

Mr. Ron Rempel  
SANDAG  
401 B Street Ste 800  
San Diego, CA 92101-4231

December 9, 2010

Subject: Report on the Status of the Golden Eagle in the San Diego MSCP 2004-2010.

Dear Mr. Ron Rempel:

Please find attached our report for the Golden Eagles in the San Diego MSCP Area (2004-2010). Specific location information is provided. This Golden Eagle report is being submitted in order to facilitate confidentiality and protection for this species, which is so vulnerable to human disturbance.

An incredible amount of effort has gone into this report, the preparation of which began long before funding was available from any other source. However, an NCCP Local Assistance Grant in 2000 allowed us to pull together a vast amount of historic information that spans more than one hundred years in some cases. The data set for the Golden Eagles in San Diego is quite unique; this study being the longest continuous Golden Eagle study in the Western Hemisphere.

We hope that SANDAG and its sister agencies will find this report helpful in the proper management of the Golden Eagle, and they will distribute it judiciously for the sake of the eagle.

It has been a pleasure working with you on this project and we look forward to your feedback. Please contact me at (760) 789-3992 if you have any questions about the attached. Thank you.

Sincerely,

Dave Bittner  
Executive Director

# Golden Eagles of the San Diego Multiple Species Conservation Plan Area 2004-2010

*to*

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*by*

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December 9, 2010

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## CONFIDENTIALITY STATEMENT

The Wildlife Research Institute, Inc (WRI) cares deeply about the fate of the population of Golden Eagles in San Diego County. That is why this report is marked “Confidential.” Documentation of this population goes back to the 1860s and is the longest studied Golden Eagle population in the Western Hemisphere. The clear and compelling evidence is that man has caused a 56% reduction of this population in less than 50 years. Another 10% is on the cusp of being extirpated by human activity.

Golden Eagles addressed in this report are a top predator and, within the San Diego Multiple Species Conservation Plan area, have territories of 20 to 30 square miles. They survive today only by nesting in the most remote parts of the county where they are subject to minimal human disturbance. Eagles often have to flee from humans if they are to survive. Around their nest sites, Golden Eagles are even more sensitive to the presence of humans and will fly off the nest when approached from distances as far as half a mile. Therefore, releasing the enclosed information to the public or persons who might use the information to visit the nests for photography or curiosity could cause the nest to fail. Golden Eagles will return to their nests after people leave the area but, if it is cool weather or raining, their return might be in vain because the eggs will have been chilled or the young will have died from exposure or predation, often by ravens. As a typical example, in 2010, a nest site being monitored by the US Forest Service was compromised when a group of recreational climbers on the cliff refused to come down when confronted by authorities. Because this occurred during incubation and the climbers remained on their ropes until after dark, the female Golden Eagle remained flushed from her eggs, which failed to hatch. Weather is not the only threat; nest predators, like the raven, stand ready to move in and steal the eggs or kill the young as soon as the attending adult eagle is flushed by human activity. Given the incredible investment of time and energy that is required to successfully produce young, this is a serious impact to the eagle population.

Human disturbance has been, and still is, one of the main factors negatively affecting Golden Eagles in San Diego County. Human encroachment, including recreational activities and development, continues to move further into what was the San Diego "backcountry." WRI offers this report with detailed information about Golden Eagles and their nest sites for the sole purpose of protecting the remaining breeding pairs. We hope and trust that the agencies that use and share this information will be sensitive to the confidential nature of the following data and continue to work towards the common goal of protecting Golden Eagles in San Diego County.

## SUMMARY

The Golden Eagle is a meaningful umbrella species, which reflects the health of an entire ecosystem, including many other species that occupy that system but are harder to monitor. When we lose Golden Eagles, the reason is often that we are degrading the habitat to such a great extent that we are also affecting hundreds of other species.

Golden Eagles are a top predator and, within the San Diego Multiple Species Conservation Plan (SD MSCP) area, have territories of 20 to 30 square miles. They have survived by nesting in the most remote parts of the county where they are subject to minimal human disturbance. After 22 years of consistent monitoring and historical data research, we estimate that 32 pairs formerly occupied the San Diego MSCP. Today 11 pairs are still active, 3 are inactive, and 18 pairs have been extirpated. Most of these extirpations occurred in the last 40 years. The 11 breeding pairs of Golden Eagles remaining in the SD MSCP represent 24% of all the breeding Golden Eagles remaining in San Diego County. Seven of the 11 remaining active pairs within the SD MSCP are in serious jeopardy of being extirpated in the next 5 to 10 years. The 3 pairs considered inactive are predicted to become extirpated and may, in fact, already have been lost.

The first significant changes that affected the SD MSCP Golden Eagle population can be associated with the development of intensive agriculture, such as avocado and citrus groves. This intensive agriculture replaced the more Golden Eagle-friendly cattle grazing and grasslands. Some extirpations were documented to have occurred in San Diego County in the 1950s and 1960s after the build-up of returning military personnel post-WWII, but most disappeared after the 1970s when major freeways provided access for land development; land that was formerly used for cattle ranching.

Extirpated Golden Eagle territories were primarily located on private land (56 percent). Currently, only 2% of the remaining core nesting areas remain on private lands. Importantly, nine (78%) of the currently active Golden Eagles within the SD MSCP nest on public land. Because there is a degree of management control by the agencies on public land that is often unavailable on private land, this offers a significant and valuable opportunity for the future management and survival of Golden Eagles within the SD MSCP.

As in 2005, WRI recommends the following for the SD MSCP: an annual survey of Golden Eagle breeding territories utilizing a cost-effective approach, using only properly trained and experienced observers for aerial monitoring from helicopters and ground surveys, where necessary; interpretation of the findings within the context of the long history of data that WRI has collected; and annual distribution of the monitoring results to all resource and planning agencies that have a "need to know" so that they may further protect nest sites. We also recommend the examination of proposed private and public land-use changes and human activities for their impact on the remaining Golden Eagles, maintenance of the Golden Eagle Database at WRI, and the consideration of selectively re-introducing (hacking) young eagles into areas where extirpation has occurred but the cause of extirpation has essentially been removed and suitable habitat still exists.

## BACKGROUND

In 1987, a group of 8 biologists gathered at the home of Dan Brimm, in La Jolla, to discuss the obvious decline of the Golden Eagle population in San Diego County. Tom Scott and John Oakley were among them. In subsequent years, they conducted an initial survey of all the old, known Golden Eagle nest sites to determine if they were extirpated or active, and then focused their efforts on fully documenting the entire San Diego population. The Wildlife Research Institute (WRI), in a study co-directed by Dave Bittner and John Oakley, funded mainly by Dave Bittner and maintained purely by volunteer efforts, became active in this effort in 1988 and, in 1992, assumed full responsibility for the project. In 1996, WRI became the first self-funded, non-profit research organization focused on the San Diego Golden Eagle population.

Each year, as many as 50 volunteers help to document and band the young of each nesting pair of Golden Eagles in San Diego County. Currently, WRI uses orange patagial tags (recently, 1997 to 2010, with alpha-numeric identifiers) along with US Geological (USGS) leg bands to mark the eagles. WRI also began utilizing satellite and VHF telemetry technologies in 2005. During this 22 year study, WRI has tracked over 420 Golden Eagles to determine their home ranges, migrations, mortality, and the wanderings of the floater population. WRI has invested over 1.2 million dollars, obtained from internal funding and grants, to learn what we have about Golden Eagles.

In October of 1996, WRI presented our then-current information to San Diego governmental agencies in hopes of protecting the local Golden Eagle population. During those presentations, we stated that 27 pairs of Golden eagles formerly occupied land that falls within the San Diego MSCP. We also reported that only 14 of these pairs still retained active breeding territories while 13 pairs had been extirpated.

The Natural Communities Conservation Program (NCCP) Local assistance Grant funded the San Diego Multiple Species Conservation Plan (SD MSCP) Golden Eagle study (2000-2003) which, in conjunction with WRI's previous 14 years of data, resulted in a comprehensive report for California Department of Fish and Game in 2005. The Cleveland National Forest supported additional efforts to document the effects of the 2003 and 2007 fires on local Golden Eagles. This recent funding, as well as the background data that WRI and others (see Acknowledgements), have contributed to this effort, have allowed these data to be reported today with a high level of accuracy and completeness.

After 14 more years of consistent monitoring, WRI has a revised count of 32 pairs that have historically occupied the SD MSCP. Today, only 11 pairs are still active, 3 pairs are considered to be inactive, and 18 pairs have been extirpated. The 11 breeding pairs of Golden Eagles remaining in the SD MSCP represent 24% of all the breeding Golden Eagles in San Diego County. These Golden Eagle pairs residing within the SD MSCP are also some of the most productive in San Diego County in terms of fledging young.

Seven of the 11 active pairs still present in the SD MSCP are in serious jeopardy of being extirpated in the next 5 to 10 years. In addition, the 3 inactive pairs are predicted to become extirpated and may, in fact, already qualify as extirpated. However, WRI protocol requires that 5

years pass from the last recorded breeding and/or sighting of the pair or single eagle on the territory, in order to make the determination of “extirpated.” The following 2 examples help provide support of why WRI waits for at least 5 years to make a determination. Firstly, the Iron Mountain territory, which hadn’t successfully produced a single young in 11 years (1997-2008), was still observed to have eagles on territory and in 2008 began to breed again. This may have been a result of the fires opening up additional foraging areas which supported reproduction or, alternatively, it just took that long for the remaining adult to find a replacement mate. Secondly, the Lyons Peak pair/territory that was listed as extirpated in 2005, became active in 2007 when the Dulzura pair subsumed the Lyons Peak nest and foraging area. This shift to Lyons Peak was likely a result of continuous disturbance by illegal immigrants within the core nesting territory at Dulzura plus the loss of a breeding bird due to electrocution. The net result is no change; reactivation of one territory and the loss of another.

## OBJECTIVES

### Objectives of WRI's Long-Term Study of Golden Eagles

1. To document past and present Golden Eagle nests and their territories.
2. To document the primary foraging areas, which may be critical to the success of current and future Golden Eagle pairs.
3. To monitor over succeeding years the use of nesting territories, cliffs, trees, etc., that may be central to the nesting territory and its success.
4. To monitor and document the pairs of Golden Eagles, their life history, and other data that may help evaluate the future success or demise of the species in San Diego County and environs.
5. To track, with bands and telemetry, as many Golden Eagles as possible to determine movements, migration, pair exchanges, mortality, and feeding areas for each pair.
6. To provide baseline data for city, county, state, federal and private land planners to help evaluate the merit of construction, and other land-use change, permitting in certain areas.
7. To provide statements of facts that will assist in halting land development, which might destroy nesting territories in the future.
8. To document the level of adaptation of Golden Eagles to human encroachment so that eagles can be saved before the entire population, or a significant portion, of Golden Eagles in San Diego County is extirpated.
9. To determine the fledging success of Golden Eagles over time and under varying weather conditions in San Diego County that affect that success.
10. To determine Golden Eagle nesting history by documenting chronological information in San Diego County for extended time periods.
11. To determine the effects of major fires on the Golden Eagle population of San Diego County; both short and long term.

### Objectives of This Study

1. To document and codify the active and historic nesting territories of Golden Eagles within the SD MSCP through 2010.
2. To provide management recommendations for the remaining pairs of Golden Eagles in the SD MSCP.
3. To monitor the Golden Eagles in the SD MSCP in order to fulfill the monitoring obligation of the SD MSCP biological implementation.
4. To provide a bibliography of references that is particularly relevant to this study area.

## METHODS

WRI has an established team of Golden Eagle Biologists and trained volunteer observers who have been active in San Diego County since 1988. Using over 130 years of historic information, current research, and twenty two years of field work dedicated to San Diego County, WRI has documented the past and present population of Golden Eagles within the SD MSCP. Since 1996, WRI has used helicopters in addition to ground surveys to determine the productivity of the Golden Eagles in San Diego County. Our methods have been adopted by the US Fish and Wildlife Service and integrated into the 2009 Golden Eagle interim guidelines for surveys.

Budgets determine how many surveys can be conducted in any given year.

In many of the years following 1999, two complete helicopter surveys were performed. In some years however, aerial surveys were not feasible and ground observations were utilized to supplement a single helicopter survey. Additional ground surveys are then scheduled for July or August on territories for which reproduction was uncertain (i.e., after fires, after mate exchange). These surveys could result in the observation of adult Golden Eagles in flight with hatch-year young following them, which would confirm that the pair had been successful even if the active nest had not been located that season.

Historic information came from museum records of egg collectors dating back to 1867.

Historical data was collected from the Western Museum of Vertebrate Zoology in Los Angeles, university researchers and educators with an interest in eagles, egg collectors and their helpers, and WRI's ongoing Golden Eagle studies. Contributors on record from private collections include early egg collectors J. B. Dixon, A.M. Ingersoll, Harry L. Heaton, Raymond Quigley, E. E. SeChrist, Maurice Burns, N. K. and B. P. Carpenter, and Ed N. Harrison (all deceased).

Additionally, several of the teenagers that worked for egg collectors and did the climbing into the nests were interviewed about their personal accounts of the collections and nest sites. Most of the personal interviews were about eggs and nests collected in the 1920s to 1940s. John Oakley met and spoke with J. B. Dixon, a well-known egg collector, who collected eggs from 1895 to 1936, and also spoke with and befriended several of his young assistants. John Oakley, Professor Emeritus, Mira Costa College, started studying Golden Eagles in San Diego County in the 1940s and has been closely associated with WRI's Golden Eagle research efforts since 1988.

Field surveys were conducted from December through May of each year and additional observations were made in July and August. All ground observers used binoculars and 20x60 zoom scopes to make observations. WRI's protocol disallows making ground observations that require approaching a Golden Eagle nest any closer than half a mile during incubation or during the first 4 weeks after hatching. All eagle bandings occur when eaglets are more than 4 and less than 8 weeks of age.

Most nests in the MSCP were observed at least once, and sometimes twice, per year from a helicopter during the study. Hughes 500 helicopters were used for these surveys because their stability allowed a close approach (to within a couple of hundred feet) thereby making counts of young or eggs possible using stabilizing binoculars and cameras. GPS positions were taken while hovering near the nest so all GPS coordinates are approximations of the true nest location.

Of almost 600 Golden Eagle nests we have surveyed with a helicopter, we have noted only one adult that flushed off young as we approached; none have flushed off eggs. We have actually had adult eagles fly under the hovering helicopter and land on their nest while we took pictures of the young. Similar results with helicopters have been documented at over 500 nest visits by other Golden Eagle researchers like Carol McIntyre (in Alaska, pers. comm.) and Mike Kochert (in Idaho, pers. comm). In contrast, a person on foot will flush the same eagles at a distance of half a mile.

Using helicopters, now recommended by Pagel et al. in the 2010 US Fish and Wildlife Service guidelines, allows nest site areas to be checked efficiently and allows our biologists a unique vantage point from which new nests may be located that would most likely be missed from a ground position. Further, due to the unobstructed view down into the nest sites, we can document the age and number of the young to schedule subsequent banding. Twenty to 30 territories can be surveyed in a day from a helicopter while a comparable survey via ground observation would take a month or more.

Ground observers, however, spend more time in a territory observing, so we learn more about the feeding areas and habits of the individual pairs. This allows us to infer what types of activities could disrupt the incubation and/or disturb the adults. Usually, WRI observers will spend an hour or more in each territory on each visit. Commonly, our observers will visit a nest area once a week until they can confirm incubation (and later hatching and fledging).

Each year, WRI trains a few new observers to replace those who have become satiated, bored, or moved on to their next adventure. This is accomplished by taking each individual into the field with one or more of our experienced Eagle Biologists numerous times during their first year. Our experience is that 75 to 80% of people who claim to be able to identify eagles in the field, cannot. Therefore, we must train them extensively. We lose over 50% of the novice volunteers each year because they find out that observing an eagle at over half a mile away is generally boring. Additionally, some Golden Eagles don't nest every year so at the end of a season of observation, the volunteer may have witnessed the eagles soaring but the reward of banding baby eagles is gone, and so are they.

All WRI Golden Eagle volunteers sign a non-disclosure agreement that binds them not to reveal any of the information they obtain from our work. This is to protect the information and prevent disturbance of Golden Eagle nest sites. Without this non-disclosure, acquaintances of volunteers who may learn of nest site locations may accidentally cause nest site disturbance resulting in loss of eggs or young.



## RESULTS

This study, containing data collected for the period 2005 to 2010, documented 11 active Golden Eagle territories within the SD MSCP, or within the sphere of influence of the SD MSCP (Figures 1 through 17) as of the spring of 2010. Historically, this same landscape of the SD MSCP supported 32 pairs of Golden Eagles but 18 pairs have now been extirpated, 3 are inactive, and only 11 are still productive breeding pairs. This is a loss of 4 breeding pairs since the 2005 NCCP report (Figure 1 and 2). Most of the extirpations occurred in the last 40 years.

The most common causes of death in Golden Eagles, aside from loss of habitat, is electrocution and wire strikes at 67% (WRI data on 84 eagles) followed by the use of rodenticide for ground squirrel and gopher control. Recently there is circumstantial evidence, gathered by WRI biologists retrieving dead satellite-tagged eagles, of West Nile Virus causing deaths in a number of young eagles. Another young Golden Eagle that fledged from Iron Mountain was killed by electrocution in August of 2010, a few months after fledging.

The first significant changes that affected the San Diego Golden Eagle population were caused by intensive agricultural expansion of avocado and citrus groves. This agriculture replaced cattle grazing and grasslands, which was being used by the eagles as primary foraging habitat. The avocado groves often went right up the side of mountains to the Golden Eagles' nest sites. Some extirpations were documented to have occurred in San Diego County in the 1950s and 1960s, after the build-up of military personnel post-WWII, but most disappeared after the 1970s, when major freeways opened land for development that was formerly cattle ranches. Interstates and local freeways, such as I-5, I-15, I-8 and SR 78, provided easy access to previously isolated areas and allowed development to proceed in formerly small cities like Escondido and El Cajon..

Housing developments resulting from this increase in county population both degraded the Golden Eagle hunting areas and brought many people to within half a mile of the eagle nests. Most recently, the insertion of transmission towers and electrical poles into eagle territories to support the increase in human expansion has created deadly new perches to which eagles did not have time to adapt. Laws and directions from US Fish and Wildlife Service for raptor-safe poles, and upgraded refurbished poles, have been in effect since 1972. However, few electric companies complied until 10 years ago. In 2000, the US Fish and Wildlife Service successfully sued a Colorado power company at Moon Lake due to the electrocution of hundreds of Golden Eagles. As a result, many power companies, including San Diego Gas and Electric, are attempting to correct some of the most offensive poles.

Currently only 2 (18%) of the remaining pairs of Golden Eagles in the SD MSCP core nesting areas are located on private lands, while 9 (82%) nest on public land (Table 1). This is a significant, and valuable opportunity for the future management and survival of the remaining Golden Eagles within the SD MSCP. Of the 3 inactive pairs, 1 is on private land and 2 are on public lands (Table 2). Extirpated Golden Eagle territories were primarily located on private land (66.6%). Twelve of the 18 known extirpated nesting territories were on private lands at the time of extirpation (Table 3). Some of the extirpated territories have since been brought into public ownership but are too small or too overrun by people to ever again support Golden Eagle breeding.

The following map illustrates the Golden Eagle territories that are currently active and inactive as of 2010, as well as those that have been designated as extirpated within the last 6 years.

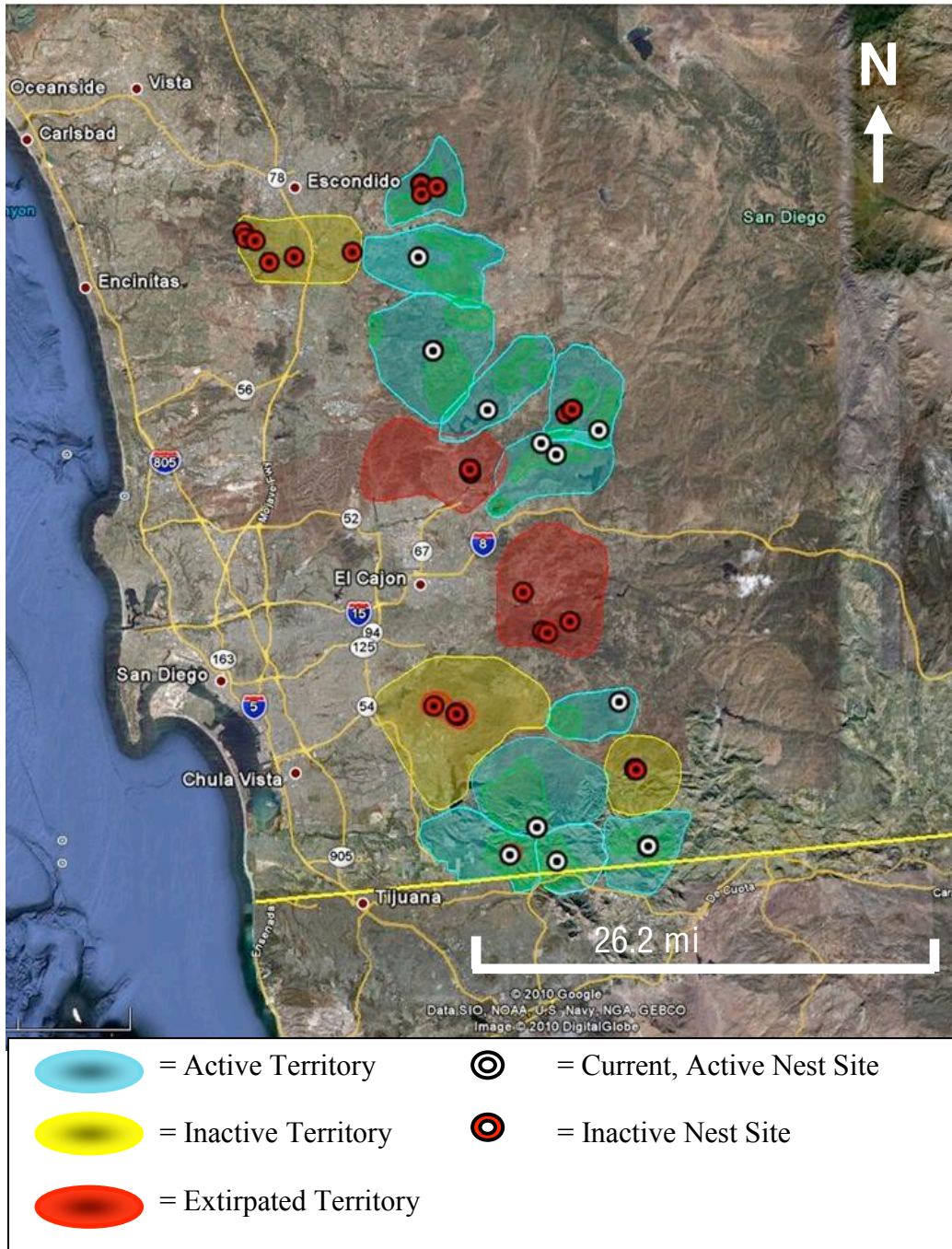


Figure 1: Active, Inactive and Extirpated GE Territories within the SD MSCP (2005-2010) .

