

# **BIMP 2012 – Golden Opportunity and Santa Fe Project Site Report**

**Submitted by Lance Carpenter**

**January 13, 2013**

## **Project Overview-- Bats/Inactive Mine Project**

The Colorado Parks & Wildlife (CPW) is responsible for the conservation of all bat species in Colorado. The Bureau of Land Management (BLM), United States Forest Service (USFS), and Division of Reclamation, Mining, and Safety (DRMS) are in partnership with the CPW to identify and protect those mines that provide significant roosts for populations of bats. These roosts may be critical to the long-term survival of populations of some bat species (Humphrey 1975).

The Townsend's big-eared bat (*Corynorhinus townsendii*) is a Species of Special Concern in Colorado. It is primarily a cave-dwelling species but also roosts in man-made caves, analogues to abandoned mines. While most studies report a high degree of site fidelity by *C. townsendii*, there is evidence that some colonies use multiple roost sites. Sherwin et al. (2000) documented frequent movements among mines used by this species as maternity roosts. This bat is a colonial species and, unlike most species, avoids roosting in crevices. This habit makes them highly vulnerable to human disturbance. The species is a federal Species of Concern by the United States Fish and Wildlife Service (USFWS), a Species of Special Concern and Sensitive Species by the BLM and USFS in most areas, and a Special Status Species by most western states. The species is ranked as the highest priority by the Western Bat Working Group, and a recently completed Conservation Strategy for *C. townsendii* is available (Pierson et al. 1999). The loss of historical cave roosting habitat and the widespread closures of abandoned mines in the West are believed to have contributed to the species decline. This species is the focus of the Bats/Inactive Mine Project (BIMP).

The primary objectives of the mine surveys for the Golden Opportunity and Santa Fe Project sites were to evaluate the bat roost potential of these mines that are scheduled for closure, identify important bat roosts, and make recommendations by installing bat gates where needed. These bat gates will provide protection and conservation of bat roosts and help prevent the decline of populations of some bat species.

## **Internal and External Surveys**

After both external and internal surveys were completed, each mine site was scored on a scale of 1 to 3 to help further refine future survey efforts to investigate a site's potential use by bats during the summer, fall, and winter seasons. Priority 1 sites included mines that may provide suitable habitat for bats (i.e., complex mine structure, good airflow, favorable temperature, and relative humidity range) and/or showed direct evidence of use by bats, including the presence of guano or insect parts, or indication of a maternity roost. These sites were recommended to be gated. Priority 2 sites included mines that may or may not provide suitable habitat for bats, but further data (video surveys, trapping, winter surveys) was needed to help evaluate whether or not a mine should be gated. Priority 3 sites were not recommended to be gated and were removed from further survey efforts; these included mines with inadequate habitat for bats, portal entrances where vegetation impeded use by

bats, completely plugged portals, and those with poor portal/internal stability, which may collapse in the near future and preclude bat use.

### **Golden Opportunity Project Summary**

The Golden Opportunity Project was comprised of 13 individual mine sites (adits, high wall features, and stopes) located in Golden Colorado (Jefferson County), just west of Highway 93 (Figure 1). These mines are located between 5,900-6,350 feet. External and internal surveys of all mines took place in March 2012.

Of the 13 mines surveyed, three were scored as Priority 1, and nine were Priority 3 (Table 1). The Priority 1 scored mines were not recommended for further surveys because of observed bat use, depth, complexity, etc. These were sufficient factors to recommend bat gating. There were no priority two mines that were revisited.

### **Santa Fe Project Summary**

The Santa Fe Project comprised 27 individual mine sites (adits, subsistence features, shafts) located in Clear Creek County, south of Idaho Springs, Colorado (Figure 2). These mines are located between 8,600-9,000 feet. External surveys of all mines took place in March 2012, during which time internal surveys were also completed for all of the mines.

Of the 27 mines surveyed, six were scored as Priority 1 (22%), six Priority 2 (22%), and 15 were Priority 3 (56%) (Table 2). The Priority 1 scored mines were not recommended for further surveys because of observed bat use, depth, and/or complexity which were sufficient to recommend gating. All Priority 2 mines were revisited in the summer for video surveys or winter hibernacula surveys. All the Priority 2 mines were surveyed again, and no bat use was observed; therefore, all the mines were completed, and no gates were recommended.

