



Exhibit H Wildlife Information

1.0 Introduction

Wildlife habitat characteristics and use of the permit area were field evaluated by Cedar Creek Associates, Inc. (4/21-22/97). Regional published information was also reviewed for wildlife data in the permit area. Published sources included general texts, journal articles, and field guides pertinent to the permit area and surrounding region as well as Colorado Division of Wildlife (CDOW) distribution study publications. The wildlife resources of the permit area were also discussed with the local CDOW biologist (Duane Finch, Cañon City, and Chris Kloster, Pueblo). The objective of the field survey and information review was to characterize existing wildlife resources within and near the permit area in sufficient detail to assess the impact of the proposed operation on wildlife.

2.0 Survey Methodology

Topographic maps of the permit area were reviewed to aid in the preliminary delineation of any unique habitats or habitat features. Aerial photograph copies of the permit area were obtained from the Natural Resources Conservation Service office in Cañon City to aid in the delineation of vegetation communities and wildlife habitats. Field surveys were conducted to confirm published information reviewed, inventory wildlife species present and assess existing wildlife habitats and habitat features. Field surveys consisted of walking transects in representative portions of all major vegetation communities/habitats present in the permit area. Emphasis was placed on surveying areas located within or adjacent to proposed disturbance areas. All wildlife species observed, their definitive signs (nests, scat, tracks, burrows, etc.), unique or interesting habitat features and habitat extent and condition were recorded.

3.0 Habitat Conditions

Wildlife species and habitats occurring in the permit area are typical of the Front Range foothills of southeastern Colorado. The vegetation types/wildlife habitats present include Piñon/Juniper, Shrub/Grassland, Stream Wash, Riparian, Grassland, Piñon/Juniper Grassland, and Grassland/Improved Pasture. The vegetation characteristics of these habitats are described in Exhibit J.

Field evaluation of all habitats present within the permit indicated extensive overgrazing by livestock for many decades. In most areas almost all the dominant shrub species (four-wing saltbush, rubber rabbitbrush, and mountain mahogany) were heavily hedged down to two year-old woody stems. Some of the hedging observed was likely the result of mule deer winter use of the site, but the frequency of droppings in most areas indicated predominantly livestock use. Mule deer pellet groups were commonly encountered only on the piñon/juniper slopes north of Tallahassee Creek. Mountain mahogany and four-wing saltbush represent high value browse species for both livestock and deer, but rubber

rabbitbrush has very low palatability and little forage value for livestock and is only fair for deer on winter range (USDA Forest Service 1933, Stubbendieck et al. 1982). Extensive hedging on stands of rubber rabbitbrush indicates heavy over use of rangeland and generally poor range condition.

Sources of surface water within the permit area are limited to stock tanks and the Tallahassee Creek. In addition to these sources, the Arkansas River is located immediately south of the southern permit boundary. Within the permit area, Tallahassee Creek flows through a broad alluvial wash, and at the time of the survey (April/May), flow was relatively low (2 to 3 feet wide and only one to a few inches deep in most areas). Old high water lines and drift lines of vegetation debris indicated that the Tallahassee stream wash area experiences relatively higher flows at times. Highest flows would normally be expected to occur in May and early June because of snowmelt runoff and during the summer months following heavy rainfall events within the watershed.

A rock outcrop cliff is present as a special habitat feature in the permit area. It is located on the east side of the small ridge near in the north-central portion of the permit area (see Map J, Exhibit J). Rock outcrop and cliffs serve as important habitat for species such as yellow-bellied marmot, rock squirrel, bushy-tailed woodrat, and swallows. Ledges and cavities in cliff areas can provide suitable nesting habitat for cliff-nesting raptor such as red-tailed hawk, prairie falcon, golden eagle, and great horned owl. The cliff area was scanned using binoculars and a spotting scope (20-45x), and no evidence of raptor nesting activity (stick nests or whitewash) was located. One rock crevice appeared to contain a woodrat nest.