Ownership	Number (Percent)	GE Territories
Private	2 (18.2)	Bandy Canyon, Rockwood Creek
BLM	3 (27.2)	Cedar Canyon, O'Neal Canyon, Copper Canyon
US Forest Service and SD County	1 (9.1)	El Cajon Mountain
US FS and CA Fish and Game	1 (9.1)	Lyon's Peak
SD City and US Forest Service	1 (9.1)	Rock Mountain
BLM and SD City	1 (9.1)	Tecate Peak
SD City	1 (9.1)	San Vicente Reservoir
City of Poway and SD County	1 (9.1)	Iron Mountain
Total	11 (100)	

Table 1: Land ownership of active Golden Eagle territories in SD MSCP (2005-2010).

Ownership	Number (Percent)	GE Territories
Private	1 (33.3)	Dulzura
SD City and County	1 (33.3)	Del Dios (Lake Hodges)
SD City and National Wildlife Refuge	1 (33.3)	San Miguel Mountain
Total	3 (100)	

Table 2: Land ownership of inactive Golden Eagle territories in SD MSCP (2005-2010).

Ownership	Number (Percent)	GE Territories
Extirpated Since 2005		
Private	1 (5.6)	Fosters
CDFG and TNC	1 (5.6)	Sloan Cyn
Extirpated Prior to 2005		
Private	11 (61)	Calavaras, Flynn Springs, Harmony Grove, Goat Peak, Harbison Canyon, La Jolla, Olivenhain, Starvation Mountain, Vista, Peñasquitos Canyon/Chickarita, San Marcos
BLM	1 (5.6)	Donahue Mountain
SD City	4 (22.2)	Loveland Reservoir, Mission Gorge/Sycamore Canyon, Otay Dam, San Dieguito River Gorge
Total	18 (100)	

Table 3: Land ownership of extirpated Golden Eagle territories in the SD MSCP (Before 2010).

The project Golden Eagle bibliography has been completed (Appendix A); although, we would welcome any additions from those who review it. This bibliography is not intended to be comprehensive but is intended to provide the reader and local resource managers with important references that relate to: (1) relevant natural history of the Golden Eagle; (2) the presence or distribution of this raptor within a geographic area relevant to the MSCP; and/or (3) surveying or monitoring techniques that could be applied to Golden Eagle conservation by land and wildlife managers within the MSCP.

## DISCUSSION AND PRECAUTIONS FOR FUTURE SURVEYS

Golden Eagles are very bold in their courtship. In early December thru January, they will exhibit aerial displays and can be heard calling to each other. However, these displays may take place several miles from the nesting area. Most good field biologists that spend time in Golden Eagle country will be able to observe eagles soaring or even hunting. Interpreting what is seen and translating that into nesting data, such as where the nest is, whether they are incubating, whether they have hatched young, or the fledging success of a pair, is much more complicated.

Around the nest site, adult Golden Eagles are very secretive and quiet until after the young are several weeks old. The young eagles will become vocal if they are hungry and, after 4 weeks the adult female will leave the young for extended periods of time to help the male hunt. When the young in the nest see the adults with prey in their talons, they will begin to vocally beg until the adult brings the food to the nest. This vocalization has, on some occasions, been the *only* mechanism available to locate nests hidden from view.

Normally, the adults will approach the nest with great caution so as not to reveal where the nest is. They will follow the terrain (where they literally disappear against the background) and then drop into the nest at the last second, easily unnoticed. The male will drop food and then immediately depart, appearing to not even have stopped if viewed from a long distance. The female performs all of the feeding of the young so the male spends very little time at the nest, and helps incubate for only short periods of time. During incubation the male will land on the nest and the incubating female will immediately depart. Therefore, the arrival of one eagle to the nest is quickly accompanied by the departure of another. This can cause a casual or inexperienced observer to believe they are seeing the same eagle still soaring along the mountainside. Golden Eagles are very observant and if there is a person or vehicle that they are not use to seeing in the area, they will avoid approaching the nest altogether. However, if the local rancher is out in the same truck that the eagles see every day, they may fly right by his truck to hunt. Males will notify an incubating female of approaching people either by vocalization or visual signals, and both will depart from the area leaving the young or eggs exposed. Frequently, climbers do not even know they are climbing near a Golden Eagle cliff nest, though the results are the same.

Another difficulty with monitoring Golden Eagles is that an adult pair may live in a territory for years, even if human-induced stress factors stifle all reproduction. Unless qualified biologists are monitoring their reproduction cycle annually, Golden Eagles in a given area could be heading for extirpation if untrained biologists are concluding reproductive success based solely on visual observations of the pair on territory. This species is sometimes difficult and time consuming to study and, like any species, requires specially trained people to effectively monitor and report their status accurately. It is, however, worth the effort required to provide specialized training because using the Golden Eagle as an umbrella species allows for the monitoring of other species to occur less often. The presence of successful nesting Golden Eagles almost always means that the local ecosystem is intact and functioning, thereby making the Golden Eagle a valuable indicator species.

Because nesting eagles are sometimes initially difficult to find and monitor, maintaining an annual survey assures continuity and accuracy. Surveys completed every 3 years, on the other hand, will require each survey team to start from square one each survey period. Significant change can occur in 3 years, which could irreversibly impact the very small and finite population of Golden Eagles in San Diego's MSCP. Additionally, Golden Eagles may not nest every year, which confounds monitoring and creates more opportunities to misinterpret observations.

Biologists are not born with the ability to study Golden Eagles. Like many large predators, Golden Eagles are unique to study because they find the most remote areas for nesting and they are surprisingly secretive around the nest area. Golden Eagle territories may be more than 30 square miles in good habitat and over 100 square miles in poor habitat. Unless it is a fortunate discovery, an observer is far more likely to be several miles from the nest area when they see an eagle. Many people who live close to eagle nests are often not even aware that they have Golden Eagles nesting nearby. Monitoring an *entire population* of Golden Eagles then becomes a compounded problem of time, skill, and luck since the annual window of observation time is limited to several months a year.

WRI, with 9 experienced Eagle Biologists and 25 to 50 volunteers, took 22 years to properly document the nesting Golden Eagles in San Diego County. After 3 years (1988 to 1990), the original survey team documented 38 pairs of Golden Eagles in San Diego County. Even this preliminary number of territories was built upon the data of earlier researchers. In the following 14 years (1991 to 2004), WRI biologists documented 12 more pairs of Golden Eagles. Since 2005, WRI has confirmed 5 additional breeding pairs resulting in a total of 55 Golden Eagle territories occupied during the 1988 to 2010 time period. However, while we have been successful at finding what might be the last really remote nesting pairs of Golden Eagles, several pairs have become extirpated and more extirpations are to be expected. Therefore, the current population continues to decline even though the total number of Golden Eagle territories discovered has increased. In 2010, WRI has estimated that there are 46 breeding pairs of Golden Eagles remaining in San Diego County. Historically, WRI has documented 104 breeding pairs of Golden Eagles in San Diego County; this is a decline of over 56% since the 1970s.

Territory occupation and nesting success can vary considerably from one year to the next. During 2003, the fourth year of a five-year drought (1999 to 2004) in San Diego, Golden Eagle reproduction in San Diego County dropped to less than 20% of the pairs breeding successfully; producing only 14 young. The data for 2003, if considered in a vacuum, would have indicated disaster for the local population. However in winter 2004 to 2005, after extensive rains, 51% of the San Diego County Golden Eagles attempted to breed and 41% of the pairs successfully produced 30 young. This type of cycle was seen again in 2010 when 21 pairs of Golden Eagles, out of the 46 total in the county, produced 35 young. This is the best reproduction in over 12 years but is still only a 46% success rate.

If data from a particular 3-year cycle were to be used in isolation or out of context of long-term monitoring, incorrect and potentially disastrous suppositions could be drawn about the status of the San Diego Golden Eagle population.

## RECOMMENDATIONS

1. Yearly monitoring of the remaining population.

Golden Eagles territories are difficult to document if there are changes in mates, nest locations, or if they take a year off from reproduction. Changes in climbing activity, hiking, illegal traffic, or other human disturbances cannot be documented accurately with a survey conducted every 3 years. Pairs of eagles could be extirpated from an area and no one would realize it until it was too late for corrective adaptive management. Three-year monitoring cycles will not allow sufficient reaction time for managers to institute corrective management practices in San Diego's MSCP.

2. Use the same, properly trained, biologists to monitor the population to keep the study consistent.

New biologists, learning all the territories and eagle behavior, will miss a great deal of the eagles' activity during their first couple of surveys. Information critical to the protection and survival of the species in the SD MSCP may be missed and not reported in time to protect the eagles. New biologists will, ultimately, be brought on board and will have to go through a "trainee" phase, learning directly from an experienced eagle biologist. An additional advantage to yearly surveys is that it not only allows the biologists to maintain their familiarity with the territories, but it also maintains the necessary continuity and enthusiasm of the scores of volunteers that make a cost-effective monitoring program possible.

3. Use helicopters to monitor the nesting pairs.

Although it is true that certain kinds of raptor observations can best be made by the biologist on the ground, helicopters, especially small ones like the Hughes 500, (when utilized by trained biologists who meet the USFWS Interim Guidelines qualification) are more efficient and can obtain more information in a few hours than ground observers can obtain in weeks. An approximate annual budget for GE monitoring follows:

6 hours of helicopter time @ \$1,000 / hr.	\$ 6,000
10 hours for two biologist @ \$75.00 / hr.	\$ 1,500
10 hours for GPS/GIS person @ \$70.00 /hr.	\$ 700
40 hours for reporting and ground-truthing @ \$75.00/ hr.	\$ 3,000
<u>30 hours of ground truthing @ \$75.00/ hr.</u>	<u>\$ 2,250</u>
Total per year	\$14,450

This is far more cost-effective than hiring a biologist and a 4x4 vehicle for 5 to 6 months to conduct ground monitoring of eagles (an estimated cost in excess of \$70,000).

The helicopter method can be limited to 1 or 2 visits a year per nest and has no negative effect on Golden Eagles when proper protocol is observed. In over 500 documented helicopter nest site visits by other researchers (C. McIntyre and M. Kochert, pers. com.) and 600 visits by WRI, *only one* Golden Eagle has been reported to have left the nest due to the presence of the helicopter, and no reproductive failures have been documented.

The new US Fish and Wildlife guidelines for Golden Eagle studies in 2009 require helicopter or ground surveys to document Golden Eagle occupancy and reproductive success within 10 miles of new Wind and Solar project boundaries. These guidelines should be applicable to all developments that may result in take of Golden Eagles. WRI helped to develop these guidelines, and recommend they be adopted as the MSCP protocol.

4. Interpret results in the context of historic information.

As discussed above, the variation in eagle nesting activity and reproductive success is dependent on many environmental factors. No 2 years are the same and no set of observational data should be interpreted without taking normal variation into consideration. The Golden Eagle population occupying the SD MSCP has been documented by WRI biologists for longer than any other Golden Eagle population in the Western Hemisphere. To not take advantage of this unique database would be an injustice to any resource management undertaken with this species.

5. Share results of Annual Report in a timely manner.

Without the proper distribution of annual reports and other observational data, adaptive management is not possible. In addition, WRI will continue to maintain our Golden Eagle database and selectively provide that information to individuals, agencies, and organizations based on how it will potentially impact the Golden Eagles. Proposed human activities and land-use changes that could potentially impact a Golden Eagle territory should be reviewed against relevant eagle monitoring results. Of particular concern are not only proposed developments but also actions by governmental agencies, such as the building or expansion of trails, access for hang gliders, rock climbers, and habitat changes that could impact the Golden Eagle prey base (especially ground squirrels and jackrabbits).

5. Provide protection zones (one-half mile radius) around nesting areas from January to June.

Each legal entity that has the land jurisdiction or ownership over the nest site area should develop a management plan to prevent disturbance around the nesting area during the Golden Eagle critical life stage times throughout the year.

Life Stage	Critical Time	Possible Result of Disturbance
Nest building	December-January	Abandonment
Egg Laying	Late January-February	Dead embryo
Hatching of young	February-March	Chilled and dead young
1-4 weeks of age	March-April	Chilled and dead young
4-8 weeks of age	April-May	Young may not be fed
8 weeks to fledging	May-June	Young may fledge prematurely



Table 4: Golden Eagle life stages and possible results of disturbance.

Since the SD MSCP has only 11 active nesting territories of Golden Eagles remaining, a proactive plan to protect the existing population will be needed to ensure its future. Six of the remaining 11 pairs are already in immediate danger of extirpation. These 6 are as follows:

1. Del Dios-----may be extirpated
2. Dulzura-----may be extirpated
3. Foster's -----probably extirpated
4. Iron Mountain-----still breeding
5. San Miguel Mountain ---inactive
6. Sloan Canyon-----probably extirpated

Some of these 6 may already be extirpated but it is too early to declare. Annual monitoring will be needed to determine if these eagles have survived or not.

7. Determine all the critical foraging territories for each pair and manage the land to assure the future availability of hunting areas.

Each territory is unique, but Golden Eagles need open country to hunt. Burning has always been a critical component of maintaining open foraging habitat in chaparral country, such as that in San Diego. It is possible that, with controlled burns or grazing, Golden Eagles could maintain their population in the San Diego MSCP.

Housing expansion and conversion of open grasslands to eucalyptus-bordered and fenced yards continues to decrease natural, open habitat that is critical to successful hunting by Golden Eagles. Without the hunting component and the protection of nest sites, the SD MSCP is likely to lose a large proportion of its remaining Golden Eagles within the next 10 to 15 years. Once the population is reduced below a critical mass, the stability and longevity of this population will likely be impacted by limited gene diversity/flow and the availability of replacement mates.

8. Consider experimental hacking of young Golden Eagles.

As indicated above, it is uncommon for Golden Eagles to re-occupy deserted territories, of which there are many within the SD MSCP. It seems unlikely that any territorial re-occupation would occur naturally within the MSCP without professional intervention, such as hacking young birds back into the wild at selective and previously occupied nest sites. There are a few sites (either previously-occupied or new sites) that would lend themselves to this technique. We recommend this process, which has been perfected through hundreds of years of falconry and, most recently, through the Peregrine Fund's successful efforts to re-introduce the Peregrine Falcon throughout the United States. This is a long-term (5-10 years at each site) management technique that would have to be conducted at well-conceived site(s) and under the careful direction of Golden Eagle experts.



9. Fires can be beneficial for Golden Eagles in the long term but may be devastating in the short term.

The 2003 and the 2007 fires in San Diego have taught us some interesting things about Golden Eagles and fire ecology. The 2007 fire destroyed 14 Golden Eagle territories and killed many of the adult Golden Eagles, apparently while they slept. The fire traveled at 50 to 70 miles per hour, and mostly during the night. During the following 2008 Golden Eagle breeding season, only one of the 14 pairs successfully bred and raised young. Some attempted to build new nests and others failed to occupy their territory. In 2010, 3 years post fire, 2 pairs have still failed to reproduce and many pairs have replaced mates; entirely new pairs have even taken over some territories. The fires that burned Otay Mountain in 2003 have created an open environment that is an ideal habitat for Golden Eagle foraging. For the past several years, all 4 pairs of Golden Eagles in that area have successfully fledged 2 eaglets each year. Monitoring the fire ecology is critical because the return to pre-fire vegetation may adversely affect Golden Eagle reproduction in the long term. This growth of chaparral may require future management decisions.

## DATA

### Active Golden Eagle Territories Within and Around the San Diego MSCP (2004-2010)

The following section, which is from WRI's *Golden Eagle Nesting Database*, provides 3 types of information for all currently known active territories within the San Diego MSCP:

- (1) A map reflecting key components of the Golden Eagle territory
- (2) Documentation of historic records from numerous sources
- (3) Current photographs of the nest sites.

Photos of nest sites were all taken by staff members of WRI. With the exception of photos taken during banding expeditions, most are from the survey helicopter using 200-400 mm stabilized zoom lenses and digital cameras. Some additional photos were taken from blinds using 400-800 mm zoom lenses.

The general location of each nest, for the respective Golden Eagle pairs, is provided. If the primary foraging area(s) are known, they are approximated. Two other terms are used to define the areas important to the eagle pair: an "active territory" is represented by a polygon, outlined in black and defined as, "where a pair of Golden Eagles nest and forage each year." Typically (and with enough observations) territories are reasonably well-defined by the eagles and are defended against all other adult eagles. Some of the territories are centered on a single significant nesting area known as a "core nesting area." This could be a cliff or a steep slope with trees suitable for nest structures or a combination of both. Cliffs tend to be a stable substrate and, therefore, are often used continuously by successive pairs, for hundreds of years. Several of the territories within the SD MSCP have been documented for over 100 years.

The early records are taken from egg collectors who contributed their collections and field notes to museums. These records indicate eggs collected, along with the date and location of collection. Any additional and relevant information from field notes such as nest substrate, relevance to other nests, etc., have also been reproduced from this database. More recent records, generally from 1988 to the present, was documented by WRI and include additional information, such as actual number of young produced.

## Bandy Canyon (Ramona Grasslands)

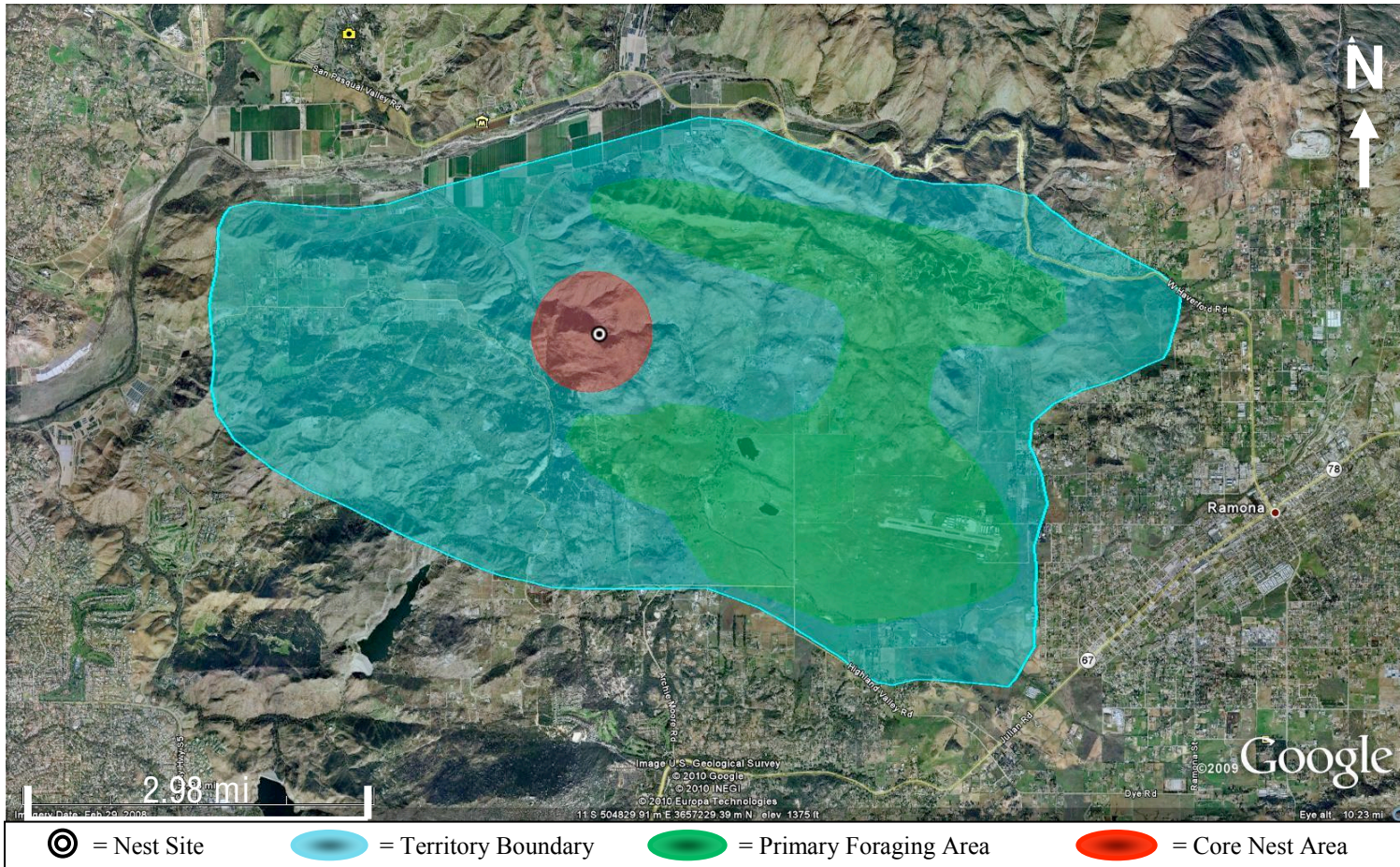


Figure 2: Bandy Canyon (Ramona Grasslands) Territory.