### **Gate Recommendations**

#### *Golden Opportunity*

Of the mines surveyed for Golden opportunity, three (23%) were recommended to be gated and four (77%) to be closed (Table 1). Results of surveys for those mines recommended to be gated did show evidence of bat use (guano and moth/insect parts), and bats were observed.

#### *Santa Fe*

Of the mines surveyed for Santa Fe, six (22%) were recommended to be gated and 21 (78%) to be closed (Table 2). Results of surveys for those mines recommended being gated did show evidence of bat use (guano and moth/insect parts), and/or bats were observed.

Gate types used on other DRMS project sites have included bat slot gates, window or “ladder” gates, full gates, and culvert style gates. The bat gate designs used in past projects have been utilized in Colorado for over 20 years. These gate types have proven to be accepted by various bat species and for different bat roost types (Navo and Krabacher 2005). Full or ladder-type gates with access doors having a padlock are the preferred gate type for both Golden Opportunity and Santa Fe Project Sites. Photographs of mines to be gated are in the Figures, Tables, and Photograph section of the summary report.

## **Literature Cited**

Humphrey, S. R. 1975. Nursery roosts and community diversity of Nearctic bats. *Journal of Mammalogy*. 56: 321-346.

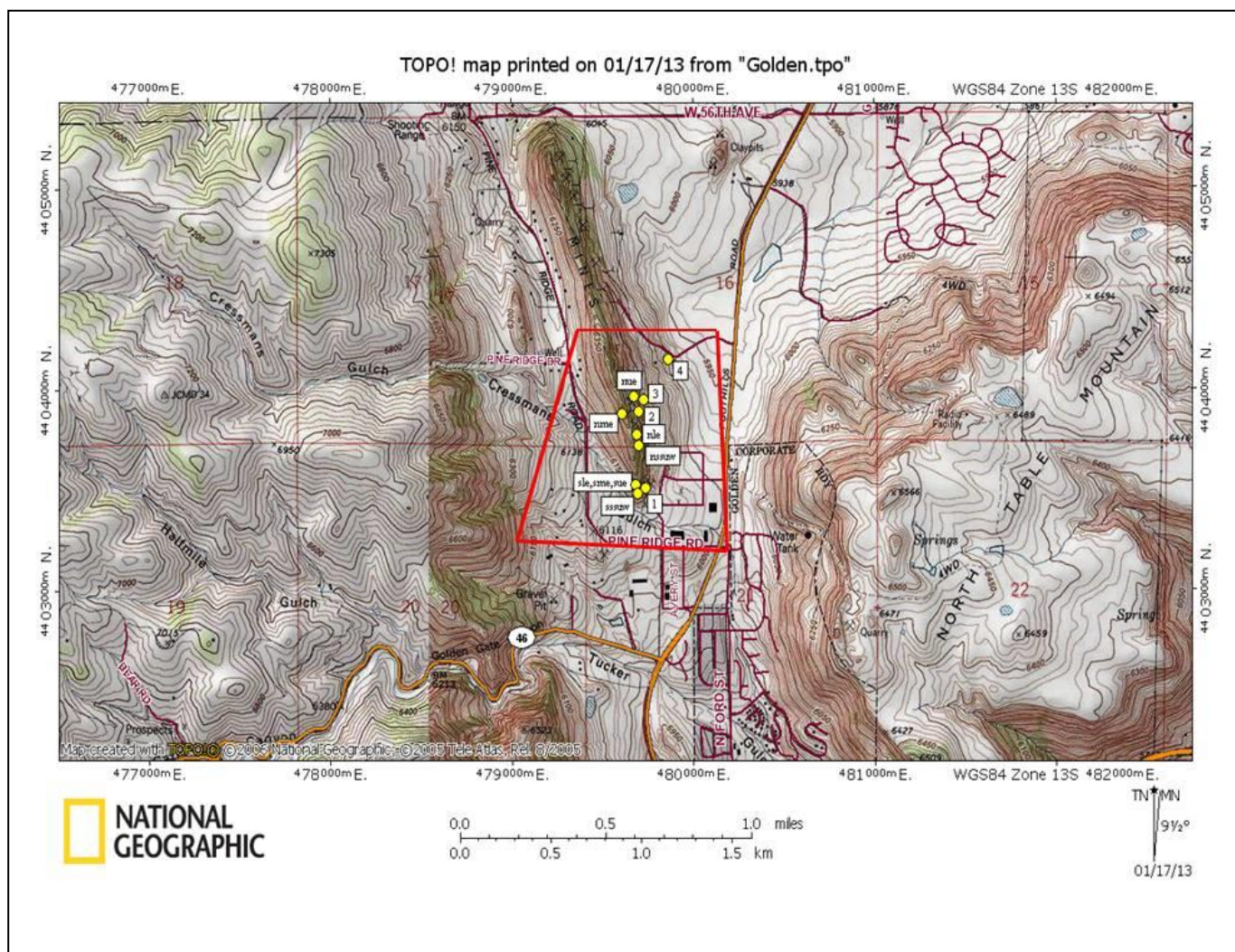
Navo, K. W. and P. Krabacher. 2005. The use of bat gates at abandoned mines in Colorado. *Bat Research News*. 46(1):1-8.