4.0 Wildlife Populations

Use of common names for wildlife species follows Fitzgerald et al. (1994) for mammals, American Ornithologists' Union (1983 and subsequent supplements) for birds, and Hammerson and Langlois (1981) for reptiles and amphibians.

4.1 Fisheries

According to Duane Finch (CDOW), brown trout move up Tallahassee Creek from the Arkansas River to spawn in portions of Tallahassee Creek upstream of the permit area. The narrow canyon segments of Tallahassee Creek upstream of the permit area as well as portions of Kern and Cottonwood creeks near their confluences with Tallahassee Creek support a self sustaining trout fishery (Finch, personal communication 11/97). Based on the habitat conditions observed by several parties of the Tallahassee Creek within the permit area, trout could only use this portion of the creek for seasonal movement to and from the Arkansas River and fisheries habitat upstream of the permit area in the Tallahassee, Cottonwood, and Kern Creeks. The main Tallahassee Creek through the permit area is typically a dry creek bed from spring to fall each year. Loss of creek water is due to over grazing and flood irrigation to the northwest of the permit area. The permit area portion of Tallahassee Creek could not support a year-round fishery.

4.2 Big Game

Mule deer, bighorn sheep, black bear, and mountain lion are the only big game animals likely to be found in the permit area. Field surveys by Cedar Creek (4/97) documented the presence of mule deer. As indicated previously, mule deer pellets were relatively common on the piñon/juniper slopes north of Tallahassee Creek. Four mule deer does were also noted crossing Tallahassee Creek near the proposed stream crossing area for the granite quarry site.

Mule deer are distributed statewide in all ecosystems in Colorado. They are most abundant in shrublands in rough, broken terrain where abundant food and cover are provided (Fitzgerald et al. 1994). Mule deer populations within the permit area region exhibit seasonal movement with most shifts in distribution occurring as a result of elevational migration in response to snow cover. The permit area is used primarily as winter and early spring range by mule deer. The largest numbers of mule deer occur in the permit area during spring green-up when mule deer move down from nearby piñon/juniper slopes to feed on newly emerged herbaceous vegetation in grassland and piñon/juniper/grassland habitats. During the summer most deer move to higher elevation habitats, although some deer use of the permit area is likely to occur on a year-round basis. (Finch, personal communication, 11/97)

Populations of bighorn sheep are widely scattered throughout the mountains and foothills of Colorado. Preferred habitat is provided in areas dominated by rock cover, grass, and shrubs in close proximity to open escape terrain and topographic relief (Fitzgerald et al. 1994). Herds in Colorado typically migrate between higher elevation summer ranges and lower elevation winter ranges (Fitzgerald et al. 1994). A population of bighorn sheep inhabits the rugged terrain of the Arkansas River canyon west of the permit area (Finch, personal communication 11/97). Big Horn sheep are only expected west of the permit area. (Personal communication, field investigation, Chris Kloster, 8/97) They are not expected in the permit area because of ranch activities, overgrazing, lack of preferred habitat and the lower elevation in the area. The figure, provided by the Colorado Department of Wildlife, Personal Communication 12/97, shown at the end of the exhibit demonstrates the documented and expected boundaries of big horn sheep well west of any permit boundary. Recent comments from DOW are also shown in their accompanying letter.

Prime black bear habitat is characterized by relatively inaccessible terrain, thick understory vegetation, and abundant sources of shrub or tree borne soft or hard mast (Pelton 1982). Bears occur throughout the mountainous portions of Colorado but are most common at low to moderate elevations that support stands of oak brush and berry producing shrubs (Fitzgerald et al. 1994). The permit area may represent a portion of black bear range, but black bears are not likely to be common in the area because of the general lack of preferred food sources.

Mountain lions occur throughout the mountainous portions of the state with their range tied to that of elk and mule deer. Mountain lion prey primarily on mule deer and young

elk in this region and, like their prey, are typically wide-ranging. Mountain lions will follow their prey's seasonal movement and inhabit summer range or winter range in conjunction with deer and elk. Preferred habitat of mountain lions consists of rough or steep terrain in remote areas with suitable rock or vegetational cover. It is possible that portions of the permit area are located within a territory occupied by mountain lion. Mountain lion use of the permit area is most likely to coincide with winter and early spring when mule deer may enter the area.