Bandy Canyon (Ramona Grasslands) Golden Eagle active territory. Approximate core nest site area, primary foraging area, and territory boundary are provided. Prior to 2007, there were 4 Golden Eagle nests on the cliff; the fire in 2007 burned all historic nests. Since 2007, 3 nests have been rebuilt, one of which is on a new ledge. This is an attractive site which lures people near the nesting area. Concern exists that lack of protection by the county, and new trails, will give the public access not previously available resulting in reduction of nesting success and possible abandonment.

### Bandy Canyon (Ramona Grasslands)

Date/Earliest Record	Name on Record	Egg Collection (Number of Eggs or Young)*	Nest Location
1905 Feb 15	O.W. Howard	Yes (2)	500 feet up on ledge, 25 feet from top
1913 Feb 25	J.B. Dixon	Yes (2)	Large cliff (old nest), very small
1913 Apr 26	C.S.S.	Yes (2)	On cliff 25 feet from bottom and 250 feet from the top (old nest)
1916 Apr 14	N.K. Carpenter	Yes (2)	On shelf in broken face of granite cliff, 20 feet up and 40 feet down; small cliff near falls
1921 Feb 27	N.K. & B.P. Carpenter	Yes (2)	On shelf of granite cliff, 35 feet from top and 100 feet up
1922 Feb 19	N.K. & B.P. Carpenter	Yes (2)	Limb of live oak tree; 10 feet out from trunk, 30 feet from ground; tree just below falls into deep rocky gorge
1923 Mar 18	Fred Gallup	Yes (2)	200 feet up on cliff on small shelf
1924 Feb 29	J.B. Dixon	Yes (2)	Large cliff
1924 Mar 14	J.B. Dixon	Yes (2)	Large cliff
1926 Feb 21	Fred N. Gallup	Yes (2)	Pocket under boulder near top of cliff
1928 Mar 4	Paul H. & Clyde L. Field	Yes (3)	Rock cliff
1928 Apr 14	Clyde L. Field	Yes (2)	300-foot cliff and 75 feet from top
1932 Feb 23	N.K. Carpenter	Yes (2)	In sheltered, overhung shelf near top of granite cliff facing NE; nest 20 feet below top and about 100 feet up.
1934 Feb 13	Ed N. Harrison	Yes (2)	On cliff 500 feet high
1936 Feb 21	Ed N. Harrison	Yes (2)	100-foot cliff on ledge resting on the stump of a dead Eucalyptus tree
1939 Feb 9	Ed N. Harrison	Yes (2)	Cliff 350 feet high; nest 70 feet up from base
1940 Feb 28	Carpenter & Frank St. Sure	Yes (3)	Very rough canyon recess of granite cliff
1941 Feb 28	N.K. Carpenter & Burt Carpenter	Yes (3)	Sheltered, overhung shelf near top of cliff facing NE (same nest as 1932 & 1940)
1946 Feb 28	N.K. Carpenter & Jessa Carpenter	Yes (2)	Steep, rocky canyon (same nest as 1932, 1940, and 1941)
1947 Feb 16	N.K. Carpenter & Jessa Carpenter	Yes (2)	25 feet up on 100-foot cliff facing E
1988	Dixon/Bittner/Oakley	No (2)	Cliff (alternate tree nest below)
Date/Earliest	Name on Record	Egg Collection (Number	Nest Location

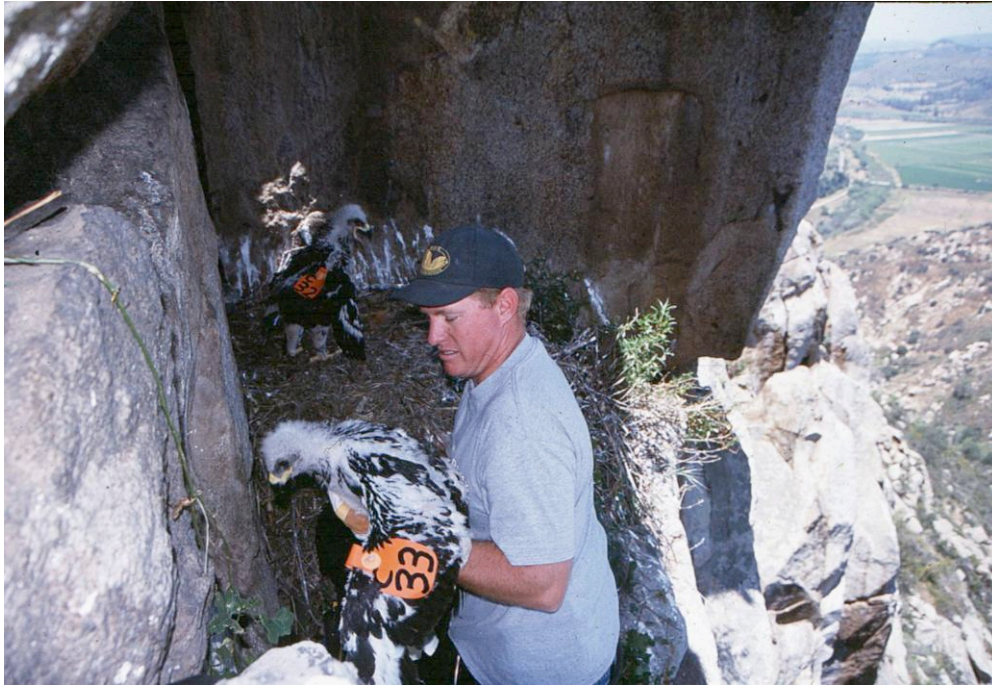
Record		of Eggs or Young)*	
1990	Bittner/Oakley	No (0)	Two nests on cliff; one in a slot facing NW but on E end of cliff; the other about 30 feet from top of cliff approx in center
1991	Bittner/Oakley	No (2)	Trespassing rock climbers have impact on nesting
1992	Bittner/Oakley	No (0)	Disturbance
1993	Bittner/Oakley	No (0)	
1994	Bittner/Oakley	No (0)	
1995	Bittner/Oakley	No (0)	
1996	Bittner/Oakley	No (0)	
1997	Bittner/Oakley	No (1)	Nest is in the east nest in slot canyon
1998	Bittner/Oakley	No (1) Banded, patagial tags, no transmitter	Center cliff nest approx. 30 feet from top
1999	Bittner/Oakley	No (0)	
2000	Bittner/Oakley	No (2) Banded, patagial tags, no transmitters	Center cliff nest
2001	Bittner/Oakley	No (1) Banded, patagial tags, no transmitter	Center cliff nest
2002	Bittner/Oakley	No (1)	East cliff nest
2003	Bittner/Oakley	No (2) Banded, patagial tags, no transmitters	Center nest, 30 feet from top
2004	Bittner/Oakley	No (1) Not banded	Center nest, second down, 50 feet from top. Third nest is approx. 70 feet down from the top and in vertical line below the other two
2005	Bittner	No (2) Banded, patagial tags, VHF transmitters	Same as 2004 nest Property is now owned by Paul Thoryk and he is in a law suit with the county over development rights and violations of Conservation Easements
2006	Bittner/J Laws	No (1) Banded, patagial tags, no transmitter	Cliff nest

Date/Earliest Record	Name on Record	Egg Collection (Number of Eggs or Young)*	Nest Location
2007	Bittner/ J Laws	No (2) Banded, patagial tags, VHF transmitters	
2008	Bittner	No (0)	Nests burned
2009 Feb	Bittner	No (0)	Nest rebuilt on ledge below top nest
2010	Bittner/Hannan/ J Laws	No (1) Banded, patagial tags, VHF and satellite transmitters	Property was reclaimed by the former owner Duanne Perrin in 2010 and WRI is attempting to place 152 acres of the property in Conservation status to protect the nesting cliffs
* If eggs were collected, the number of eggs collected are indicated. If eggs were not collected, the number of young observed in the nest are indicated.			

Table 5: Bandy Canyon (Ramona Grasslands) territory historic records.



Bandy Canyon (Ramona Grasslands)



Golden Eagles being banded and tagged in 2006 in the nest used since 1895.



Wide-angle view of the falls located below the Bandy Canyon nest referenced above.

## Bandy Canyon (Ramona Grasslands)



An incubating Golden Eagle on Bandy Canyon nest in 2006. This is the most eastern of all the nests located on the cliff. It burned in 2007 and has not been rebuilt or used in 2009 or 2010.



A male Golden Eagle from the Bandy Canyon territory hunting from telephone poles north of the Ramona Airport; 2009. Note the raptor guard placed by SDG & E over the center conductor.



Bandy Canyon (Ramona Grasslands)



An adult Golden Eagle with nestling and food items observed in April, 2010. This is a new nest and a new female since the 2007 fires.



A Golden Eagle nestling with patagial tags visible on Bandy Canyon nest in May, 2010.



# Cedar Canyon

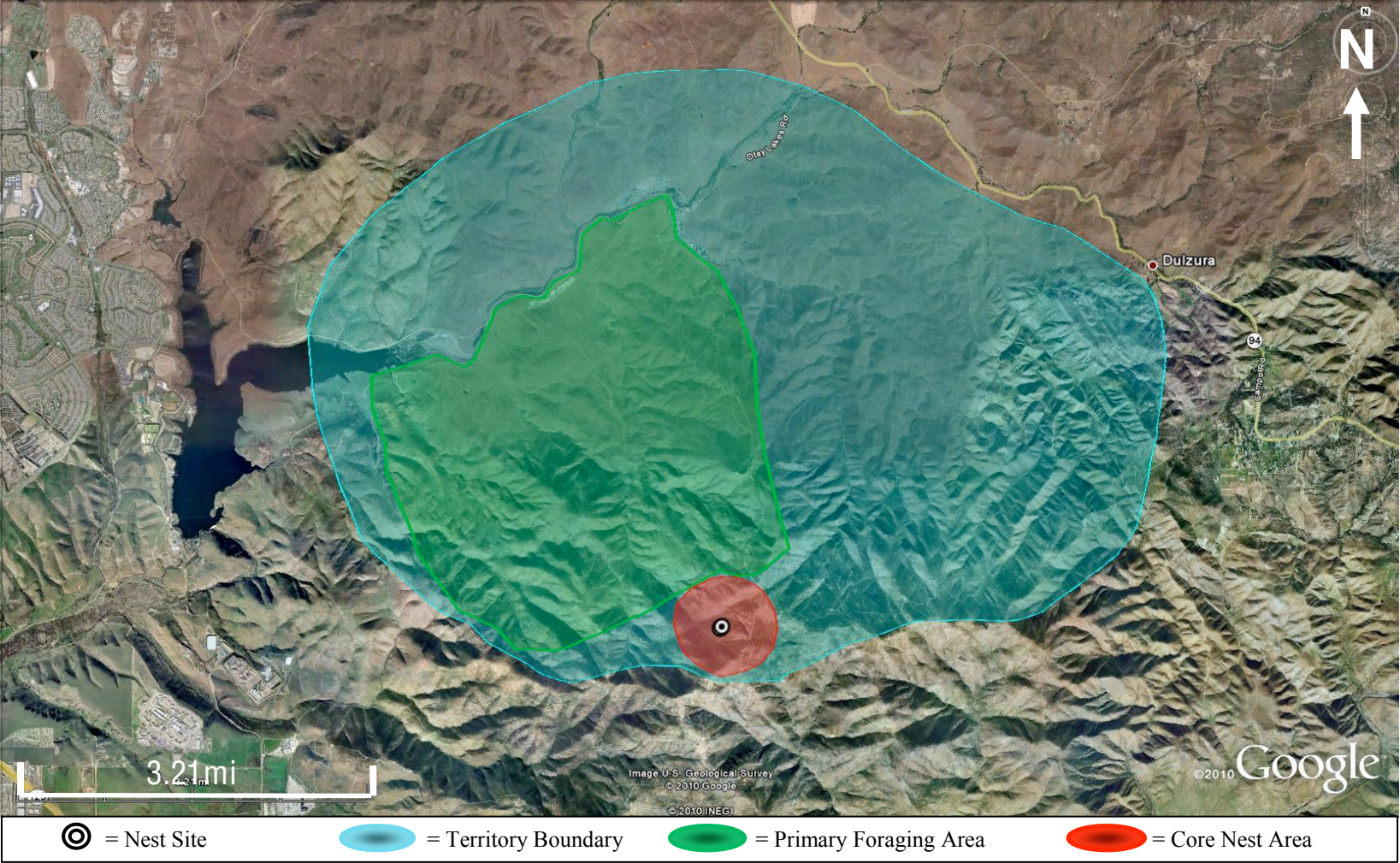


Figure 3: Cedar Canyon Territory.

Cedar Canyon Golden Eagle active territory. Approximate core nest site area, primary foraging area, and territory boundary are provided.

## Cedar Canyon

Dates/ Earliest Record	Name on Record	Egg Collection (Number of Eggs or Young)*	Nest Location
2003	Hannan/Bittner	No (1)	On north facing cliffs just NW of the antenna fields and about ¼ mile from the road
2004	Hannan/Bittner	No (1)	Same nest as 2003
2005	Hannan/Bittner	No (1) Banded, patagial tags, no transmitter	Same nest as 2003
2006 Mar 31	Hannan	No (1) Banded, patagial tags, no transmitter	Same nest as 2003
2007	Hannan	No (2) Banded, patagial tags, no transmitters	Same nest as 2003
2008	Bittner	No (1) Banded, patagial tags, with VHF transmitter	New nest, 100 feet east of old nest at 3000 feet elevation
2009 May 9	Bittner	No (2) Banded, patagial tags, with VHF transmitters	Same nest as 2008
2010	Bittner/Hannan	No (2) 1 banded, patagial tags, with VHF transmitter	Same nest as 2003 One young missing from nest before banding could occur

\* If eggs were collected, the number of eggs collected are indicated. If eggs were not collected, the number of young observed in the nest are indicated.

Table 6: Cedar Canyon territory historic records.



## Cedar Canyon



An adult Golden Eagle on Cedar Canyon nest #1 observed in February, 2009.



Two Golden Eagle nestlings observed in nest #2 in April, 2010.



## Copper Canyon (Butteweg Canyon, Otay Mountain)

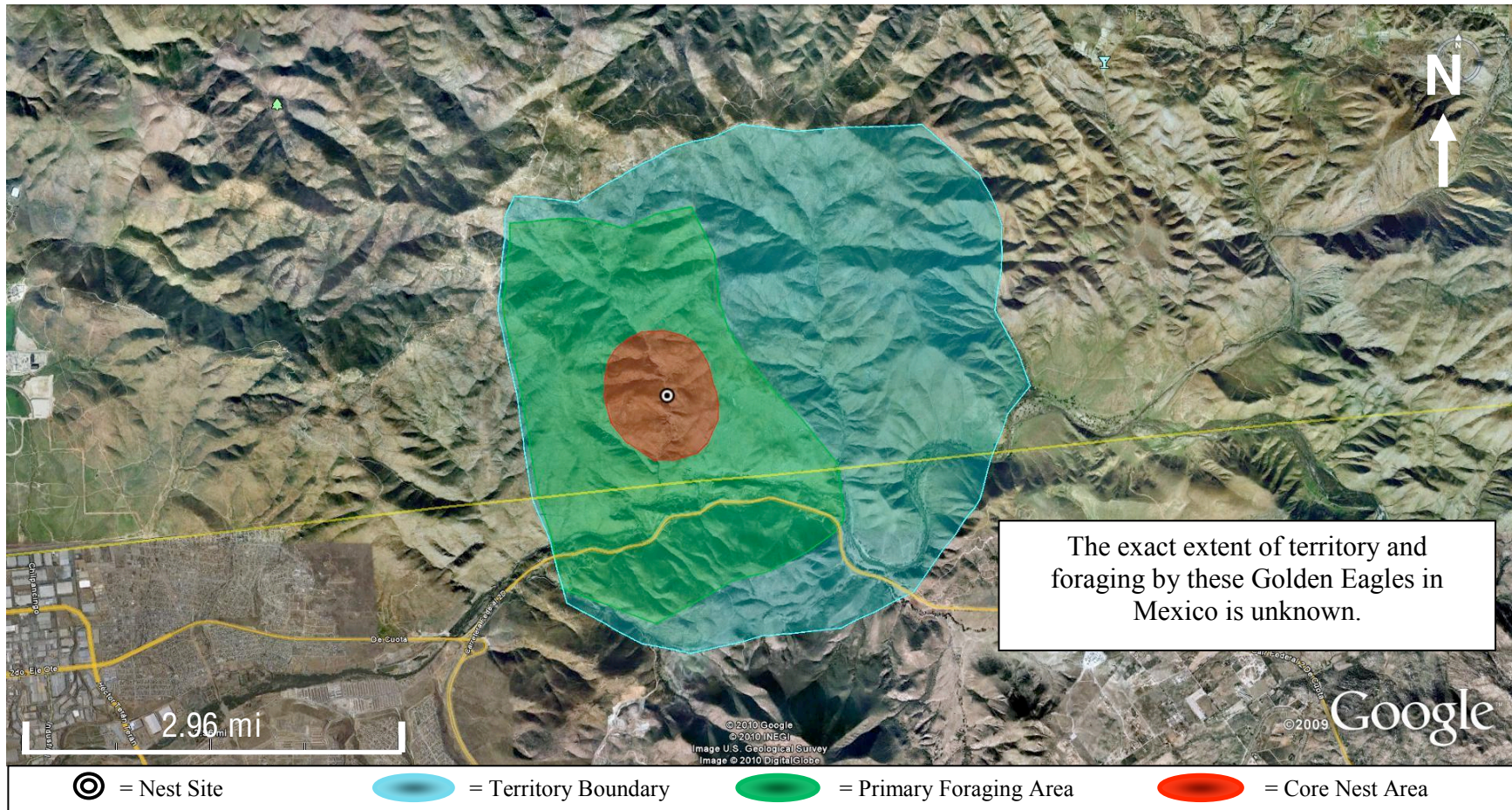


Figure 4: Copper Canyon (Butteweg Canyon, Otay Mountain) Territory.

Copper Canyon (Butteweg Canyon, Otay Mountain) Golden Eagle active territory. Approximate core nest site area, primary foraging area, and territory boundary are provided. Currently, 4 nests are on the cliffs in Copper Canyon. Butteweg Canyon, to the east of the indicated core nesting area, had 3 nests prior to the 2003 fires, when all were burned.

Copper Canyon (Butteweg Canyon, Otay Mountain)

Dates/ Earliest Record	Name on Record	Egg Collection (Number of Eggs or Young)*	Nest Location
1925 Apr 3	E.E. SeChrist	Yes (2)	Nest on cliff 10 feet down at head of canyon
1926 Feb 26	E.E. SeChrist	Yes (2)	Nest on shelf of cliff 40 feet up; bird on nest
1928 Mar 12	E.E. SeChrist	Yes (1)	Shelf of cliff 40 feet up
1938 Feb 13	E.E. SeChrist	Yes (2)	Nest in N exposed cliff about 40 feet above ground
2000	Hannan/ Bittner/Oakley	No Data	Pair observed in courtship; flew into Mexico
2002	Oakley/Bittner	No Data	Active, seen flying into Mexico to hunt
2003	Hannan/Bittner	No (2)	Two nests, low in bottom of Copper Canyon. Original 7 nests higher in Butteweg Canyon but burned in 2002
2004	Hannan/Bittner	No (1) Banded, no transmitter	Used second nest to left of above, both on west facing slope
2005	Bittner/Hannan	No (1) Banded, no transmitter	Nest same as 2003 but both remaining nests close to each other on same cliffs; no patagial tags placed on nestling.
2006 Apr 6	Hannan/Wells	No (1 and 1 egg) Not banded	Helicopter survey only
2007 Mar 11	Hannan	No (0)	Helicopter survey plus ground truthing
2008	Bittner	No (0)	4 nests; female incubated on lowest nest
2009 Feb 10	Bittner	No (2) Banded, patagial tags, VHF transmitters	Border Patrol working on fence South of site. This fence and associated road has been placed to stop illegal foot traffic but also makes accessing the nest site easier which greatly disturbs the nesting activity.
2010	Bittner/Hannan	No (2) Banded, patagial tags, VHF transmitters	Nests in Copper on same cliffs used since 2003

\* If eggs were collected, the number of eggs collected are indicated. If eggs were not collected, the number of young observed in the nest are indicated.

Table 7: Copper Canyon (Butteweg Canyon, Otay Mountain) territory historic records.



Copper Canyon (Butteweg Canyon, Otay Mountain)



An adult Golden Eagle with food material observed brooding young on nest March, 2008.



An adult Golden Eagle observed on Copper Canyon nest in February, 2009.



Copper Canyon (Butteveg Canyon, Otay Mountain)



WRI biologists fitting patagial tags on the 2 Golden Eagle nestlings from Copper Canyon, 2009.



Golden Eagle nestlings observed in nest during aerial surveys in April, 2010.



