area multipliers provide a reasonable description of the local economy<sup>6</sup>. Spending averages from the 2003 Capulin Volcano Visitor Survey are subject to sampling errors, measurement errors and potential seasonal bias. The sampling error for the spending average is 8% overall and ranges from 8 to 21% for individual segments<sup>7</sup>. Using a 95% confidence interval around the spending averages, total visitor spending in 2003 is estimated at between \$1.2 and \$1.5 million.

The visitor survey was conducted during a single 7-day period in July, 2003. Results may be assumed to represent summer season visitors, which account for 62% of annual visits. Off-season visitors tend to have smaller party sizes and may spend less on accommodations due to lower off-season rates and lower percentages of campers. Minor adjustments were made to some parameter estimates from the VSP survey to reduce potential seasonal bias.

In addition to these statistical issues, there are also conceptual issues regarding how much and which spending might be lost to the region in the absence of the park. Total spending for visitors reporting that Capulin Volcano was their primary destination is \$190,000, or 14% of all visitor spending. However, even though the park visit was not the primary purpose of most trips, in the absence of this attraction, most visitors would likely not stop in this area. The majority of the reported spending and impacts can therefore be attributed to the park.

Local visitors are usually excluded in estimating economic impacts. In this case very few visitors live in the local area and hence the contribution to spending is minimal. Locals account for only 2% of overall visitor spending<sup>8</sup>.

## Summary and Discussion

Visitors to Capulin Volcano National Monument spent \$1.3 million within a 50-mile radius of the park in 2003. The direct local economic impact of visitor spending was \$1.0 million in sales, \$349,000 in personal income (wages and salaries), \$528,000 in value added, and 28

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<sup>6</sup> Multipliers from an IMPLAN model for the two county region using 2001 economic data were not significantly different from the MGM2 generic rural multipliers. For example, the aggregate Type II sales multiplier using IMPLAN multipliers for the two county region was 1.30, only marginally less than the comparable figure of 1.32 using MGM2 generic rural region multipliers.

<sup>7</sup> Sampling errors in the spending averages depend on the number of cases sampled and the variation in the sample.

<sup>8</sup> Local visitors may have been underestimated in the survey, as they tend to make more visits during the off-season and may be less likely to respond to the survey.

jobs. With multiplier effects, visitor spending generated a total of \$1.3 million in direct sales, \$457,000 in personal income, \$728,000 in value added, and 33 jobs. Sectors receiving the greatest direct benefit from park visitors were hotels (\$302,000 in direct sales), restaurants (\$276,000), and retail trade (\$190,000).

While the monument is not the primary destination for most trips involving a visit to the park, it is the primary reason why park visitors stop in this region and hence the stimulus for most of the spending and economic activity reported here. With fairly low visitation, the park’s relative impact on the region is fairly small. For example, park visitors account for only about 1-2% of hotel sector jobs in the region. There are likely opportunities to increase the park’s economic impact through cooperative marketing efforts with local and regional tourism organizations. Pass thru travelers are a significant percentage of park visitors. Local economic impacts may be enhanced by enticing more of these visitors to stay overnight in the area and providing additional spending opportunities.

The MGM2 model results can be used to evaluate alternative management, development and marketing decisions. The marginal economic impacts of particular visitor segments are useful for evaluating particular actions. Table 9 shows the changes in sales, jobs, income and value added associated with an increase or decrease of one thousand additional party-nights by each segment.

To evaluate the regional economic impacts of filling an additional 10 rooms in area motels, for example, first compute the change in party nights – 10 rooms occupied 100 nights yearly yields 1,000 extra party nights. Applying the marginal impacts for the “motel visitor” segment in Table 9 generates an additional \$138,500 dollars in direct sales in the region, \$45,900 in personal income, \$68,800 in value added and 3.8 jobs in direct effects. The impact of this alternative could be compared to others such as a marketing campaign to increase day trips.

**Table 9. Direct impacts of an additional 1,000 party day/nights by segment, Capulin Volcano NM, 2003**

| Segment                                       | Direct Sales<br>(\$000's) | Jobs | Personal            |                          |
|---|---------------------------|------|---------------------|--------------------------|
|   |                           |      | Income<br>(\$000's) | Value Added<br>(\$000's) |
| (Marginal Impacts per 1,000 party-day/nights) |                           |      |                     |                          |
| Day trip                                      | 17                        | 0.5  | 6.5                 | 10                       |
| Motel   | 138                       | 3.8  | 45.9                | 69                       |
| Other overnight                               | 30                        | 0.8  | 11.4                | 18                       |

The economic impacts presented in this report document the economic significance of 61,373 recreation visits to Capulin Volcano NM in 2003. Impacts will vary from year to year with changes in prices, visitor volumes, the mix of visitors attracted, and other changes in the park and surrounding communities. The MGM2 model has built-in procedures to price adjust spending averages over time, so that updated spending and impact figures may be obtained fairly easily. In the absence of significant structural changes in the local economy, multipliers will be

quite stable over time. Changes in the number and kinds of visitors can be entered into the model to update impact estimates over time.

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## Appendix A: Definitions of Economic Terms

| <b>Term</b>       | <b>Definition</b>  |
|-------------------|--|
| Sales             | Sales of firms within the region to park visitors.   |
| Jobs              | The number of jobs in the region supported by the visitor spending. Job estimates are not full time equivalents, but include part time positions.  |
| Personal income   | Wage and salary income, proprietor's income and employee payroll benefits.   |
| Value added       | Personal income plus rents and profits and indirect business taxes. As the name implies, it is the net value added by the region to the final goods and services being provided. For example, the value added by a hotel includes wages and salaries paid to employees, their payroll benefits, profits of the hotel, and sales and other indirect business taxes. The hotel's non-labor operating costs such as purchases of supplies and services from other firms are not included as value added by the hotel. |
| Direct effects    | Direct effects are the changes in sales, income and jobs in those business or agencies that directly receive the visitor spending.   |
| Secondary effects | These are the changes in the economic activity in the region that result from the re-circulation of the money spent by visitors. Secondary effects include indirect and induced effects.   |
| Indirect effects  | Changes in sales, income and jobs in industries that supply goods and services to the business that sell directly to the visitors. For example, linen suppliers benefit from visitor spending at lodging establishments.   |
| Induced effects   | Changes in economic activity in the region resulting from household spending of income earned through a direct or indirect effect of the visitor spending. For example, motel and linen supply employees live in the region and spend the income earned on housing, groceries, education, clothing and other goods and services.   |
| Total effects     | Sum of direct, indirect and induced effects. <ul style="list-style-type: none"> <li>▪ Direct effects accrue largely to tourism-related businesses in the area</li> <li>▪ Indirect effects accrue to a broader set of businesses that serve these tourism firms.</li> <li>▪ Induced effects are distributed widely across a variety of local businesses.</li> </ul>   |