4.3 Predators and Furbearers

Predators and furbearers potentially occurring in the permit area include coyote, gray fox, ringtail, raccoon, badger, long-tailed weasel, striped skunk, western spotted skunk, and bobcat (Meaney 1990, Fitzgerald et al. 1994). Due to the secretive nature and nocturnal habits of many of these species, little information on distribution and population densities in the region is available and species presence can be difficult to determine. Field surveys documented only the presence of coyote. Coyote scat was infrequently observed but was noted in most habitats within the permit area. The remainder of the other species, except for badger, are most likely to occur in association with Tallahassee Creek and/or the broken terrain represented by piñon/juniper slopes to the north of the creek.

Striped skunk, western spotted skunk, and long-tailed weasel occur in a variety of habitats but are most often found in habitats near water. Bobcat and gray fox, like coyote, occur in wide variety of habitats, but rugged woodland areas are often preferred. Ringtails inhabit open, semi-arid country where rocky outcroppings, canyons, or talus slopes are present. Badgers, on the other hand, prefer open grassland and sagebrush habitats supporting populations of ground squirrels and other small rodents. Numerous rodent burrows were noted on the grassland bench south of Tallahassee Creek, but no evidence of badger diggings was observed.

4.4 Other Mammals

Habitats within the permit area support a variety of small and medium-sized mammals associated with grassland, shrub, and piñon/juniper habitats. Rodents and other small mammal species represent an important food source for raptors and mammalian and reptilian predators. Field surveys documented the presence of northern pocket gopher, rock squirrel, least chipmunk, bushy-tailed woodrat, and Nuttall's cottontail. Other species potentially present, based on their ranges and habitat preferences, include black-tailed jackrabbit, western harvest mouse, rock mouse, deer mouse, piñon mouse, northern grasshopper mouse, meadow vole, and porcupine.

Several species of bats associated with semi-arid habitats are potential inhabitants of the permit area. Natural caves, abandoned mine shafts and adits, as well as crevices in areas of rock outcrop represent potential roost and/or maternity sites for many of these species. No natural caves or old mine workings are located within the permit area, but areas of rock outcrop associated with the cliff area (Map J, Exhibit J) and the proposed sandstone quarry site could provide suitable rock crevice roost sites for species such as western small-footed myotis, fringed myotis, long-legged myotis, and spotted bat (Colorado

Division of Wildlife 1984). Rock outcrop at the proposed sandstone quarry site is the only area with potential rock crevice bat roost sites that would be disturbed by project development. This area was thoroughly searched during the field surveys, and no crevices with evidence of bat use (accumulations of guano) were located.

4.5 Waterbirds

Waterbirds include waterfowl, shorebirds, and other wading birds typically associated with wetlands and bodies of surface water. Wetlands are limited to small pockets of riparian vegetation along the Tallahassee Creek channel, and the presence of surface water is limited to stream flow in the Tallahassee Creek. There are no areas of pool or pond habitat, and as a result, waterbird use of the permit area is limited primarily to species such as killdeer and spotted sandpiper.

4.6 Raptors

Raptor use of the permit area is limited primarily to species associated with shrubland and piñon/juniper habitats in the foothills and lower elevation mountainous portions of the state. No raptors were observed during field surveys, but potential year-long residents and/or summer breeders include turkey vulture, northern harrier, Cooper's hawk, sharp-shinned hawk, red-tailed hawk, golden eagle, American kestrel, prairie falcon, great horned owl, and long-eared owl (Andrews and Righter 1992, Kingery 1987). Suitable nesting habitat is present on or near the permit area for most of these species, but no nest sites or evidence of nesting activity of any raptor species were located during field surveys.