Pierson, E.D. M.C. Wackenhut, J.S. Altenbach, P. Bradely, P. Call, D.L. Genter, C.E. Harris, B.L. Keller, B. Lengus, L. Lewis, B. Luce, K.W. Navo, J.M. Perkins, S. Smith, and L. Welch. 1999. Species conservation assessment and strategy for Townsend's big-eared bat (*Corynorhinus townsendii townsendii* and *Corynorhinus townsendii pallescens*). Idaho Conservation Effort, Idaho Department of Fish and Game, Boise, Idaho.

Sherwin, R.E., W.L. Gannon, J.S. Altenbach, and D. Strictlan. 2000. Roost fidelity of Townsend's big-eared bat in Utah and Nevada. *Transactions of the Western Section of the Wildlife Society*. 36:15-20.

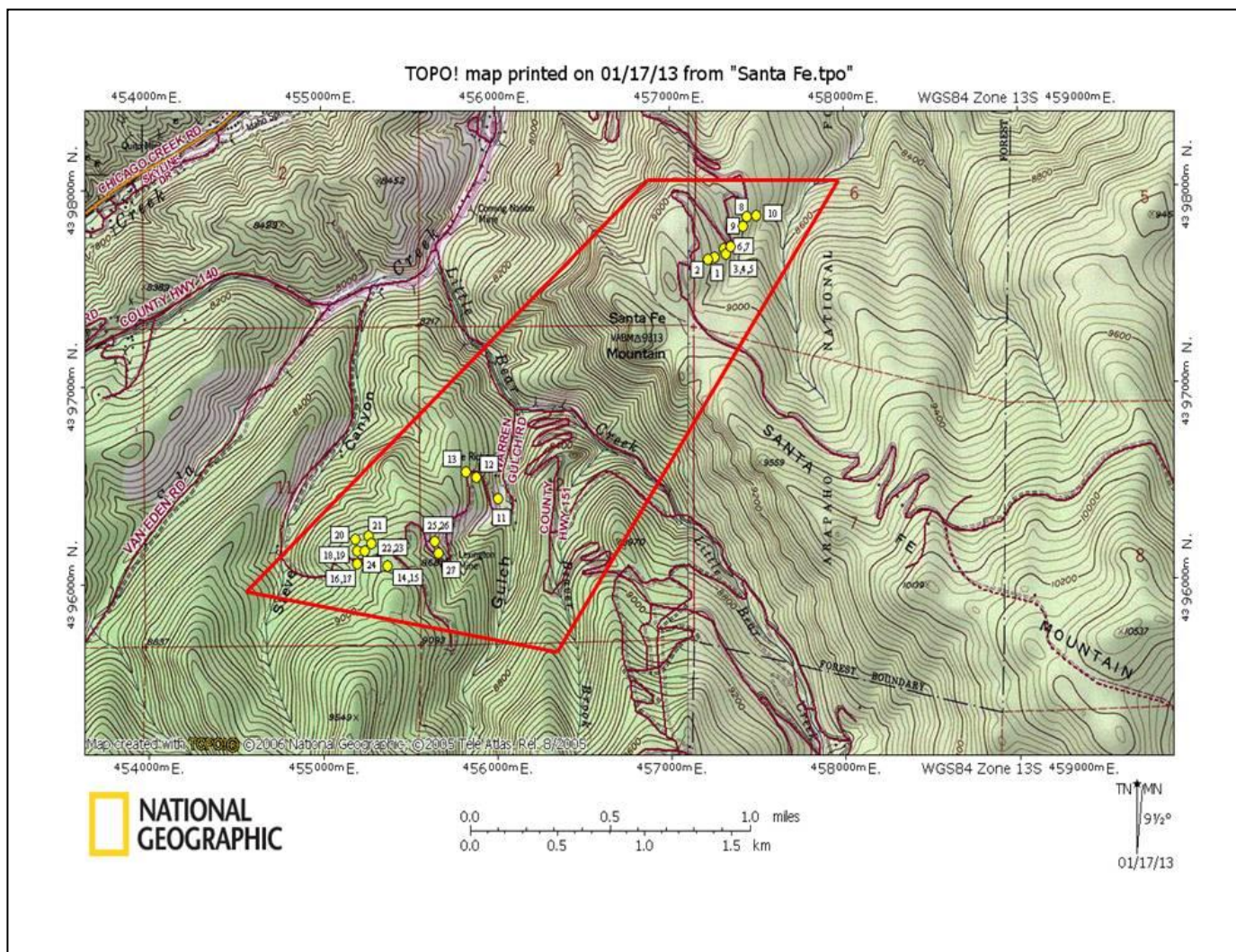
## **FIGURES, TABLES, and PHOTOS**

**Figure 1. Golden Opportunity Project Site.** Golden Opportunity is in Golden, Colorado (Jefferson County), and the yellow dots represent the mine locations.





**Figure 2. Santa Fe Project Site.** The Santa Fe project site is located in Clear Creek County, just south of Idaho Springs, Colorado. The yellow dots represent the mine locations.



**Table 1. Golden Opportunity status and gate recommendations. Complete means that the portal can be closed, and no further work is needed. Complete/Exclude implies some bat use, but it does not justify gating. However, chicken wire should be put over the portal to keep bats from using it prior to closing due to some bat use.**

Mine Number	Priority Score	Audit	Shaft	Status