## El Cajon

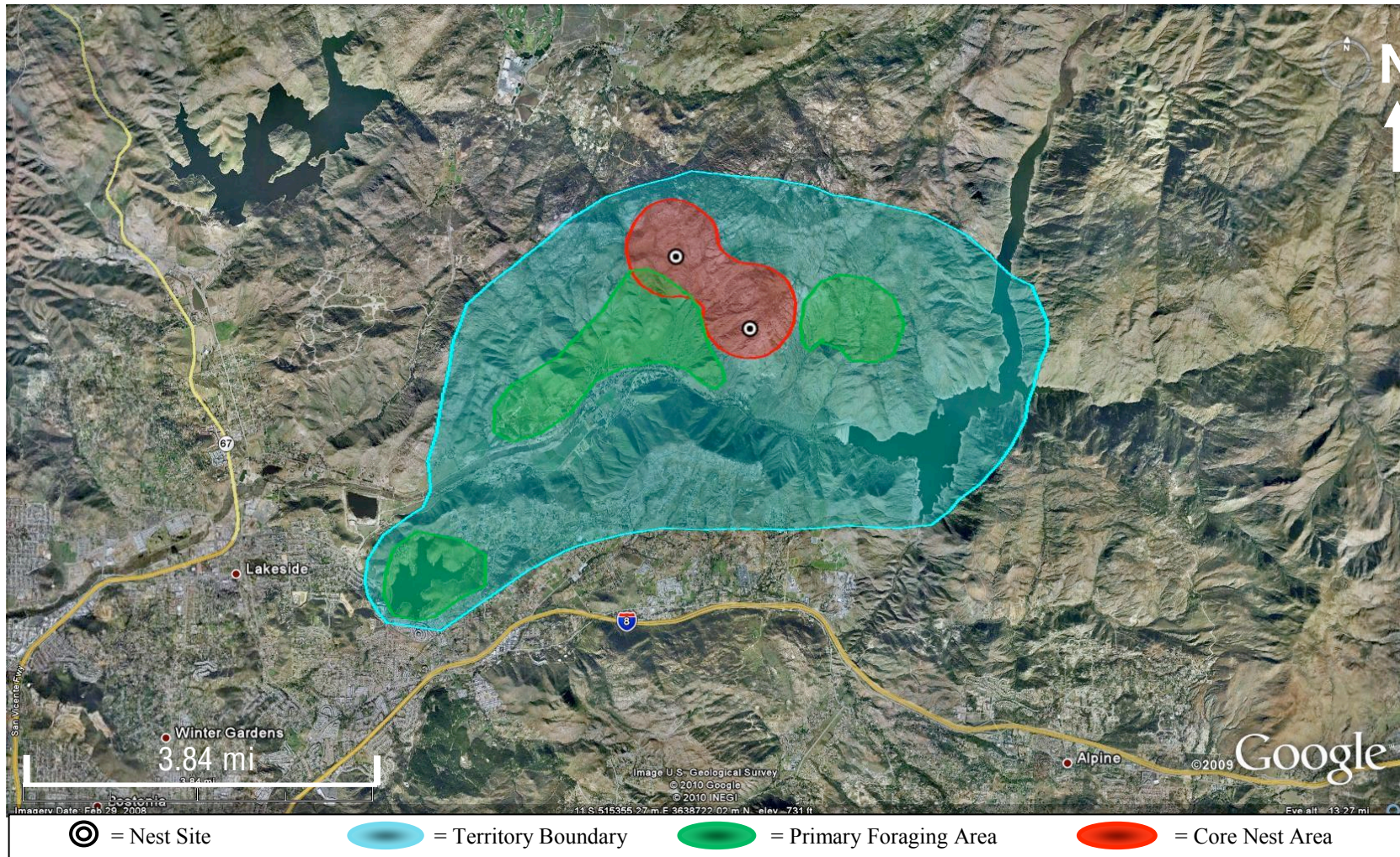


Figure 5: El Cajon Territory.

El Cajon Golden Eagle active territory. Approximate core nest site area, primary foraging area, and territory boundary are provided.

## El Cajon Mountain

Dates/ Earliest Record	Name on Record	Egg Collection (Number of Eggs or Young)*	Nest Location
1918 Mar 3	L.M. Huey	Yes (2)	On small cliff in rocky gorge
1930s	Colton	No Data	At least three nest sites are known on the face
1931 Feb 13	C.H. & P.H. Field	Yes (2)	Rock cliff
1990	Bittner	No Data	Three old nests on eastern most cliffs facing south. Climbers have been using these cliffs since
1996	Bittner/Oakley	No (2)	Nest was found on far W side of the face with the nest facing E and hidden from the road view
1999	Bittner/Oakley	No (2) Not banded	N side of point on southernmost cliff face
2000	Bittner/Oakley	No (0)	Three nests that were located on eastern most face are deteriorating and active climbing is on this face.
2001	Bittner/Oakley	No (0)	
2002	Bittner/Seals	No (1) Banded, patagial tags	Banded and patagial tag; nest was N facing on a turn of the cliff high on mountain; on the westernmost cliffs of El Cajon Mountain
2003	Bittner/Seals	No (1) Not banded	Nested on pinnacle, nest on southernmost point on back side of point, not tagged due to 8weeks of age and may have flown out of nest. Aerial and ground surveys.
2004	Bittner/Seals	No (2) Banded, patagial tags, no transmitters	Nest is on W cliffs out on front, old nest
2005	Bittner/Seals	No (0)	No nesting but two eagles on territory. Ten climbers on east face of El Cajon Mountain
2006 Apr 20	JD Bittner	No (0)	No GEs seen on territory
2007 Apr 1	Bittner/Wells/ Hannan	No (1) Banded, patagial tags, VHF transmitter	2 nests at same elevation (1030 feet). Climbing bolts observed in place on the rocks above the nest.
2008	Bittner	No (0)	Both adults on the nest on Apr 9, 2008. Female was incubating.

2009 Feb	Bittner/Wells/ Meador	No (1 plus eggs) Not banded	In western most nest, adult on eggs. Failed (2009 Apr 28) re-nested and produced 1 young on eastern pinnacle nest.
Dates/ Earliest Record	Name on Record	Egg Collection (Number of Eggs or Young)*	Nest Location
2010	J. Wells	No (1) Not banded	Juvenile observed on territory with adult GEs in August. No incubating eagles at either known nest during two helicopter surveys; must be a new nest or a hatch-year young from another territory. Climbing and hiking are disturbing nesting.
*If eggs were collected, the number of eggs collected are indicated. If eggs were not collected, the number of young observed in the nest are indicated.			

Table 8: El Cajon Mountain territory historic records.



## El Cajon Mountain



An active Golden Eagle nest in good condition; new material recently added in the center of the nest, March, 2009.



The same Golden Eagle nest as the one above, photographed in June, 2010.



## Iron Mountain

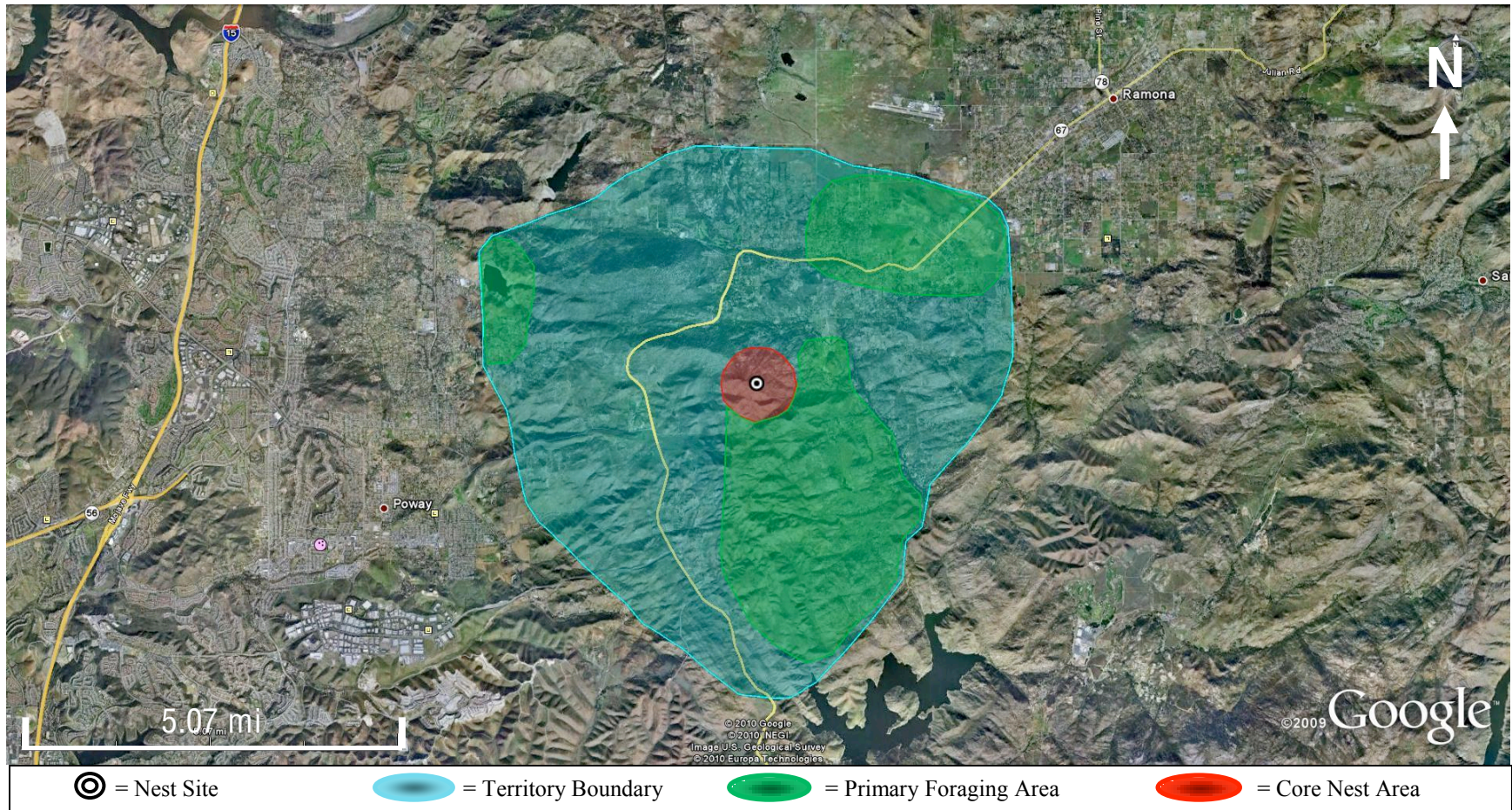


Figure 6: Iron Mountain Territory.

Iron Mountain Golden Eagle active territory. Approximate core nest site area, primary foraging area, and territory boundary are provided. The primary foraging area for this pair has shifted from the NE location to the expanded area immediately south of the core nesting area. This habitat was opened up in 2003 by the Cedar Fire which was the biggest fire in California history. This fire increased foraging areas by burning chaparral.

## Iron Mountain

Dates/ Earliest Record	Name on Record	Egg Collection (Number of Eggs or Young)*	Nest Location
1906 Apr 1	Clarence S. Sharp	Yes (2)	In ravine above grade, 42 feet; very large nest (old nest)
1917 Mar 11	N.K. & B.P. Carpenter	Yes (2)	On shelf of granite cliff 30 feet from bottom and 90 feet from top facing South
1918 Mar 3	N.K. & B.P. Carpenter	Yes (1)	On well protected shelf of cliff 30 feet up and 90 feet from top facing East
1920s	Dixon/Oakley	Yes (No Data)	Personal communication between J Oakley and Dixon
1922 Feb 26	Fred N. Gallup	Yes (2)	50' up in oak tree on side of canyon
1922 March 26	Fred N. Gallup	Yes (2)	In oak tree on side of canyon 50 feet up
1929 Feb 28	J.B. Dixon & C.F.S.	Yes (2)	In crack of very large boulder on North side of Mt Woodson (very old nest)
1930 Feb 1	Harry L. Heaton	Yes (2)	On narrow shelf ledge on face of granite cliff 200 feet high; nest about halfway up
1931 Feb 16	Harry L. Heaton	Yes (1)	On ledge about halfway up face of 200 feet cliff
1931 Mar 1	N.K. Carpenter & B.P.C.	Yes (2)	In shelf formed by crack in immense granite boulder halfway up on North slope of Mt. Woodson (N side entrance)
1931 Mar 17	E.E. SeChrist	No (0 eggs)	On narrow shelf of 100-foot cliff, 40 feet from base
1937 Mar 9	N.K. & B.P. Carpenter	Yes (1)	Shelf on granite cliff 30 feet up
1948 Mar 4	E.E. SeChrist	Yes (2)	Up on 70-foot cliff sitting on small ledge with Eastern exposure
1974	J. Oakley	No Data	Indicated the first time this pair nested on Sole Peak
1985	Bittner	No (2)	Nest in cliff of Sole Peak on Iron Mountain in a north-facing slot; 2 nests on separate ledges about 25 feet (nest 1) and 40 feet (nest 2) from bottom of cliff
1988	Bittner	No (2)	Young and adults foraging off Highland Valley Rd on Cummings Ranch and on Cagney Ranch next to WRI Hdq.
1991	Bittner/Oakley	No (2)	Same as 1985
1992	Bittner/Oakley	No Data	Same as 1985
1993	Bittner/Oakley	No (1)	Same as 1985

Dates/ Earliest Record	Name on Record	Egg Collection (Number of Eggs or Young)*	Nest Location
1994	Bittner/Oakley	No (0)	Same as 1985
1995	Bittner/Oakley	No (0)	Same as 1985
1996	Bittner/Oakley	No (2)	Fed and trained young almost exclusively on Cummings Ranch, Highland Valley Rd. Roosted nightly back up on Sole Peak, approximately 5 miles away. Nest same as 1985
1997	Bittner/Oakley	No (0)	Adult seen on territory
1999	Bittner/Oakley	No (0)	Adult male killed by power line strike on Dye Road
2000	Bittner/Oakley	No (0)	
2001	Bittner/Oakley	No (0)	Pair seen copulating on Cummings Ranch 200 yards East of Highland Valley Court
2002	Bittner/Oakley	No (0)	Adult seen hunting on Cummings Ranch
2003	Bittner/Oakley	No (0)	Adult seen hunting on Cummings Ranch
2004	Bittner/Oakley	No (0)	Both nests burned out in Cedar fire 2003
2005	Bittner	No (0)	No new nests built
2006	Bittner	No (0)	No new nests built
2007	Bittner	No (0)	Adults seen on territory and one new nest built above old 1985 site
2008	Bittner	No (0)	Second nest built on Sole peak left of old 1985 nest site
2009 May 14	Bittner/Meador	No (2) Banded, patagial tags, with VHF transmitters	Adults on territory; young in first nest built in 2007
2010	Bittner/Meador	No (1) Banded, patagial tags, with VHF transmitter	Adults on territory. Nest rebuilt in cavity where the nest was from 1974-2003
* If eggs were collected, the number of eggs collected are indicated. If eggs were not collected, the number of young observed in the nest are indicated.			

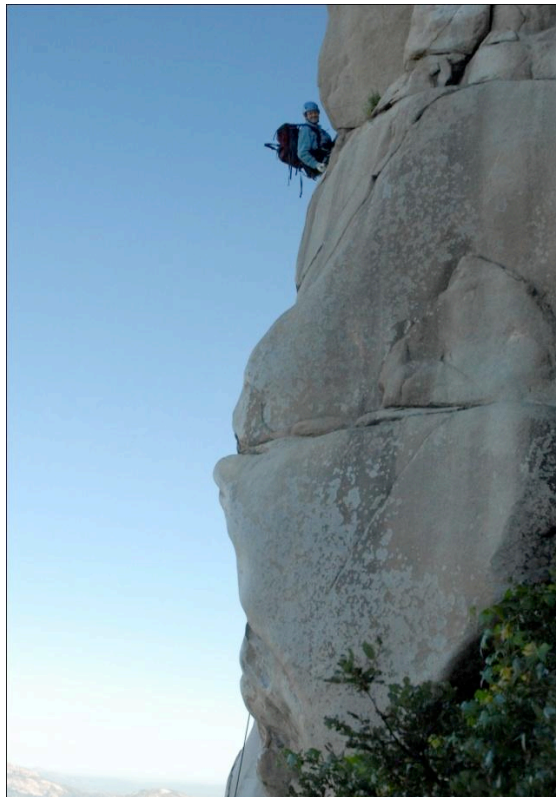
Table 9: Iron Mountain territory historic records.



## Iron Mountain



The Iron Mountain nest site used from 1974 to 2003; this nest site burned completely in the 2003 Cedar Fire and was rebuilt in 2010.



Chris Meador, WRI Eagle Biologist, descending to the Iron Mountain nest site in 2009.



## Iron Mountain



View of Iron Mountain cliff side (Sole Peak); nest was observed with scopes during WRI ground surveys January through February, 2010. Two adults were observed building the nest and, later, the incubating female was observed on the nest.



Golden Eagle nest discussed above observed with a 5 week-old Golden Eagle nestling April, 2010. The eagles are nesting again in 2010 on this ledge, which was used from 1974 to 2003 before the 2003 Cedar Fire burned both nests.

## Iron Mountain



WRI biologists collecting gender data by measuring foot pad length on Golden Eagle nestling at Iron Mountain during banding trip on May 1, 2010.



## Lyon's Peak

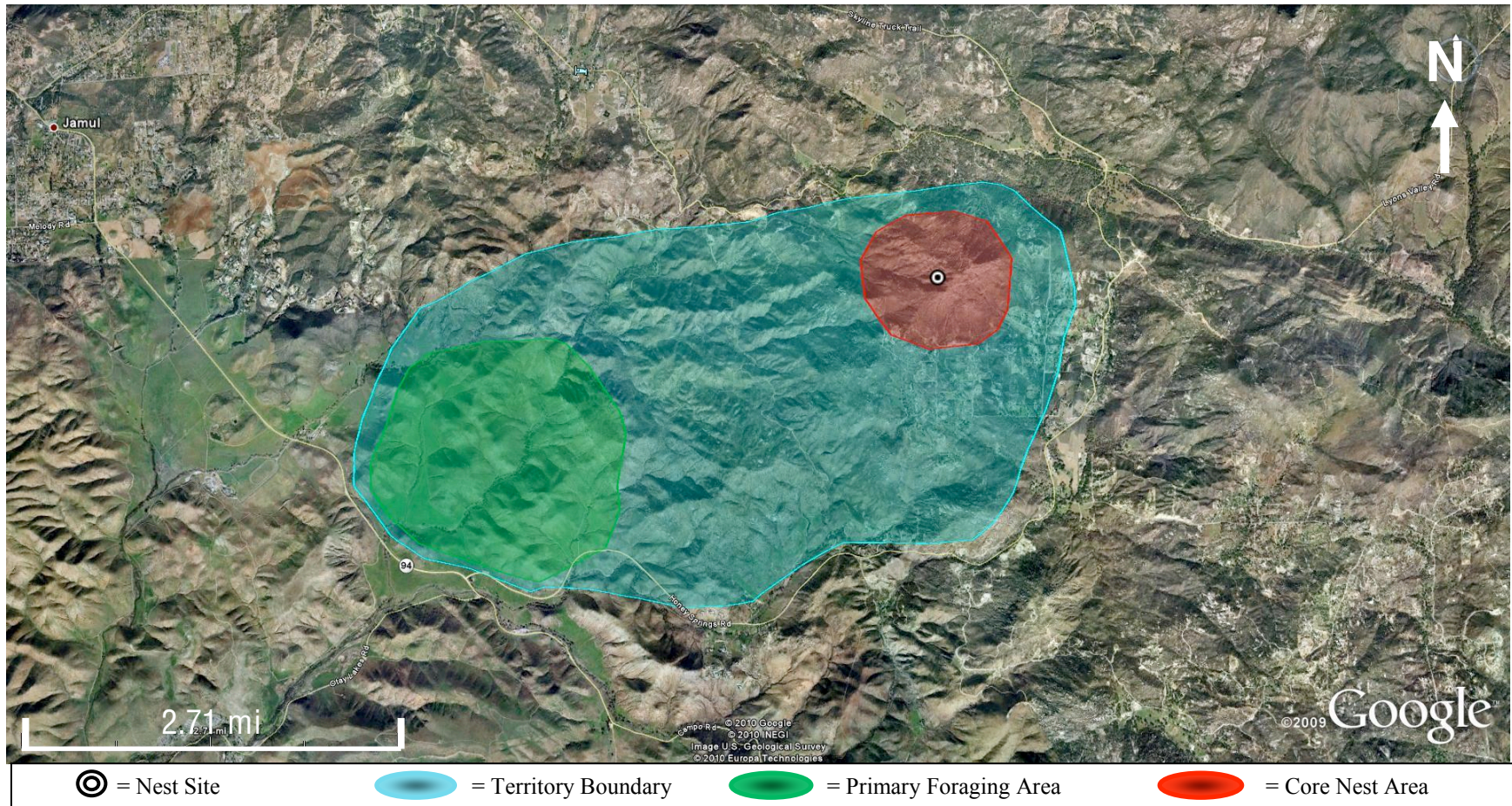


Figure 7: Lyon's Peak Territory.

Lyon's Peak Golden Eagle active territory. Approximate core nest site area, primary foraging area, and territory boundary are provided.

### Lyon's Peak

Dates/ Earliest Record	Name on Record	Egg Collection (Number of Eggs or Young)*	Nest Location
1898 Mar 2	G.C. Robbins for Carroll Scott	Yes (1)	In a cliff 250 feet high and about 150 feet from bottom
1929 Mar 1	Clyde L. Field	Yes (2)	Large granite cliff
1931 Feb 26	E.E. SeChrist	Yes (2)	In pile of boulders sticking out of face of large cliff
1970s	John Colton		Had records of the GEs
1978-1982	Tom Scott	No Data	Tom Scott did a masters' thesis on Golden Eagles and reported on this pair as active
1991 June	Bittner/Oakley/ Tom Scott	No Data	Aerial survey; nest still visible on W face of cliff
1996 June	Bittner/Oakley	No Data	Aerial survey; no birds have been seen near mountain for a number of years. US Forest Service has a tower on top; housing is encroaching. Rumors persist there is a Lawson Peak pair, which is nearby (could be the same pair)
2002	Hannan/Muscolino	No Data	Two adults flew to Lyon's Peak from Hollenbeck Canyon
2003	Bittner/Hannan/ Muscolino	No Data	Aerial survey; adult seen perched on N side from helicopter. No nests are visible
2004	D Mayer	No Data	Dave Mayer with CA F&G reports regular sightings of adult GEs on ranch South East of Lyon's
2005	D Mayer	No Data	D. Mayer still reporting adults hunting on Hollenbeck Canyon ranch
2006 Apr 6	Bittner/Hannan	No (0)	Adult GEs seen from Rte 94
2007	Bittner	No (0)	No GEs observed on Lyon's but adult GEs seen on ranch, hunting
2008	Bittner	No (0)	1 adult seen perched on Lyon's Peak on North side during helicopter surveys
2009 Apr 14	Bittner	No (1) Not banded	Pair seen copulating in Hollenbeck Canyon nest photographed and 1 young was seen in nest near site of old nest on SW corner of Mountain peak
2010	Bittner	No (0)	GEs seen on territory; couldn't find nest with ground or aerial surveys

\* If eggs were collected, the number of eggs collected are indicated. If eggs were not collected, the number of young observed in the nest are indicated.