Nest site preferences of raptors potentially breeding in the area vary considerably. Red-tailed hawk, golden eagle, and great horned owl typically nest in relatively large trees with open crowns or on cliff ledges and areas of rock outcrop. Prairie falcon and turkey vulture also prefer to nest on cliff faces where rock cavities or ledges provide suitable nest sites. One previously noted cliff site exists within the permit area, but there was no evidence of raptor nesting activity on the cliff face. The few mature cottonwoods along Tallahassee Creek could provide suitable nest sites for red-tailed hawk, golden eagle and great horned owl. The trees were not leafed out at the time of the field surveys allowing visual confirmation that there was no evidence of any stick nests large enough to be used by these species.

Northern harriers nest on the ground or in low shrubbery usually on slopes or in drainages supporting dense stands of shrubs and herbaceous vegetation. Because of the extent of livestock grazing in the permit area, preferred northern harrier nesting habitat is generally lacking within the permit area.

The American kestrel is a cavity nester, and abandoned woodpecker holes, magpie nests, and crevices in rock outcrop are used as nest sites. A variety of open and wooded habitats are occupied by the American kestrel, although it avoids densely forested habitats. Woodpecker holes or magpie nests in cottonwood trees along Tallahassee Creek or in piñon and juniper trees in the permit area represent suitable nest sites for

American kestrel.

Nesting habitat for Cooper's hawk, sharp-shinned hawk, and long-eared owl within the permit area is restricted to stands of piñon/juniper. Piñon and juniper trees within and near proposed disturbance areas were searched for possible stick nests of these species, but none were located.

4.7 Upland Gamebirds

Mourning dove and wild turkey are the only upland gamebird species likely to occur within the permit area. Mourning doves are summer residents and could be present in the permit area spring through fall. Mourning doves prefer habitats near water and, if present, are most likely to habitat the in riparian areas adjacent to the Tallahassee Creek.

Wild turkey is a fairly common resident in foothills and mesa of southern Colorado. They are common along the Arkansas River valley in the vicinity of the permit area (Andrews and Richter 1992). Preferred habitat is typically ponderosa pine forest with an understory of Gambel oak, although they also can be found in lowland riparian, foothill shrubland (mountain mahogany), piñon-juniper woodlands, and agricultural habitats (Andrews and Richter 1992). Wild turkey are known to occur in the vicinity (Finch, personal communication 11/97) and these birds may occasionally wander through the permit area.

4.8 Other Avifauna

A variety of songbirds inhabit foothill shrubland and piñon/juniper habitats in southern Colorado. Some occur as year-long residents, but the majority are present only as summer residents and they migrate south for the winter months. Many of these summer residents are neotropical migrants which winter in Central and South America.

Year-long residents observed during field surveys included northern flicker, hairy woodpecker, pinyon jay, scrub jay, Clark's nutcracker, black-billed magpie, red-breasted nuthatch, rock wren, Bewick's wren, mountain chickadee, Townsend's solitaire, mountain bluebird, American robin, western meadowlark, and house finch. Because of the timing of the survey, few migrants or summer residents were recorded. Early arrivals noted during the survey were broad-tailed hummingbird, yellow-rumped warbler, chipping sparrow, and red-winged blackbird. Other representative summer residents likely to occur in the permit area include blue-gray gnatcatcher, solitary vireo, black-throated gray warbler, lazuli bunting, and vesper sparrow.

4.9 Reptiles and Amphibians

The diversity of amphibians and reptiles in the permit region is limited by cold winter temperatures and the general lack of aquatic habitats. Because of the early timing of the field surveys no reptiles or amphibians were observed within the permit area.

Potential reptilian inhabitants include: eastern collared lizard, short-horned lizard, red-lipped prairie lizard, milk snake, western smooth green snake, bullsnake, wandering

garter snake, and prairie rattlesnake (Hammerson and Langlois 1981).

Potential amphibian residents in the permit area include: tiger salamander, red-spotted toad, Woodhouse's toad, and boreal chorus frog (Hammerson and Langlois 1981).

5.0 Threatened and Endangered Species

No identified critical habitat for any state or federally listed threatened or endangered species occurs within or near the permit area. In addition, no federal proposed or candidate species are likely to inhabit habitats within or near the permit area. The permit area is, however, located within the range of one federally listed endangered species (peregrine falcon) and one threatened species (bald eagle).