1	1	x		Gate
2	3	x		Complete
3	3	x		Complete
4	3	x		Complete
NUE	3	x		Complete
SLE	3	x		Complete
SME	3	x (stope)		Complete
SUE	1	x (stope)	x	Gate
NSSUW	3	x		Complete
		x (high wall		
SSSUW	3	feature)		Complete
NLE	3	x		Complete
		x		
NME	3	(decline)	x	Complete
14	1	x		Gate

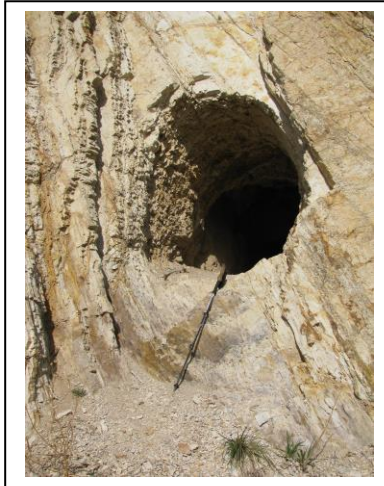
**Table 2. Santa Fe status and gate recommendations. Complete means that the portal can be closed, and no further work is needed. Complete/Exclude implies some bat use, but it does not justify gating. Due to some bat use, chicken wire should be put over portal to keep bats from using prior to closing.**

Mine Number	Priority Score	Adit	Shaft	Status
1	2	x		Complete
2	2	x		Complete
3	3	x		Complete
4	3	x		Complete
5	3	x		Complete
6	2	x		Complete/Exclude
7	1	x		Gate
8	1	x		Gate
9	2	x		Complete/Exclude
10	3	x		Complete
11	1	x		Gate
12	1	x		Gate
13	3	x		Complete
14	3		x	Complete
15	3		x	Complete
16	3	x		Complete
17	1	x		Gate
18	3	x		Complete
19	3	x		Complete
20	2	x		Complete/Exclude
21	1	x		Gate
22	3	x		Complete
23	3		x	Complete
24	3		x	Complete
25	1	x		Gate
26	3	x		Complete
27	3	x		Complete



## **Golden Opportunity**

**(Photographs of mines which were recommended to be gated)**



**# 1**



**SUE**



**#14**

## Santa Fe

(Photographs of mines which were recommended to be gated)



**#7**



**#8**



**#11**



**#12**



**#17**



**#21**



#25