Table 10: Lyon's Peak territory historic records.



## O'Neal Canyon

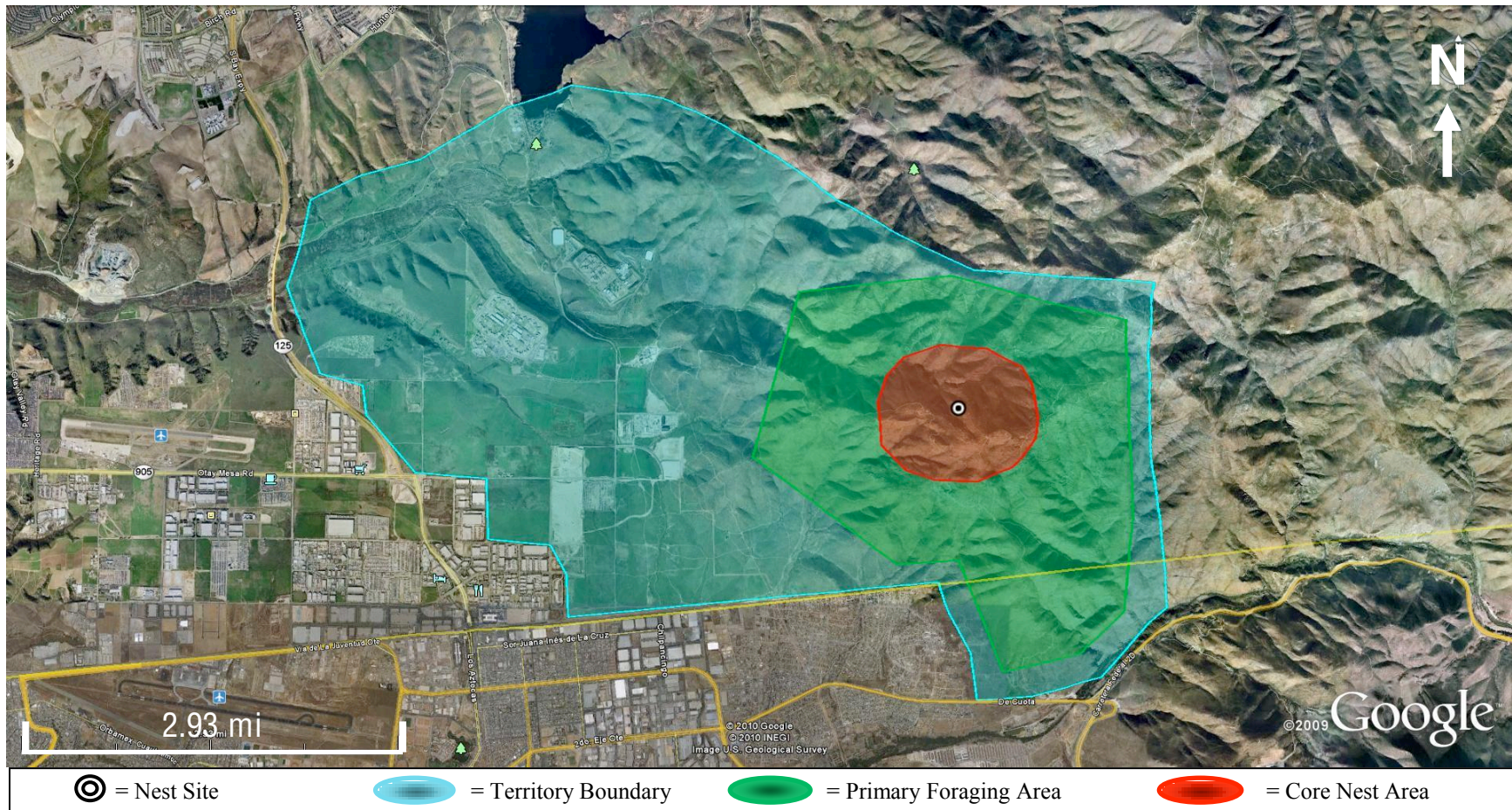


Figure 8: O'Neal Canyon Territory.

O'Neal Canyon Golden Eagle active territory. Approximate core nest site area, primary foraging area, and territory boundary are provided.

### O'Neal Canyon

Dates/ Earliest Record	Name on Record	Egg Collection (Number of Eggs or Young)*	Nest Location
2002	N. Muscolino/ Bittner	No (1) Not banded	On south side of O'Neal Canyon on Otay Mountain; built on cliffs about halfway up the mountain; can be observed from the road
2003	Muscolino/Hannan/ Bittner	No (1) Banded, patagial tags, no transmitter	Same as above. There are two nests located on the same cliffs just above and below each other. In 2002-2003 the bottom cliff nest was used. Young tagged and banded.
2004	Hannan/Bittner	No (2) Banded, patagial tags, no transmitters	Both tagged and banded in the same nest as 2002. Nest was getting ready to fall off cliff due to small ledge and the size of the nest.
2005	Hannan/ Bittner	No (2) 1 banded, patagial tags, no transmitter	1 young found dead in nest before banding could occur. This is a new nest that faces south and is directly across the canyon on another small cliff less than 40 feet high.
2006	Hannan/Bittner	No (2) Banded, patagial tags, no transmitter	The GE's have moved back to the original nest cliffs
2007 Mar 11	Hannan/Bittner	No (2) Banded, patagial tags, with VHF transmitters	The nests are on small ledges about ten feet from the top of the cliff. The cliffs are the same as 2002
2008	Bittner/ Hannan	No (0)	Nest fell; attempted to rebuild, but that fell as well
2009	Bittner/Wells Meador/Hannan	No (2) Banded, patagial tags, with VHF transmitters	Same as 2002
2010 Apr	Bittner/Hannan	No (2) Banded, patagial tags, with VHF transmitters	Same as 2002

\* If eggs were collected, the number of eggs collected are indicated. If eggs were not collected, the number of young observed in the nest are indicated.

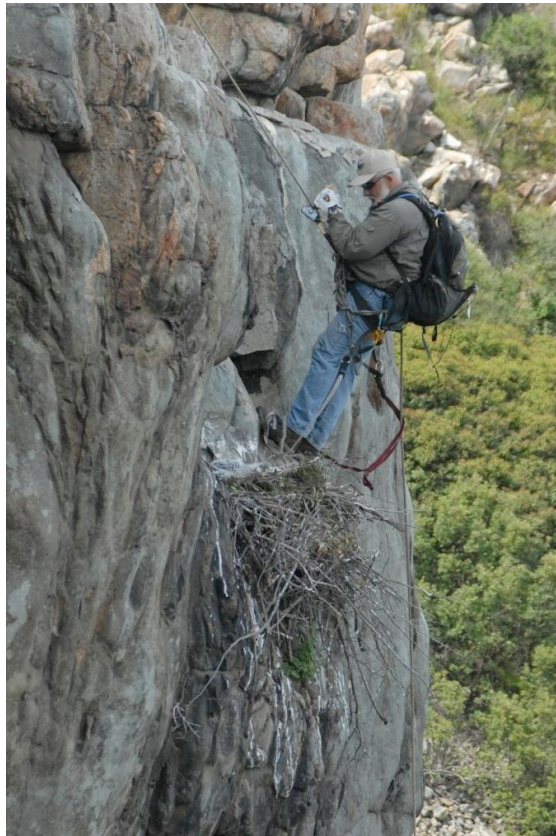
Table 11: O'Neal Canyon territory historic records.



## O'Neal Canyon



**Adult Golden Eagle on O'Neal Canyon nest observed Feb, 2009.**



**Dave Bittner, WRI's Executive Director, descending to the 2009 nest site to band nestlings.**



## O'Neal Canyon



Two Golden Eagle nestlings observed in nest during 2009 surveys.



Two Golden Eagle nestlings returned to their nest after being banded, tagged and having VHF transmitters attached on March, 2010.



## Rock Mountain

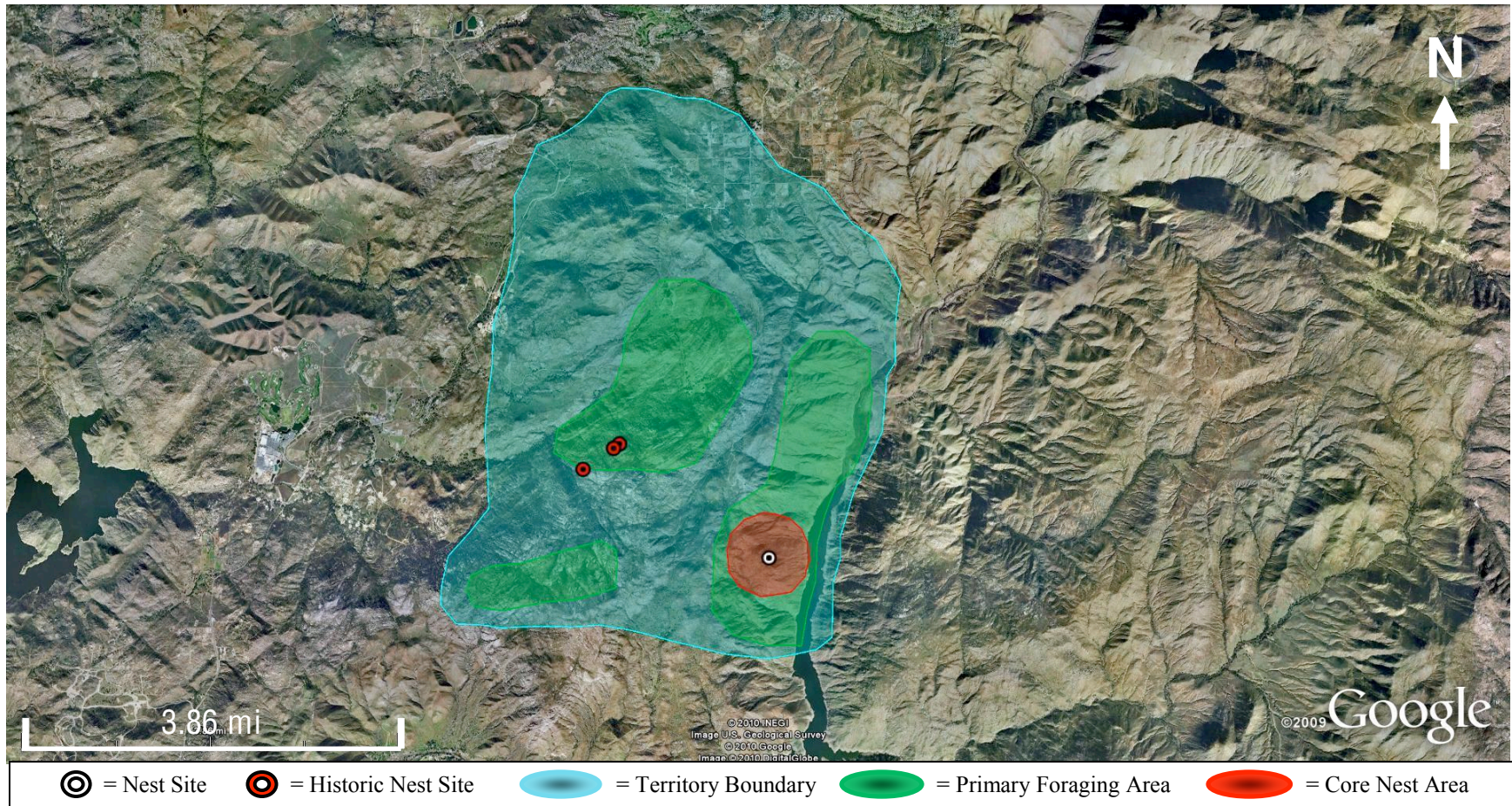


Figure 9: Rock Mountain Territory.

Rock Mountain Golden Eagle active territory. Approximate core nest site area, primary foraging area, and territory boundary are provided. The red historical nest sites represent the nests utilized by this pair prior to the 2003 fires, when all 3 burned.

## Rock Mountain

Dates/ Earliest Record	Name on Record	Egg Collection (Number of Eggs or Young)*	Nest Location
1993	K. Bittner/J.D. Bittner	No Data	4 nests; 1 on west face, 3 on north face
1994	J.D.Bittner	No Data	Adult eagles on territory but no active nest found only knew of 2 nests
1995	Bittner/Oakley	No Data	Adult eagles on territory but no active nest found only knew of 2 nests
1996	Bittner/Oakley	No (2)	Already had built 2 large nests and a third was discovered in 1996; eagle nesting on the third nest on W face
1997	Bittner/Oakley	No Data	Inactive
1998	Bittner/Oakley/M Booker	No Data	
1999	Bittner/Oakley/M Booker	No (1) Banded, patagial tags, no transmitter	West face, very small nest Probably had moved to new nest on west face but we didn't discover it until 1999.
2000	Bittner/Oakley	No (0)	
2001	Bittner/Oakley/ Meador	No (1) Banded, patagial tags, no transmitter	North face top right nest and first one discovered in 1993
2002	Bittner/Oakley	No (1) Not banded	North face nest in west facing slot
2003	Bittner/Oakley	No (0)	All nests burned in Cedar Fire
2004	Bittner	No (2) Not banded	Moved nest to small cliff above the El Capitan Reservoir on W side, near SD River headwater. All nests were destroyed in 2003 Cedar Fire.
2005	Hannan	No (0)	Last years' nest empty
2006 Apr 20	Bittner	No (0)	No GEs seen on territory
2007 Apr 19	Oakley	No (0)	No active nest, but pair was seen earlier; 2 nests, one in poor condition
2008	Bittner/Meador	No (2) Banded, patagial tags, VHF transmitters	Placed blind 200 yards away for photographs and observation. 5 large-mouth bass, egrets and ducks seen as prey items
2009 Feb	Bittner	No (0)	No GEs seen on territory; 2 nests
2010 Apr	Bittner	No (0)	One adult GE seen at nest area, new nest building seen

\*If eggs were collected, the number of eggs collected are indicated. If eggs were not collected, the number of young observed in the nest are indicated.

Table 12: Rock Mountain territory historic records.



## Rock Mountain



Rock Mountain pair bringing food to their young observed in April, 2008. Male landing while female is on nest. This pair has been observed bringing 5 large-mouth bass to the nest on separate occasions in 2008. Foraging area includes the El Capitan Reservoir.



The 2 nestlings in the nest pictured above with prey item, a Mallard drake, visible in foreground (2008).



## Rock Mountain



A Golden Eagle perched near the active Rock Mountain nest, shown in the following photo, 2010.



An active Rock Mountain Golden Eagle nest in good condition with new material added recently, although young were not produced this year. One of 2 nests found at this location in March, 2010.



## Rockwood Creek

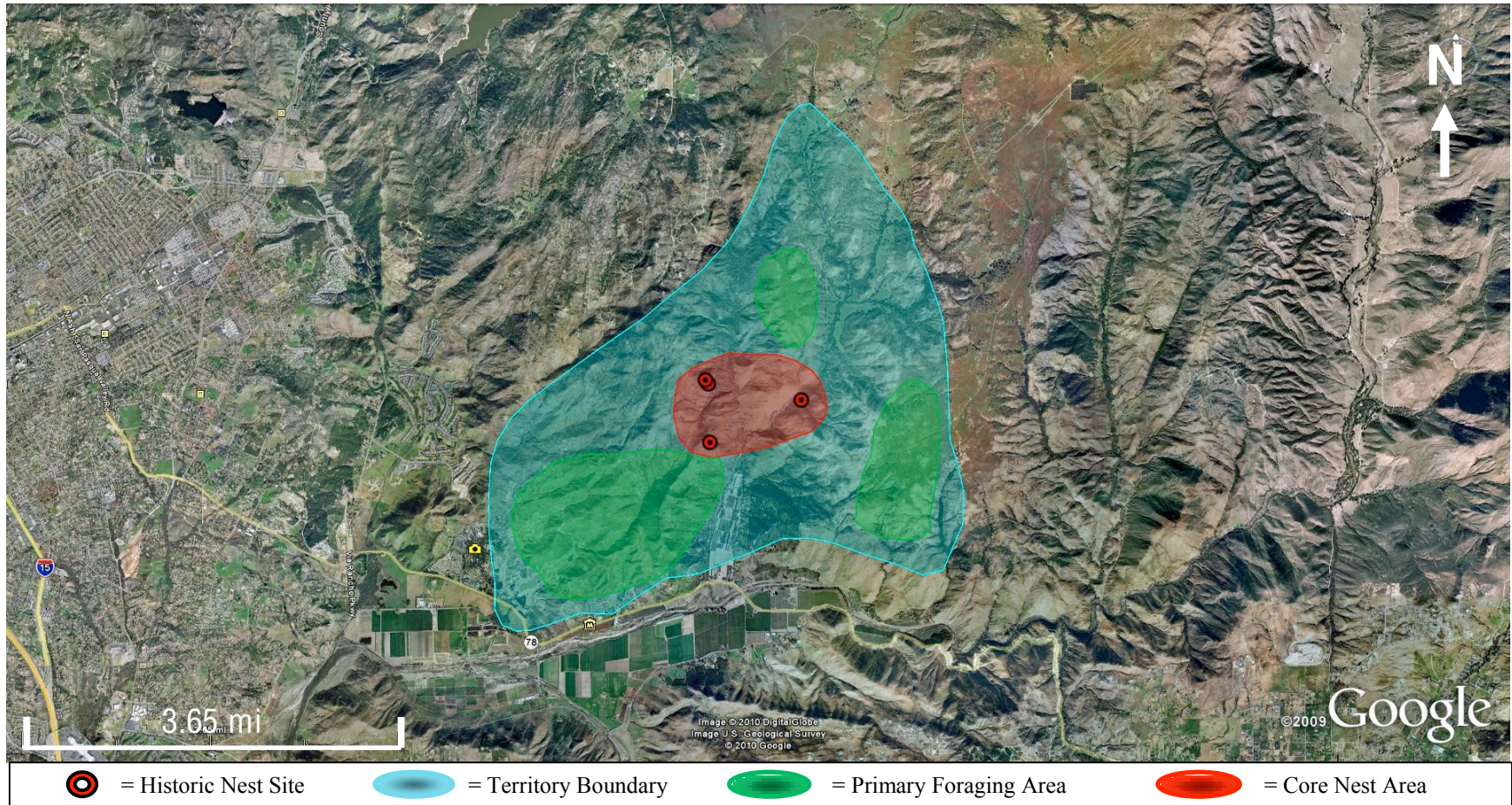


Figure 10: Rockwood Creek Territory.

Rockwood Creek Golden Eagle active territory. Approximate core nest site area, primary foraging area, and territory boundary are provided. This pair of Golden Eagles has been recorded on territory, although no active nest was located in the last couple of years. The 2007 fire burned all the previously known (historic) nests and probably caused relocation to a new site. The eagles may be maintaining an active tree nest that has yet to be documented. Both adults were observed on territory in 2010.

## Rockwood Creek

Dates/ Earliest Record	Name on Record	Egg Collection (Number of Eggs or Young)*	Nest Location
1910s	Dixon	Yes (No Data)	Dixon nest #28 (Dixon,1936)
1977-95	Bittner/Oakley/ Scott	No (No Data)	Forage on the SD WAP and all areas in between and as far east as the Guejito Ranch
1996	Bittner/Oakley	No (2)	Nest in oak tree on Guejito Creek; east facing cliff also active
1997	Bittner/Oakley	No (1)	Nest in tree as above
1998	Bittner/Oakley	No (2) Not banded	Nest in tree as above
1999	Bittner/Oakley	No (2) Banded, patagial tags, no transmitters	Oak tree on Guejito Creek, adult female found poisoned on SD Zoo Wild Animal Park and rehabilitated tagged and released in Nov 1999
2000	Bittner/Oakley	No (1) Not banded	On east facing cliff, last big one in valley
2001	Bittner/Oakley	No (3) Banded, patagial tags, no transmitters	Nest in oak tree on Guejito Creek
2002	Bittner/Oakley	No (0)	Nest in oak tree on Guejito Creek
2003	Bittner/Oakley	No (2) Banded, patagial tags, no transmitters	Nest in oak tree on Guejito Creek
2004	Bittner/Oakley	No (2) Banded, patagial tags, no transmitters	Same nest as above
2005	Bittner/Oakley	No (0)	Old nest fell from tree but new one was rebuilt directly below old one in the same tree. This is the same tree crotch that was used prior to 1990. Helo survey indicated main limb broke causing the nest to fall. Female, B-14, tagged in 1999 was seen and photographed nearby on a rock.
2006 Apr 20	Bittner	No (2 eggs)	Tree nest fell, but the eagles moved to a tree nest below the cliff nest of 2000.
2007 Apr 19	Bittner/Wells/ Hannan	No (3)	Adults on territory, incubating observed. Late season aerial survey documented 3 young ready to fledge.

Dates/ Earliest Record	Name on Record	Egg Collection (Number of Eggs or Young)*	Nest Location
2008	Bittner/Meador	No (0)	All nests burned in fires of 2007.
2009 Apr 14	Bittner	No (0)	Adults on territory
2010	Bittner	No (0)	Both adult GEs seen on separate aerial surveys; three helicopter surveys and no nest found.

\* If eggs were collected, the number of eggs collected are indicated. If eggs were not collected, the number of young observed in the nest are indicated.

Table 13: Rockwood Creek territory historic records.



## Rockwood Creek



Landscape view of the Rockwood territory nest location in 2000.



Adult female Golden Eagle, approximately 6 years of age in 1999, observed in 2005 with patagial tags visible. This female was tagged when she was recovered from the Wild Animal Park suffering from ingestion of rodent poison.



## Rockwood Creek



WRI Executive Director, Dave Bittner, banding the eagle nestlings in their 2002 tree nest. This pair has produced 3 young on 2 occasions since 2000. This is the only pair recorded in San Diego County to have fledged 3 young. A few other records for 3 eggs are documented.



Golden Eagle  
tree nest

Landscape view of the Rockwood Creek 2002 tree nest site, pictured above.



## Rockwood Creek



The Rockwood tree nest observed in 2006 after top nest, used in previous years, fell.