Bald eagles are present primarily as wintering birds in Colorado, and a wintering population is known to inhabit the Arkansas River valley downstream of the permit area. A few nesting records also exist, predominantly in the northwest and southwest portions of the state (Andrews and Righter 1992). Bald eagles may occasionally wander up the Arkansas River near the permit area during the winter months, but preferred habitats are lacking within the permit area.

American and Arctic peregrine falcons are known to occur throughout the region primarily during spring and fall migration. The permit area is located within the nesting range of the American peregrine falcon. The Arkansas River Canyon in the vicinity of Cañon City and Parkdale has supported historic nesting activity (Torres et al. 1978) and continues to be used by summer populations of this species (Andrews and Righter 1992). It is likely that peregrines may occasionally fly over the permit area. Small riparian areas along Tallahassee Creek could provide potential foraging habitat for peregrine falcon, but more extensive and suitable foraging areas exist along the Arkansas River corridor.

The peregrine's preferred nest site is a rugged, remote cliff (100 to 300 feet in height) usually overlooking water or marshy areas where prey is abundant (U.S. Fish and Wildlife Service 1984). The only potential nesting habitat for peregrines within or near the permit area is the small cliff area in the north-central portion of the site. As indicated previously, no evidence of nesting by any raptors, including peregrine falcon, was located along this cliff face.

6.0 Impact Assessment

According to the Agile Stone Systems, Inc. proposed plan, 169 acres within the permit area would be disturbed. About 70 acres would be associated with the proposed rock quarries on the north side of Tallahassee Creek. Of this disturbance, 64 acres would be in piñon/juniper habitat and 6 acres would be in shrub/grassland habitat. The remaining 99 acres of disturbance would be primarily on the grassland bench on the south side of Tallahassee Creek. Approximately 50 of these acres would be for gravel production, 18 acres would be used for plant operations, and the remaining acres would be for roads, berms, buffers and tracks. Two stream crossings would be required to access the granite

and sandstone rock quarry sites on the north side of Tallahassee Creek and would result in minor disturbance to stream wash habitat. No riparian habitat or trees would be impacted by the proposed stream crossings.

Habitat losses associated with the two rock quarry areas involve 64 acres of piñon/juniper habitat containing about 60% growth. However, much of this proposed disturbance would be at sites represented by areas of exposed bedrock that support very little vegetation cover (Exhibit J). This loss would be relatively short-term since reclamation plans involve the same acres with greater growth and greater habitat diversity. Habitat losses associated with the gravel extraction area would also be short term since sufficient topsoil is available to reclaim and reseed the open pit, plant stockpile storage areas once operations cease and reclamation is initiated. Any concurrent reclamation will reduce the time any habitat is unavailable.

The major wildlife impact would be on mule deer from these habitat losses. A small 64 acre reduction in their winter piñon/juniper habitat and 99 acres of early spring foraging habitat would result temporarily until final reclamation. Adverse impacts to the local mule deer population is expected to be minor due to the limited acreage disturbed and the lack of any crucial habitats. Habitat losses may not only be reduced but improved over time as mule deer become acclimated to operational activities. Mule deer tolerance to mining activities has been demonstrated throughout the Rocky Mountain region as long as they are not exposed to human harassment or hunting pressure.

CO Fish and Wildlife identified the mountain to the west of permit area as the eastern limit to known bighorn sheep in the area. (Personal Communication, Site Visit, Chris Kloster, Habitat Biologist, DOW, 8/97) If any bighorn sheep are, however, in the area, operations will be focused on the eastern end of the permit area away from the adjacent western mountain. Like mule deer, bighorn sheep have also demonstrated the ability to adapt to mining operations as long as they do not associate harassment or hunting with the mining operation (MacCallum 1988, 1992).