Golden Eagle observed perched on cliffs in Rockwood territory in May, 2010. These are the same cliffs this pair nested on prior to 1980 (Scott and Oakley).



## San Vicente Reservoir

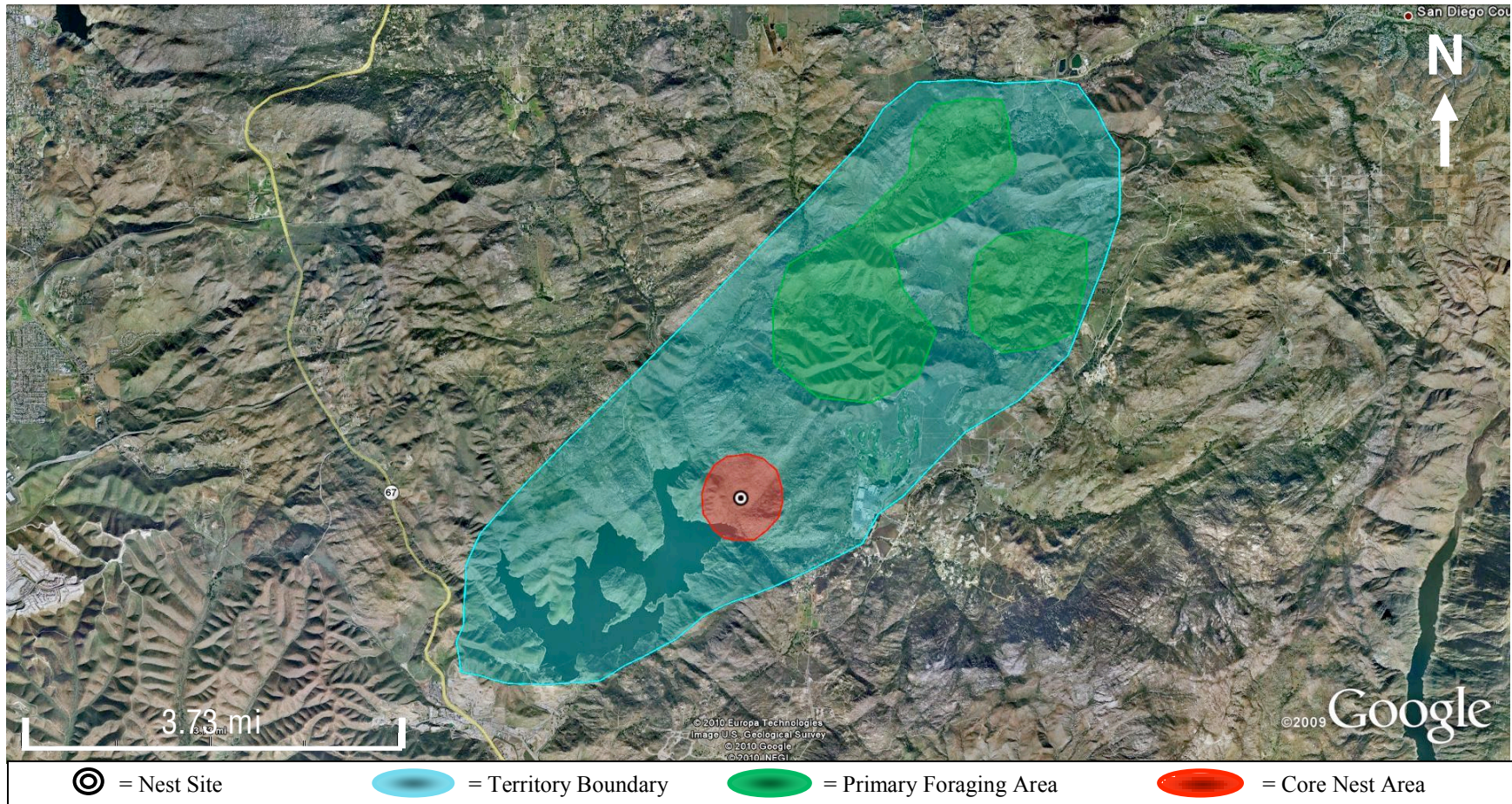


Figure 11: San Vicente Reservoir Territory.

San Vicente Reservoir Golden Eagle active territory. Approximate core nest site area, primary foraging area, and territory boundary are provided.

## San Vicente Reservoir

Dates/ Earliest Record	Name on Record	Egg Collection (Number of Eggs or Young)*	Nest Location
1920s	Dixon	No Data	North side of reservation; nest can be viewed from north only since it is under a large rock slab (Dixon nest #23; <i>Condor</i> , 1936)
1980s	Craig Culver	No (1 or 2)	Have nested in a tree nest on Barona Reservation
1991	G. Rodgers	No (1 egg and 1 young)	GE nesting under 1920s location
1992	Culver	No Data	Adult GEs present
1993	Culver	No Data	Adult GEs present
1996	Bittner/Oakley	No Data	Two adult GEs present all nesting season
1998	Bittner/Oakley	No (0)	No GEs seen on territory
1999	Bittner/Oakley	No (0)	No GEs seen on territory
2000	Bittner/Oakley	No (0)	No GEs seen on territory
2001	Bittner/Oakley	No (1) Not banded	Reported 2 adults with juvenile on Barnett Ranch by Helix Environmental
2002	Bittner/Sproul	No Data	Two adult GEs present
2003	Bittner/Oakley	No (0)	No GEs observed. Cedar Fire burned entire territory in the Fall of 2003
2004	Bittner/Wells/Hannan	No (0)	Rebuilt nest under 1920s slab
2005	Hannan	No (1) Banded, patagial tags, no transmitter	2004 nest site
2006	Bittner/J Laws	No (1) Banded, patagial tags, no transmitter	Cliff nest; same as 2004
2007	Bittner/Wells/Hannan	No (1) Banded, patagial tags, VHF transmitter	Cliff nest; same as 2004
2008	Bittner/Meador	No (2 eggs)	Cliff nest; 2 eggs abandoned prior to helicopter survey. Female was off the nest, not seen incubating. Eggs disappeared shortly after this observation.



Dates/ Earliest Record	Name on Record	Egg Collection (Number of Eggs or Young)*	Nest Location
2009	C. Meador	No (2) Banded, patagial tags, VHF transmitter	Same nest as 2004
2010 Feb/May	Bittner/Meador	No (1) Banded, patagial tags, VHF transmitter	New nest 400 yards SE at the same elevation. South-facing nest.
* If eggs were collected, the number of eggs collected are indicated. If eggs were not collected, the number of young observed in the nest are indicated.			

Table 14: San Vicente Reservoir territory historic records.

## San Vicente Reservoir



Site of the 2008 Golden Eagle nest, with the San Vicente Reservoir in the background.



View of San Vicente cliff containing new, active nest with one young observed during 2010 surveys.



## San Vicente Reservoir



An active Golden Eagle nest with 5-week old Golden Eagle nestling observed during helicopter surveys on April 25, 2010.



WRI biologists with Golden Eagle nestling from San Vicente territory banded on May 2, 2010.



## Tecate Peak (Marron Valley)

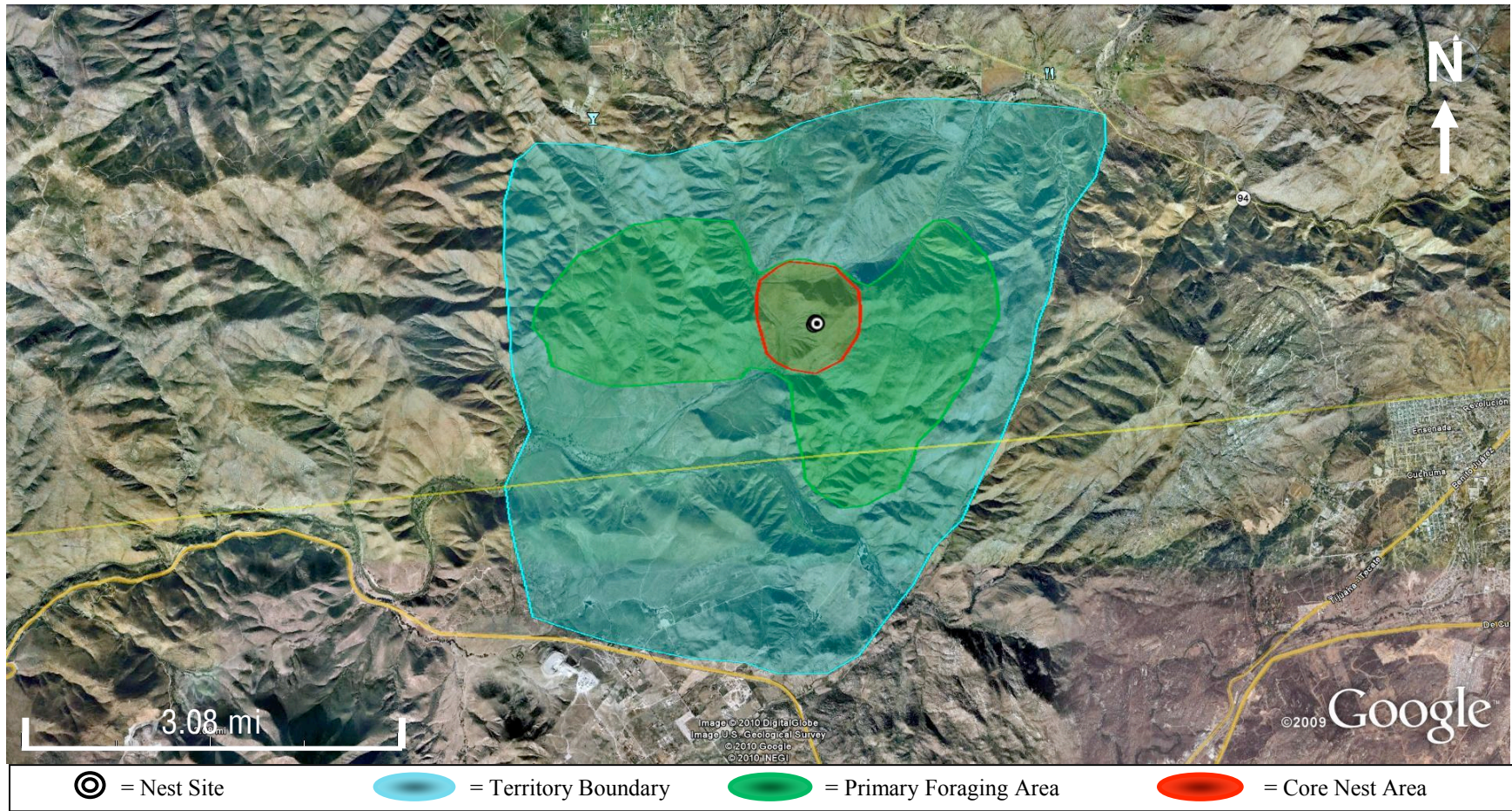


Figure 12: Tecate Peak (Marron Valley) Territory.

Tecate Peak (Marron Valley) Golden Eagle active territory. Approximate core nest site area, primary foraging area, and territory boundary are provided. Four nests are located within the core nesting area.



### Tecate Peak (Marron Valley)

Dates/ Earliest Record	Name on Record	Egg Collection (Number of Eggs or Young)*	Nest Location
1970	Colton	No Data	John Colton photographed these eagles at the nest but died before sharing his data or photographs
1977-82	Scott	No Data	Nest on south Tecate Peak
1991	Bittner/Oakley	No (0)	Found 2 nests near Hwy 94 on north side of mountain
1992	Bittner/Oakley	No (0)	Found Scott's nest abandoned; new nest built at head of valley between cliffs and peak closest to Hwy 94
1996	Bittner/Oakley	None	Red-tailed Hawk used this nest (same as 1992 nest)
1997	Bittner/Oakley	Failed	GE nest on west facing cliffs above creek; nest fell with eggs: observed on the ground from helicopter
1998	Bittner/Oakley	No (0)	Ground survey only
1999	Bittner/Oakley	No (0)	Ground survey only
2000	Bittner/Oakley	No Data	Adult male seen defending cliffs and chasing Prairie Falcon.
2001	Bittner/Oakley	Failed	Incubation, but failed; east nest, possible new young female
2002	Bittner/Oakley	No (2) Banded, patagial tags, no transmitter	Nest fell from cliff but young were saved and new nest was built below old nest about 80 feet above the ground. Young were placed in new nest with food and adult came in immediately to feed. This hand-built nest was used again by the eagles in 2006
2003	Bittner/Oakley	No (0)	New mate (female sub-adult); built partial nest
2004	Bittner/Oakley	No (0)	Nested in a new nest just south of the old nests on the same west-facing cliffs above Cottonwood. Male is wearing WRI's orange patagial tags, but no number has been read yet
2005	Bittner/Hannan	No (1) Banded, patagial tags, no transmitter	New nest ¼ mile down from old nest
2006	Bittner/Hannan	No (1) Banded, patagial tags, VHF transmitter	No tags seen on adults. Nest used was the nest WRI built in 2002
2007 Mar 10	Bittner/Hannan	No (1) Banded, patagial tags, VHF transmitter	

Dates/ Earliest Record	Name on Record	Egg Collection (Number of Eggs or Young)*	Nest Location
2008	Bittner/Hannan	No (0)	4 nests with whitewash, one is new this year, one older one has a raven in it
2009	Bittner/Wells/Meador	No (2) Banded, patagial tags, VHF transmitters	
2010	Bittner/Hannan	No (2) Banded, patagial tags, VHF transmitters	All nests are west-facing and within 200 yards of one another.

\* If eggs were collected, the number of eggs collected are indicated. If eggs were not collected, the number of young observed in the nest are indicated.

Table 15: Tecate Peak (Marron Valley) territory historic records.

Tecate Peak (Marron Valley)



An adult Golden Eagle observed on the nest in 2001.



Nestling Golden Eagle in one of five Tecate territory nests recorded during 2006 surveys.



Tecate Peak (Marron Valley)



An adult female Golden Eagle incubating in 2008.



Two Golden Eagle nestlings observed in nest in April, 2009.



Tecate Peak (Marron Valley)



Male Golden Eagle from the Tecate Peak territory perched near the nest, 2009.



A pair of 2-week old Golden Eagle nestlings observed, with squirrel (food source) visible, during helicopter surveys in March, 2010.



Tecate Peak (Marron Valley)



An alternative nest within the Tecate Peak core nesting area observed in 2010.



One of the 2010 Golden eagle nestlings being banded by WRI biologists.



## Inactive Golden Eagle Territories Within and Around the San Diego MSCP (2004-2010)

The following, which is part of the Wildlife Research Institute's *Golden Eagle Nesting Database*, contains 3 parts for all currently known inactive territories within the San Diego MSCP:

- (1) A map, reflecting key components of the Golden Eagle territory
- (2) Documentation of historic records from numerous sources
- (3) Any current photographs of the nest sites taken from the survey helicopter.

The following Golden Eagle territories are considered to be “inactive” as of this year, 2010. Inactive territories are those in which nesting has not occurred for several years, and the adult pair has not been observed. These territories are likely on their way to becoming extirpated, if they are not already. WRI protocol requires 5 years from the last recorded observation before assigning the status of extirpated.

The general historical locations of each nest for the respective Golden Eagle pairs, as well as the territory boundary, are provided in the following maps. Typically (and with enough observations) territories are well defined by the eagles and are defended against all other adult eagles. The nest sites are surrounded by a core nest area, which denotes the landscape critical to the historical reproductive success of the pair. This could be a cliff or a steep slope with trees suitable for nest structures, or a combination of both. Cliffs tend to be a stable substrate and, therefore, are often used continuously by successive pairs for hundreds of years. Several of the territories within the San Diego MSCP have been documented for over 100 years.

The early records are taken from egg collectors who contributed their collections and field notes to museums. These records indicate eggs collected along with the date and location of collection. Any additional and relevant information from field notes such as nest substrate, relevance to other nests, etc., have also been reproduced in this database. More recent records, generally from 1988 to the present, were recorded by WRI and include additional information such as actual number of young produced.

## Del Dios (Lake Hodges)

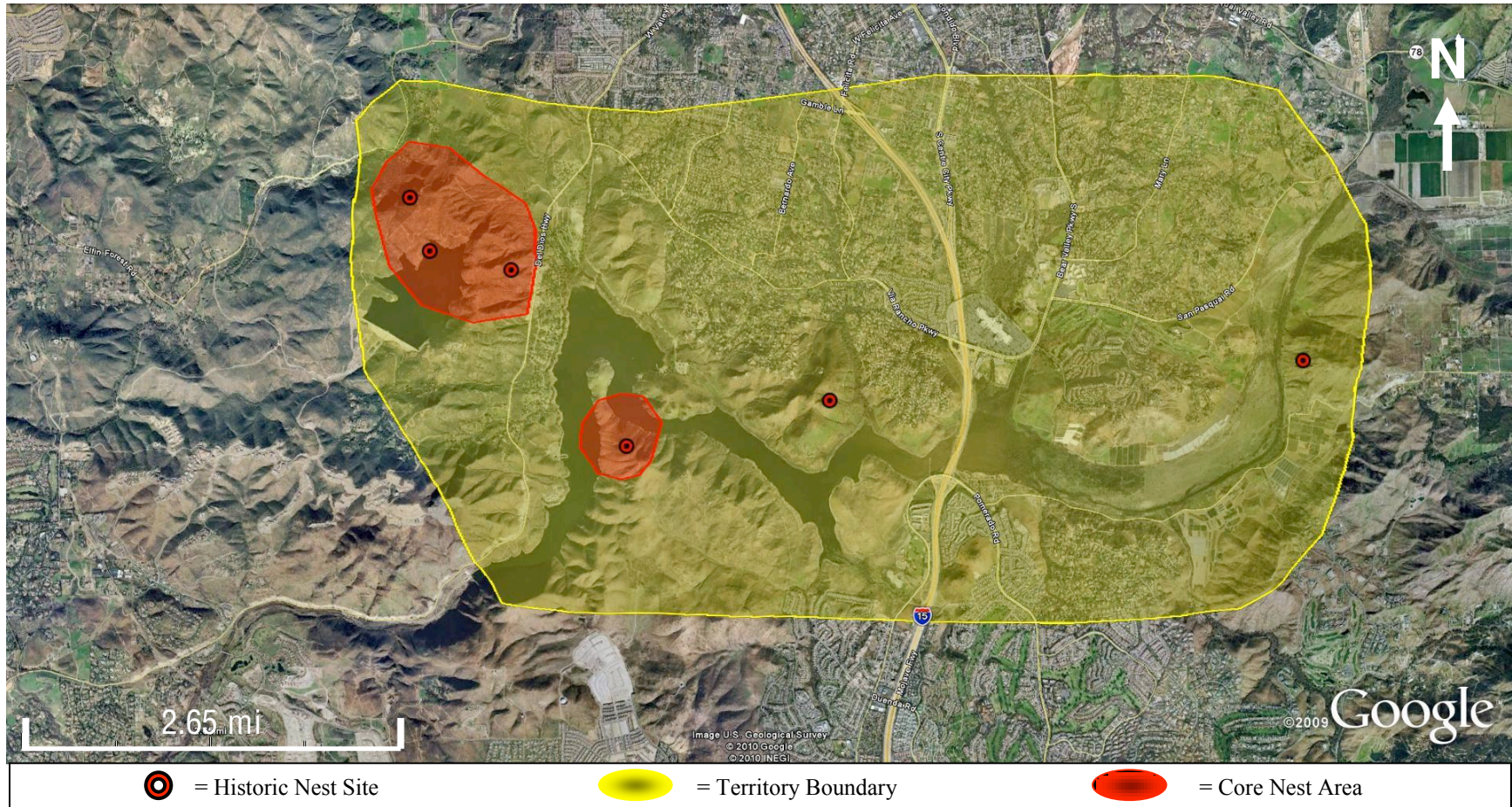


Figure 13: Del Dios (Lake Hodges) Territory.

Del Dios (Lake Hodges) Golden Eagle inactive territory. The approximate previous core nest area, historic nest sites, and territory boundary are provided. This territory has been inactive since 2005. The historical nest sites without core nest areas were used, and abandoned, several decades ago. This territory has become inactive since 2005.

Del Dios (Lake Hodges)

Dates/ Earliest Record	Name on Record	Egg Collection (Number of Eggs or Young)*	Nest Location
1900-1936	J Dixon	Yes (No Data)	Several egg collectors collected in this area; names on records changed from year to year depending on collector and which ledge or cliff site was used
1978-1982	Tom Scott/J Oakley	No Data	Breeding occurred; the nests moved during T. Scott's study but mostly were above Del Dios Hwy
1988-1991	Oakley et all	No (3)	Eagles still concentrated their activity above Del Dios Hwy Breeding documented, 3 eggs laid one year but disturbance caused failure
1992	Bittner/T.Stephen	No Data	Nest built; breeding attempt at far east end of territory on cliffs near Highland Valley Rd. Copulation observed and filmed (Bittner) but no young were produced. J. Oakley indicated that a previous breeding did occur on these same cliffs in the 1980s but the eggs or young were collected by persons unknown and J. Oakley found climbing ropes attached to the cliff at the nest site
1994	J. Lincer	No (1)	Tree nest above hill and one valley west of Del Dios Hwy; current site of Olivenheim Dam and lake.
1996	Bittner/Oakley	No (2)	Cliff nest above Del Dios Hwy
1997	Bittner/Oakley	No (1)	New tree nest on SE side of Lake Hodges approximately 15 feet above ground; discovered from helicopter at the end of the breeding season, after fledging
1998	Bittner/Oakley	No (1)	Tree nest on SE side of Lake Hodges
1999	Bittner/Oakley	No (0)	Tree nest; pair nested close to historic San Dieguito pair near the dam; 1997 tree nest blew out. Nest was only 15 feet up but high on the hill
2000	Bittner/Oakley	No (0)	Adult eagles observed on territory
2001	Bittner/Oakley	No (0)	2 nests rebuilt by WRI, one tree, one cliff
2002	Bittner/Oakley	No (0)	Used Harmony Grove nest
2003	Bittner/Oakley	No (0)	Incubated at Harmony Grove nest, human disturbance caused failure
2004	Bittner/Oakley	No (0)	Female was killed, male was present and is banded; local WRI observer (Art Wolfe) feeds the male roadkill in his driveway
2005	Bittner/Oakley	No (0)	Aerial survey; adult on territory April 30; male seen early in year but no female
2009 Apr	Bittner	No (0)	Trails built by SD County Parks and Recreation near the nests, fires and other disturbance issues have prevented successful nesting.



Dates/ Earliest Record	Name on Record	Egg Collection (Number of Eggs or Young)*	Nest Location
2010	Bittner	No (0)	No sign of adults or nesting attempts

\* If eggs were collected, the number of eggs collected are indicated. If eggs were not collected, the number of young observed in the nest are indicated.

Table 16: Del Dios (Lake Hodges) territory historic records.

Del Dios (Lake Hodges)



Two Golden Eagle nestlings in the Del Dios Highway territory nest in 1995 being fed a Mallard drake. Photograph taken from a blind (Bittner, WRI).



In 2006, the same Del Dios Golden Eagle nest as the 1995 nest above being used by Great Horned Owls.



## Dulzura

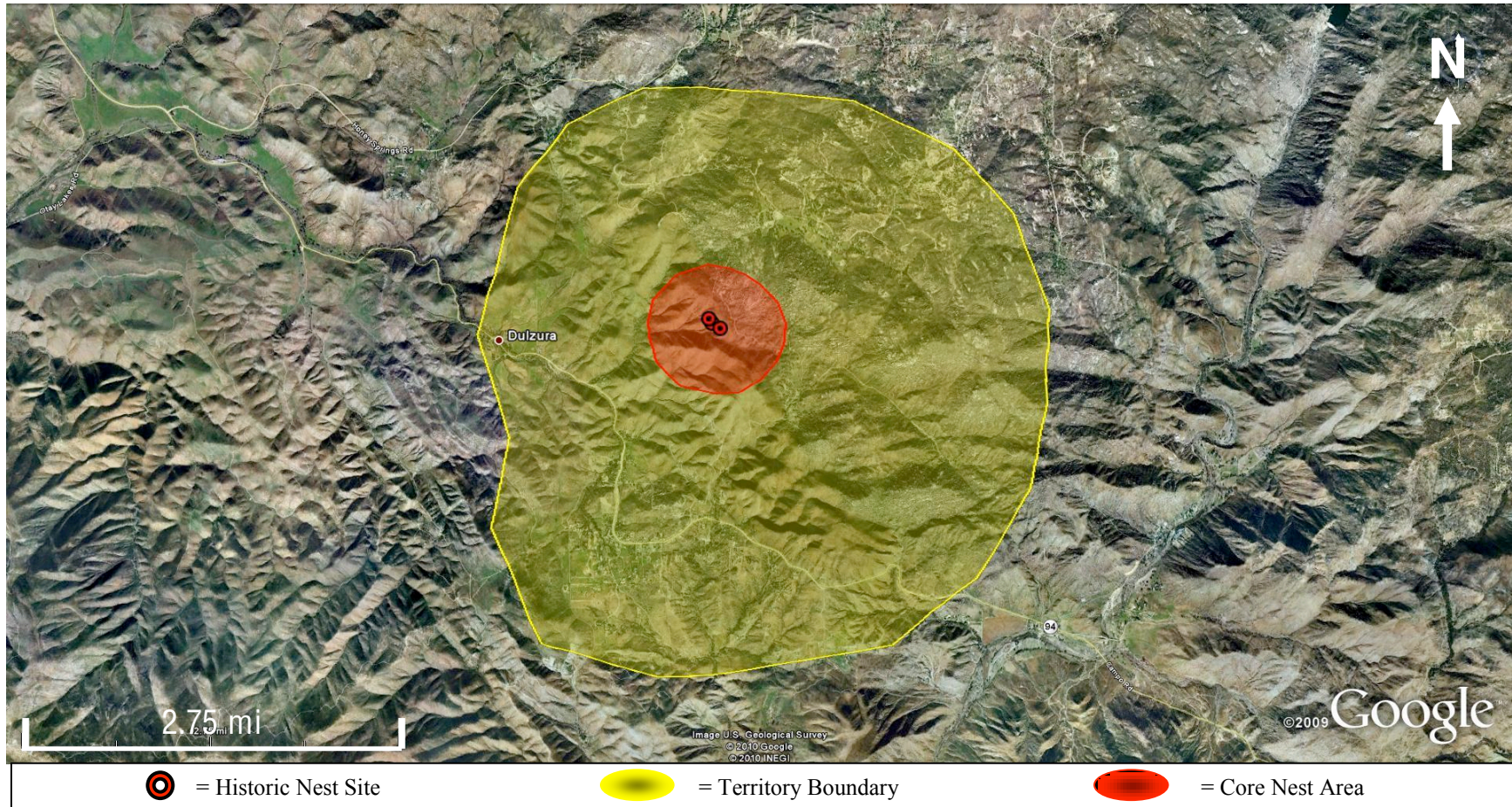


Figure 14: Dulzura Territory.

Dulzura Golden Eagle inactive territory. The approximate previous core nest area, historic nest sites, and territory boundary are provided. This territory has been inactive since 2005.



Dulzura

Dates/ Earliest Record	Name on Record	Egg Collection (Number of Eggs or Young)*	Nest Location
1977-1982	Tom Scott	No Data	Cliffs below Mother Miguel Mountain
1996 Apr	J.D. Bittner/J. Oakley	No (1)	Adult flying to nest to feed young
1996 June	Bittner	No (1 or 2)	Helicopter survey; USFS Fire Station personnel put out road-kill to feed pair; 2 new nests, one old
1997	J.D. Bittner/J. Oakley	No (0)	Male electrocuted on power pole at fire station
1998	J.D. Bittner/J. Oakley	No (0)	Illegal immigrant foot traffic near the nest cliffs
1999	J.D. Bittner/J. Oakley	No (0)	Pair nested, but failed (3 nests on cliffs); foot traffic noted again
2000	J.D. Bittner/J. Oakley	No (0)	Pair seen sitting together on the same electric pole south of fire station, just south of Route 94
2001	J.D. Bittner/J. Oakley	No (0)	Female and sub-adult plumaged male hunting behind fire station
2002	J.D. Bittner/. Oakley	No (0)	No attempt to nest, heavy foot traffic at and near nest.
2003	J.D. Bittner/J. Oakley	No (0)	Adults not on territory, but may be hunting on Jamul Ranch
2004	Bittner/Hannan	No (0)	Adults not seen on territory
2005	Hannan	No (0)	No GEs seen on territory
2006	Bittner	No (0)	No GEs seen on territory
2007 Mar 11	Hannan	No (0)	No GEs seen on territory
2008	Hannan	No (0)	
2009 Feb	Bittner	No (0)	No GEs seen on territory
2010 Apr	Bittner	No (0)	No GEs seen on territory; territory seems to be extirpated

\* If eggs were collected, the number of eggs collected are indicated. If eggs were not collected, the number of young observed in the nest are indicated.

Table 17: Dulzura territory historic records.

## San Miguel Mountain

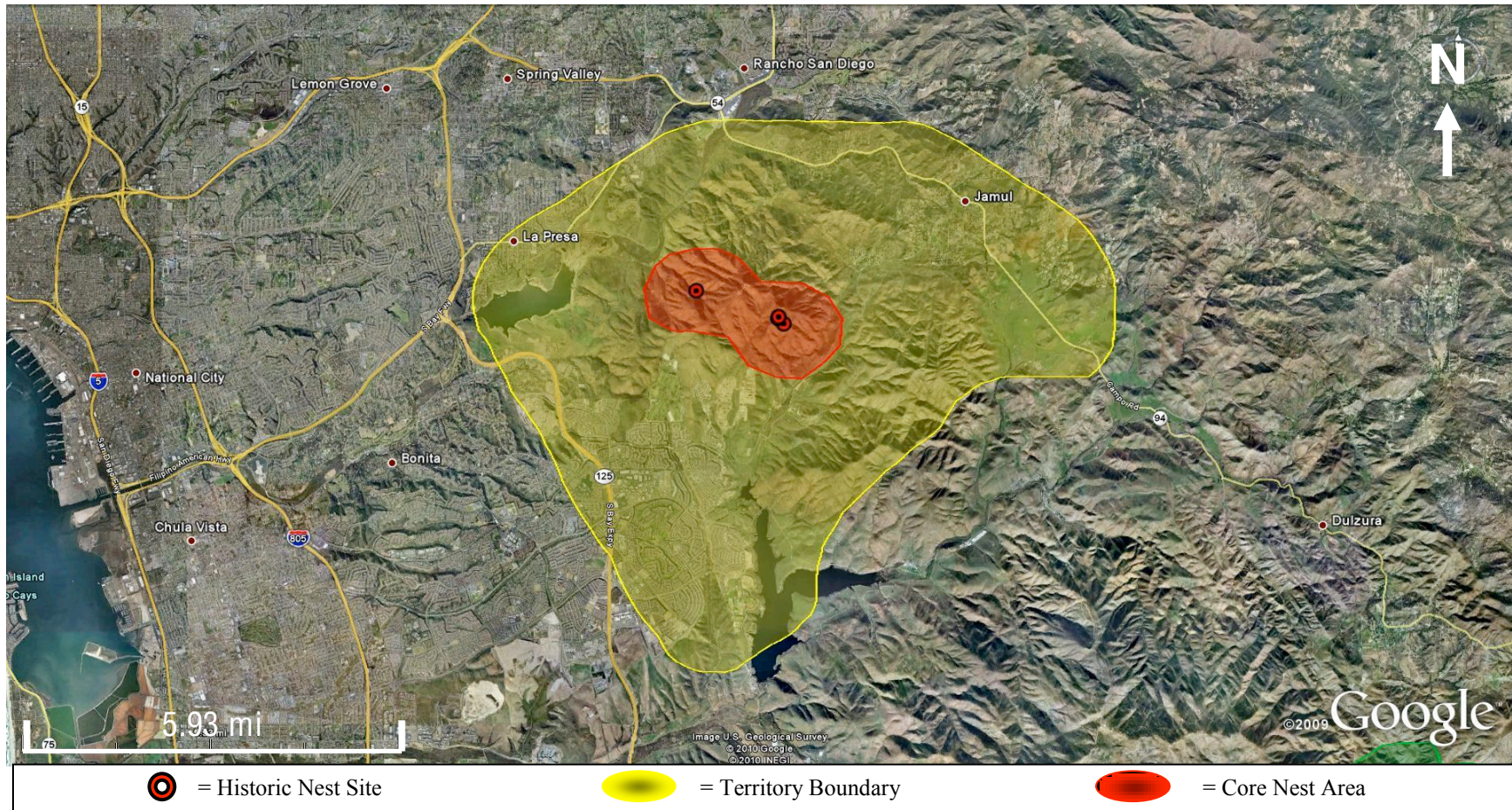


Figure 15: San Miguel Mountain Territory.

San Miguel Mountain Golden Eagle inactive territory. The approximate previous core nest area, historic nest sites, and territory boundary are provided. This territory has been inactive since 2008.



## San Miguel Mountain

Dates/ Earliest Record	Name on Record	Egg Collection (Number of Eggs or Young)*	Nest Location
Early 1900s	Colton/Scott	No Data	Recorded nest as active
1920 Mar 2	J. Bancroft Jr.	Yes (1)	West slope of mountain near center of perpendicular rock 25 feet high
1921 Feb 25	E.E. SeChrist	Yes (2)	50 feet up in large blue gum tree in side canyon
1924 Feb 20	E.E. SeChrist	Yes (2)	Small cliff 40 feet high; nest halfway down with western exposure
1929 Mar 19	Paul H. Field	Yes (2)	Small oak tree
1939 Feb 1	Ed SeChrist for J.B.D.	Yes (2)	On cliff (large boulder pile) on E side of mountain, overlooking Sweetwater Reservoir (old nest)
1949 Feb 28	E.E. SeChrist	Yes (2)	(Old nest) set back in recess of huge boulder on high mountain side E exposure
1979-1982	Colton/Scott		Report of GE nest on tree overlooking Sweetwater Reservoir and using power line tower (not confirmed)
1990	West/Bittner	No (2)	Nest high on SE side of mountain; small cliff, can walk in; another GE nest is visible on west face of same but down slope about 100 yards
1991	West/Bittner	No (1)	Same as above
1992	Bittner/R. West	No (2)	On SE side of San Miguel Mountain on a small cliff 35-40 feet high; nest faces east; 2 nests
1993	Bittner/R. West	No (2)	Same nest as 1992
1994	Bittner/R. West	No (1)	Same nest as 1992
1995	Bittner/Oakley	No (2)	Same nest as 1992
1996	Bittner/Oakley	No (1)	Same nest as 1992
1997	Bittner/Oakley	No (2)	Same nest as 1992; the first patagial-tagged San Diego golden eagle (A-01) was shot and injured in San Miguel El Alto, Mexico. It was rehabbed and is now being kept as a pet by a falconer in Mexico
1998	Bittner/Oakley	No (1) Banded, patagial tags, no transmitter	Same nest as 1992; the young banded (B-03) is now the breeding female at Gregory Canyon
1999	Bittner/Oakley	No (2) Banded, patagial tags, no transmitters	Same nest as 1992; young banded in 1997 found shot in Mexico

Dates/ Earliest Record	Name on Record	Egg Collection (Number of Eggs or Young)*	Nest Location
2000	Bittner/Oakley	No (0)	Fire destroyed all 3 nests; rebuilt one of 3 nests, but did not lay eggs
2001	Bittner/Oakley	No (1) Banded, patagial tags, no transmitters	Same nest as 1992
2002	Bittner/Hannan	No (1 or 2) Not banded	Fledged early before banders arrived at nest; number fledged unknown
2003	Bittner/Hannan	No (1) Banded, patagial tags, no transmitters	Nest same location as past years
2004	Bittner/Hannan	No (1) Banded, patagial tags, no transmitters	Nest same as 1992
2005	Bittner/Hannan	No (0)	Adult GEs seen on territory; dirt bikes in area
2006	Bittner	No (0)	Adults seen on territory
2007	Hannan	No (0)	Adults seen on territory
2008	Hannan/ Bittner	No (0)	Heavy use by Border Patrol and illegal immigrants; raven in N-side nest above smaller lake east of power pole, 1550 feet elevation, old nest site now under rock
2009	Bittner	No (0)	No GEs seen on territory; no nest found. The nest cliff collapsed from the heat of the fires, creating a cave-like overhang. Two goats at old nest site
2010 Apr	Bittner	No (0)	No nests found since fire, same 2 goats at old burned nest site

\* If eggs were collected, the number of eggs collected are indicated. If eggs were not collected, the number of young observed in the nest are indicated.

Table 18: San Miguel Mountain territory historic records.



## San Miguel Mountain



A Golden Eagle nestling from **San Miguel Mountain** being banded by **Dave Bittner**, WRI's Executive Director, in 2001.



Extirpated Golden Eagle Territories Within and Around the San Diego MSCP (After 2005)

**Foster's**

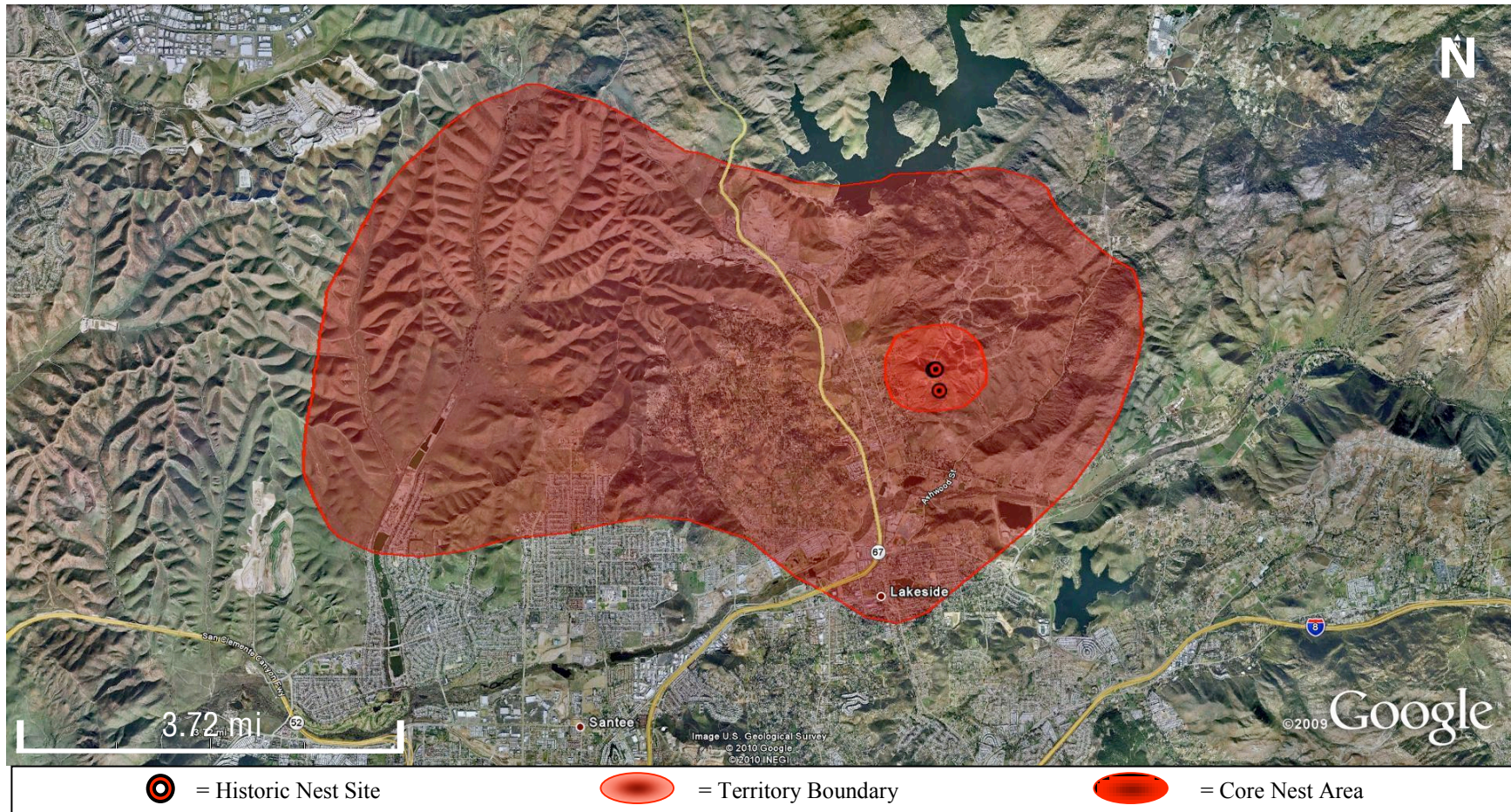


Figure 16: Foster's Territory.

Foster's Golden Eagle extirpated territory. The previous nest sites and approximate territory boundary are provided. This territory has been extirpated since 2005.