Any adverse impacts to mule deer or unknown bighorn sheep resulting from habitat losses of grassland (spring foraging) habitat or piñon/juniper (winter) habitat could be completely mitigated by reducing or eliminating livestock grazing pressure within the permit area. As indicated previously, the permit area has been heavily over grazed by livestock. (Also, Personal Communication, Site Visit, Chris Kloster, Habitat Biologist, DOW, August 1997). If ranch life stock grazing pressure was reduced or eliminated from the permit area, the improvement in forage condition in undisturbed areas could readily offset any habitat losses associated with the proposed operation. The applicant plans to continue the Harvey Ranch as a working ranch with both reduced acres and livestock.

Another wildlife concern with the proposed operation is possible disruption of fish movement between the Arkansas River and a possible fisheries habitat in upstream portions of the Tallahassee Creek between Cottonwood and Kern creeks. Due to the 2 engineered crossing designs, Fish and Wildlife feel that there will be no disruption to any

fish migration.

"In our 20 Aug 97 letter to the Division of Minerals and Geology, DOW indicated concern that the proposed road crossings which bisect Tallahassee Creek could potentially impact fish movement and spawning activity. The current design to "bridge" the road crossings adequately addresses these concerns and should mitigate potential impacts. Based on our review, DOW anticipates minimal impacts to fish movement and spawning activity." Chris Kloster, Biologist and Ron Desilet, Regional Manager, 11/30/97

DIVISION OF WILDLIFE

AN EQUAL OPPORTUNITY EMPLOYER

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18 Dec 97



*For Wildlife -
For People*

Kenneth Klco
Consulting Geologist
Azurite, Inc.
10001 CR 12
P.O. Box 338
Cotopaxi, CO 81223

RE: Agile Stone Systems

Dear Mr. Klco:

The Division of Wildlife (DOW) has reviewed the revised revegetation prescription for Agile Stone Systems proposed gravel and granite operation in Fremont County, Colorado. We appreciate your efforts to work with the DOW in addressing wildlife impacts.

DOW acknowledges your work to improve the revegetation prescription. Your proposal to revegetate the granite mine benches is notable. The abundance of species included in your plan should benefit wildlife and overall habitat diversity as well as improve the probability of successful establishment. Due to the degraded condition of the area, the long-term impacts of successful revegetation should be positive.

As per our telephone conversation concerning bighorn sheep use on the Agile Stone site, DOW considers sheep use on the area including Cactus Mountain to be extremely limited at best. Our data indicates that sheep movement rarely extends as far east as the permit area. I have included a bighorn sheep distribution map from our wildlife resources database for your review. As you will note, our mapped distribution for sheep does not extend to the permit area.

Once again, we appreciate your efforts in working cooperatively with the Division of Wildlife. If you have any questions, please give me a call. Happy Holidays.

Sincerely,

Chris Kloster
Habitat Biologist
CDOW; Pueblo

cc: Speeze (CDOW), Finch (CDOW)

Reviewed by:

Ron Desilet
Regional Manager
CDOW; Southeast

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30 Nov 97



*For Wildlife -
For People*

Bill Fehr
Agile Stone Systems
6435 S. Pontiac Ct.
Englewood, CO 80111

RE: Agile Stone Systems
Bridge Design
File No. M-97-054

Dear Mr. Fehr:

The Division of Wildlife (DOW) has reviewed the construction drawings for bridge designs associated with the Agile Stone Systems 112 Construction Materials Operation permit. We appreciate your efforts in providing DOW this information.

In our 20 Aug 97 letter to the Division of Minerals and Geology, DOW indicated concern that the proposed road crossings which bisect Tallahassee Creek could potentially impact fish movement and spawning activity. The current design to "bridge" the road crossings adequately addresses these concerns and should mitigate potential impacts. Based on our review, DOW anticipates minimal impacts to fish movement and spawning activity.

If you have any additional questions concerning these comments, please give me a call at (719)561-4909.

Sincerely,

Chris Kloster
Habitat Biologist
CDOW, Pueblo

Approved by:

Ron Desilet
Regional Manager
CDOW, Southeast

cc: James Stevens (DMG), Larry Oehler (DMG), D. Finch (CDOW), T. Speeze (CDOW)

7.0 REFERENCES

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