**Foster's**

Dates/ Earliest Record	Name on Record	Egg Collection (Number of Eggs or Young)*	Nest Location
1897 Feb 12	A.M. Ingersoll	Yes (2)	Nest on cliff; Steep mountainside
1897 Mar 22	A.M. Ingersoll	Yes (2)	Nest on cliff; steep mountainside
1898 Feb 11	A.M. Ingersoll	Yes (2)	Cliff steep mountain, near 1897 site
1898 Mar 14	A.M. Ingersoll	Yes (3)	Cliff steep mountain, near 1897 site
1899 Feb 19	A.M. Ingersoll	Yes (2)	Cliff steep mountain, near 1897 site
1900 Feb 13	A.M. Ingersoll	Yes (2)	Cliff steep mountain, near 1897 site
1901 Feb 15	A.M. Ingersoll	Yes (2)	Cliff steep mountain, near 1897 site
1901 Mar 10	A.M. Ingersoll	Yes (2)	Cliff steep mountain, near 1897 site
1902 Feb 18	A.M. Ingersoll	Yes (2)	Cliff steep mountain, near 1897 site
1903 Feb 17	A.M. Ingersoll	Yes (2)	Cliff steep mountain, near 1897 site
1903 Mar 19	A.M. Ingersoll	Yes (3)	Cliff steep mountain, near 1897 site
1917 Feb 27	A.M. Ingersoll	Yes (2)	Old ledge cliff nest
1918 Mar 5	A.M. Ingersoll	Yes (2)	Old ledge cliff nest
1918 Apr 20	A.M. Ingersoll	Yes (2)	All 5 nests seem to be of great age
1919 Mar 1	A.M. Ingersoll	Yes (2)	This pair has 5 nests in ½ mile range
1921 Feb 28	A.M. Ingersoll	Yes (2)	Same nest as 1918; halfway down a 70-foot cliff
1923 Feb 21	A.M. Ingersoll	Yes (2)	Same nest as in 1917
1924 Feb 20	A.M. Ingersoll	Yes (2)	On cliff 60 feet from bottom
1925 Feb 21	A.M. Ingersoll	Yes (2)	Old nest relined
1929 Mar 21	A.M. Ingersoll/ H. Heaton	Yes (2)	Ledge of cliff 60-70 feet from bottom
1930s	Colton	No Data	Active
1992-1994	Mike Faircloth	No (1 or 2)	Nest on west face under rock; fledging event observed
1995	Bittner/Oakley/ Hannan	No (2)	Nest on north face in lower of 2 nests above illegally graded road cut
1996	Bittner/Oakley/ Hannan	No (2)	Same as 1995



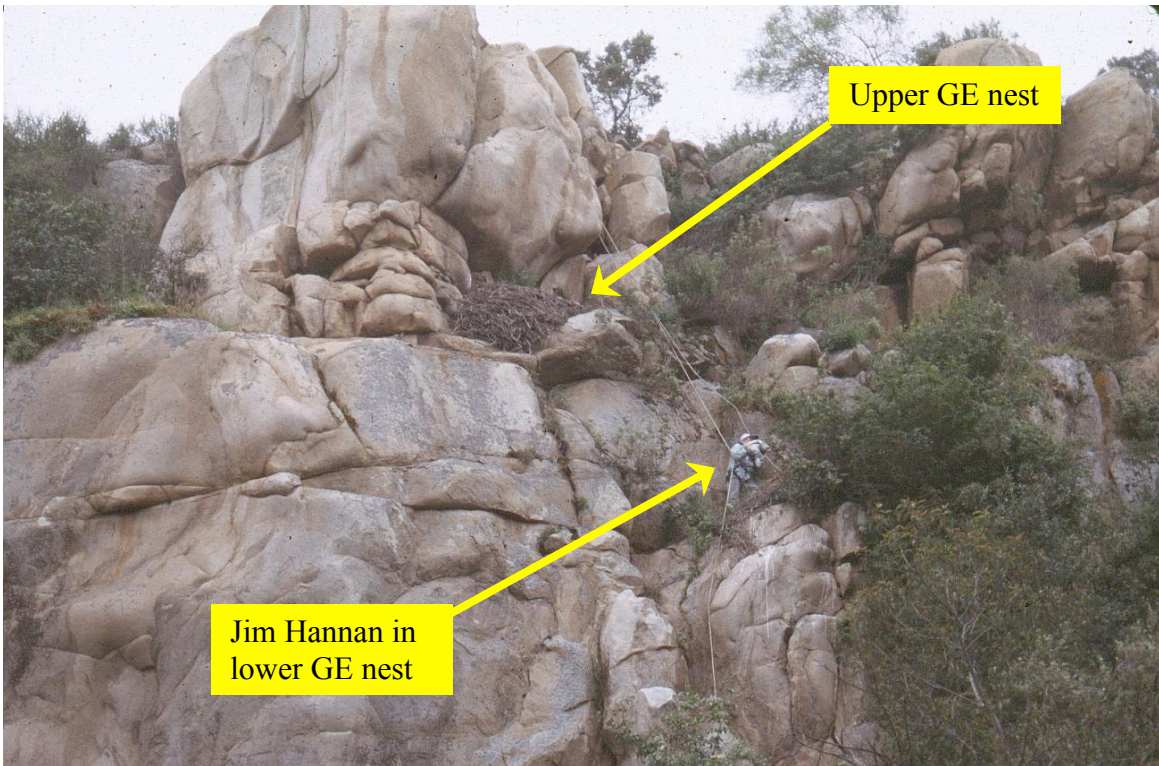
Dates/ Earliest Record	Name on Record	Egg Collection (Number of Eggs or Young)*	Nest Location
1997	Bittner/Oakley	No Data	Same as 1995
1998	Bittner/Oakley	No (2)	Same as 1995
1999	Bittner/Oakley	No (1)	Environmental Impact Report for development on top, Recon, report 2 young
2000	Bittner/Oakley	No (0)	Failed; male killed by line strikes at Santee Lakes
2001	Bittner/Oakley	No (0)	
2002	Bittner/Oakley	No (1)	Banded and patagial tags; on west face nest exposed to direct sun
2003	Bittner/Oakley	No (0)	Adult male present but female was a new juvenile
2004	Bittner/Oakley	No (0)	Failed due to all nests being burned out in Fall 2003; adult observed after fires near previous nest location
2005	Bittner	No (0)	No reports of Golden Eagles on territory
2006	Bittner	No (0)	Adults not seen on territory, reports of Golden Eagles at Mission Gorge may have been this pair
2007 Apr 1	Bittner/Oakley	No (0)	No nesting, new construction under cliffs
2008	Bittner/Meador	No (0)	No Nesting
2009	Bittner/ Meador	No (0)	No GEs seen on territory
2010	Bittner/Meador	No (0)	Great Horned Owls found nesting in old GE nest on SW corner of cliffs

Considered extirpated within the last 10 years.

\* If eggs were collected, the number of eggs collected are indicated. If eggs were not collected, the number of young observed in the nest are indicated.

Table 19: Foster's territory historic records.

**Foster's**



**The Foster's territory nest site prior to 2003, being accessed by WRI biologist, Jim Hannan. Jim is holding a young eagle in the lower of the 2 nests.**



Great Horned Owls (female with nestlings) occupying an old Golden Eagle nest, observed in 2010.



## Sloan Canyon (Dehesa)

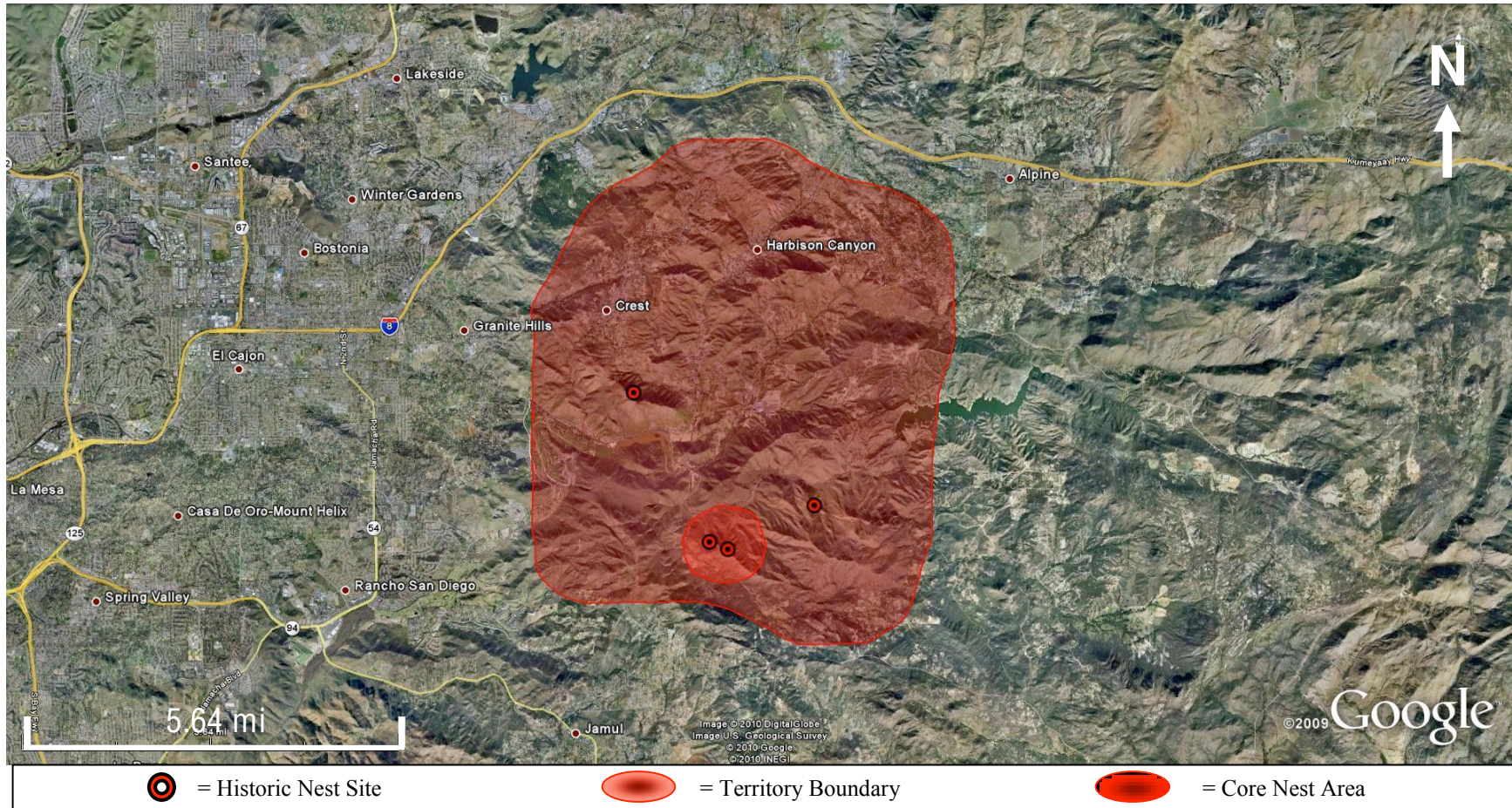


Figure 17: Sloan Canyon (Dehesa) Territory.

Sloan Canyon Golden Eagle extirpated territory. The approximate previous nest site area and territory boundary are provided. Some subsumation took place into both Dehesa and Flynn Springs in the later years as housing forced the eagles to fly further for hunting. This territory was suspected to have been extirpated since 2005.

Sloan Canyon (Dehesa)

Dates/ Earliest Record	Name on Record	Egg Collection (Number of Eggs or Young)*	Nest Location
1905 Feb 27	A.M. Ingersoll	Yes (2)	Nest on cliff (new nest)
1909 Apr 10	E.E. SeChrist	Yes (1)	60-foot cliff, 15 feet from top
1910 Mar 18	E.E. SeChrist	Yes (2)	Shelf of cliff
1918	A.M. Ingersoll	Yes (1)	Cliff nest
1919 Feb 16	A.M. Ingersoll	Yes (2)	(Old nest) same nest as 1905 Feb 27; another nest 300 feet away in canyon (4 nests in group)
1923 Feb 12	A.M. Ingersoll	Yes (2)	(Old nest) on cliff near top of mountain
1929 Feb 10	E.E. SeChrist	Yes (2)	Ledge of 80-foot cliff
1931 Apr 11	Melvin H. Puckett	Yes (2)	On cliff above waterfall (nested on this cliff previous to 1878)
1991	Cooney/Bittner/Oakley		Nested in oak tree (burned out); current nest location not known
1994	Bittner/Oakley		Nest not found
1996	Bittner/Oakley	No (0)	Pair seen copulating, but no young were produced
1997	Bittner/Oakley	No (2)	Nested below Loveland Dam on cliffs; hunt the valley all around school and houses
1998	Bittner/Oakley	No Data	Female killed by a line strike while carrying a rabbit
1999	Bittner/Oakley/ Jeff Watson	No (0)	Second-year female with adult male in spring; 2 adults perched on electric pole were photographed by Bittner and J. Watson (Scottish author of <i>The Golden Eagle</i> , a life history of the species)
2000	Bittner/Oakley	No (0)	Female (juvenile tail)
2001	Bittner/Oakley		Female (juvenile tail)
2002	Bittner/Oakley	No (0)	No adult seen in territory
2003	Bittner/Oakley	No (0)	Adults seen hunting north of golf courses on slopes above highway, no known breeding
2006	Bittner	No (0)	No eagles seen on territory; reports of adults observed on Crestridge property
2007	Bittner	No (0)	No eagles seen on territory
2008	Bittner	No Data	No surveys performed



2009	Bittner	No (0)	No eagles seen on territory
Dates/ Earliest Record	Name on Record	Egg Collection (Number of Eggs or Young)*	Nest Location
2010	Bittner	No (0)	No eagles seen on territory
* If eggs were collected, the number of eggs collected are indicated. If eggs were not collected, the number of young observed in the nest are indicated.			

Table 20: Sloan Canyon (Dehesa) territory historic records.

## Extirpated Golden Eagle Territories Within and Around the San Diego MSCP (Before 2005)

The following section, which is part of the Wildlife Research Institute's *Golden Eagle Nesting Database*, contains documentation of historic records from numerous resources of extirpated Golden Eagle territories. The early records are taken from egg collectors who contributed their collections and field notes to museums. These records indicated eggs collected along with the date and location of collection. Any additional and relevant information from field notes about nest substrate, relevance to other nests, etc., have also been reproduced in this database. More recent records, generally from 1988 to the present, include additional information recorded by WRI, such as actual number of young produced. Some of the extirpation dates are estimates based on available information. With a few exceptions, these territories ceased being used before WRI could document the spatial details of territories that would allow the creation of territory maps.

An "extirpated" territory is defined as a territory in which an adult Golden Eagle has not been observed for at least 5 years. Some eagles will not breed every year and, under drought conditions, may not breed for several years. Using the criterion of *5 years without adults on territory* reduces the chance of misinterpreting periodically inactive years. Although unique exceptions exist in other geographic areas (e.g., in Idaho, 15 years; M. Kochert and K. Steenhof, pers. comm.), it is uncommon for Golden Eagles to reoccupy extirpated territories. In San Diego County, only one Golden Eagle pair has been reactivated after 5 years, the Glen Cliff pair which was not active, or at least no nesting was observed, for almost 20 years before becoming active again. Individual adult Golden Eagles were occasionally seen but no pairs were observed. The pair was supposedly shot dead in 1982 by a nearby game bird manager, so the territory was still intact. Given the expanding nature of the human population within San Diego County, it seems unlikely that any territorial re-occupation would occur naturally after the 5-year limit within the MSCP. However, with professional intervention, such as hacking young birds back into selective and previously occupied nest sites, successful reintroduction might be possible. Mission Gorge is one such possible site. This would, of course, have to be conducted at a well-conceived site and under the direction of Golden Eagle experts with the full cooperation of a number of agencies.

Possible financing for such an effort might come from wind, solar or electric industries for mitigation over Golden Eagle losses incurred on their respective projects.



## Calavaras

Dates/ Earliest Record	Name on Record	Egg Collection (Number of Eggs or Young)*	Nest Location
1921 Feb 13	N.K. Carpenter/ J.B. Dixon	Yes (2)	45 feet from ground on horizontal limb of Sycamore tree
1924 Feb 6	B.P.I/ N.K. Carpenter	Yes (2)	On face of basalt cliff, 35 feet below top of 75-foot north-facing cliff
1924 July 24	J.B. Dixon/ G. Bancroft	Yes (2)	In a Sycamore tree near Vista
1932 Feb 29	J.B. Dixon	Yes (2)	In large Eucalyptus tree, 70 feet from ground
1934 Jan 2	J.B. Dixon/ J. Hanson/ R. Dixon	Yes (2)	Large Eucalyptus tree in open grain field, 65 feet high, near houses

\* If eggs were collected, the number of eggs collected are indicated. If eggs were not collected, the number of young observed in the nest are indicated.

Table 21: Calavaras territory historic records.

## Chickarita Creek

Dates/ Earliest Record	Name on Record	Egg Collection (Number of Eggs or Young)*	Nest Location
1920s	Dixon	No Data	(May be the same pair as Peñasquitos pair) Nested in sycamore tree, moved to east end of territory by development.
1980s	Bittner/Oakley	No Data	1980s last seen (territory consumed by development). In 1982, a 16 year-old boy was arrested for killing young eaglets from this nest in order to collect their feet.
1982	Oakley	No Data	Extirpated by mid-1980s. A shopping center is now located on the last nesting site for this pair of Golden Eagles.
References to this pair make it difficult to determine if this pair is the same as the Peñasquitos Canyon pair. Another Golden Eagle nesting was recorded in Deer Canyon, just north of Peñasquitos. After analysis of our nesting data cards, WRI is convinced that these 3 locations refer to a single pair of eagles.			

Table 22: Chickarita Creek territory historic records.

## Donahue Mountain

Dates/ Earliest Record	Name on Record	Egg Collection (Number of Eggs or Young)*	Nest Location
1970s-1982	Tom Scott	No Data	Active Territory
1991	Scott	No Data	Aerial Survey Female incubating
1992	Scott	No Data	Pair reported to have been shot by nearby gun club manager
1994	Bittner/Oakley	No Data	Nest burned out (gone between 1991 and 1999)
1999	Bittner/Oakley	No Data	Pair seen courting on SE corner of Otay Mountain near Mexican border, may have been the Copper Canyon pair
2000	Bittner/Oakley	No Data	Nest on Mexican side of Otay Mountain
2001	Kate Shampaine/ J. Hannan	No Data	Nesting uncertain
2002	Bittner/Oakley	No Data	Report of nesting, 3 nests found on SE Corner of Otay Mountain
2003	Bitnner/Hannan	No Data	Pair considered extirpated since the recent observations seem to be the Butteweg/Copper Canyon pair. Nests on SE side of Otay Mountain east of Butteweg Canyon burned up. No new nests built since the fire.
Considered extirpated in the early 1990s.			

Table 23: Donahue Mountain territory historic records.



## Flynn Springs

Dates/ Earliest Record	Name on Record	Egg Collection (Number of Eggs or Young)*	Nest Location
1897 Mar 22	A.M. Ingersoll	Yes (2)	First recorded eggs collected from this nest
1918 Mar 1	A.M. Ingersoll	No Data	(new nest) on side of boulder-covered mountainside
1918 Apr 13	A.M. Ingersoll	Yes (2)	
1920 Feb 21	A.M. Ingersoll & H. Heaton	Yes (2)	(Old nest site) on ledge 18 feet from top of cliff
1923 Feb 13	E.E. SeChrist	Yes (2)	50 feet cliff 18 feet from top
1923 Feb 25	John Burnham & A.M. Ingersoll	Yes (2)	Granite cliff 40 feet high
1925 Feb 27	A.M. Ingersoll	Yes (2)	Cliff back of Flynn Springs (same nest as 1897)
1929 Feb 19	A.M. Ingersoll	Yes (2)	(New nest) on face of huge boulder 40 feet from bottom and 12 feet from top
1931 Mar 24	Harry L. Heaton	Yes (2)	Niche of rock cliff 70 feet high, 50 feet from base
1942 Feb 28	Raymond Quigley Jr. & E.E. SeChrist	Yes (3)	20 feet down on 65 feet rock cliff; nest in large pothole
1960s	Colton	No Data	Historical nesting area but little current data is available
2001 Mar	Bittner	No Data	Adult eagle seen flying. Some indication of use of area by Sloan Canyon pair for hunting. Occasional reports of Golden Eagles hunting on the territory.
2010	Bittner	No Data	Acquisition of the area known as the Crestridge Preserve may allow the Golden Eagles to reoccupy the area. It remains to be seen whether this area will be large enough to support a sufficient foraging area.

John Oakley remembers the pair active as recently as the early 1960s but feels they were extirpated by the early 1970s.  
 \* If eggs were collected, the number of eggs collected are indicated. If eggs were not collected, the number of young observed in the nest are indicated.

Table 24: Flynn Springs territory historic records.

## Goat Peak

Dates/ Earliest Record	Name on Record	Egg Collection (Number of Eggs or Young)*	Nest Location
1920s	Dixon	No Data	Dixon nest #22; on Goat Peak at the East end of Poway
1977-1980	Scott	No Data	Pair breed then, but not much after. Nest was located on a small mtn cliff north of Scripps Poway Parkway and NW of Route 67 intersection.
1990s	Bittner	No (0)	Construction of Scripps Poway Parkway and accompanying housing/ industrial development dramatically reduced territory
1995	Scott/Bittner	No Data	Water tower, road to this nest site and home construction within a few feet of this former eagle nest site
<p>Considered extirpated by the early 1980s.</p> <p>* If eggs were collected, the number of eggs collected are indicated. If eggs were not collected, the number of young observed in the nest are indicated.</p>			

Table 25: Goat Peak territory historic records.

## Harbison Canyon

Dates/ Earliest Record	Name on Record	Egg Collection (Number of Eggs or Young)*	Nest Location
1914 mar 5	A.M. Ingersoll	Yes (2)	On face of small cliff about 30 feet from the bottom
1918 Apr 19	A.M. Ingersoll	Yes (1)	2 nests on cliff
1918 Mar 1	A.M. Ingersoll	Yes (2)	
1931 Feb 21	Harry L. Heaton	Yes (2)	20 feet from top of 90-foot cliff; lodged in a small recess in face of cliff
1930s	Colton/Scott	No Data	Verbal records of breeding activity
1970s	Scott/Oakley	No Data	No breeding reported

Considered extirpated by 1970s; housing now fills the canyon below the historical nest sites.

\*If eggs were collected, the number of eggs collected are indicated. If eggs were not collected, the number of young observed in the nest are indicated.

Table 26: Harbison Canyon territory historic records.



## Harmony Grove

Dates/ Earliest Record	Name on Record	Egg Collection (Number of Eggs or Young)*	Nest Location
1907 Feb 2	J.B. Dixon	Yes (3)	In large boulder pile near bottom of cliff
1908 Feb 26	J.B. Dixon	Yes (3)	Large granite cliff on Escondido Creek; ledge near top of cliff
1910s	Dixon	Yes (2)	
1913 Mar 15	C.F.S. for J.B. Dixon	Yes (2)	Cliff over-looking Escondido Creek
1920 Feb 15	J.B. Dixon	Yes (2)	(Old nest) on large cliff facing stream below
1921 Feb 17	C.F.S.	Yes (2)	(Old nest) on cliff facing west on Escondido Creek
1921 Mar 22	J.B. Dixon	Yes (2)	In crack of very large boulder overlooking deep canyon
1924 Feb 14	J.B. Dixon	Yes (2)	On cliff on Escondido Creek facing NW
1928 Feb 20	J.B. Dixon	Yes (2)	(Old nest) on side of large boulder on Escondido Creek
1930 Feb 3	J.B. Dixon	Yes (2)	On a granite cliff facing north, on a steep rocky, bush-covered mountainside far from civilization
1936 Feb 1	R.E. & J.B. Dixon	Yes (2)	Large cliff facing north on a high mountainside
1951 Mar 4	Maurice Burns	Yes (2)	In small cliff; nest used by Red-tailed Hawk last year
1952 Mar 5	Maurice Burns	Yes (2)	
1959 Mar 8	Maurice Burns	Yes (2)	
1972	Bittner/Oakley	No Data	Target shooting below last nest resulted in abandonment; 2 historical nests in canyon
1984	Bittner/Oakley	No Data	Pair probably extirpated
2001	Bittner/Oakley/Wolfe	No (1)	Harmony Grove nest is being used; pair is Del Dios pair who lost 2 nests and subsumed the abandoned territory
2002	Bittner/Oakley	No (0)	Pair failed to nest, but 2 adult GEs were seen on territory
2003	Bittner/Oakley	No (0)	Pair failed due to human disturbance. Female is new and the old female was suspected shot. Arte Wolfe, WRI observer, heard shooting on Derbas property and never saw the female again. Male was banded and fed regularly by Arte Wolfe in his driveway with road killed squirrels and rabbits.

Dates/ Earliest Record	Name on Record	Egg Collection (Number of Eggs or Young)*	Nest Location
2004	Bittner	No (0)	Adult male, banded, seen on territory without mate
2005	Bittner	No (0)	SD County (against WRI recommendation) built trails above the nest site at Del Dios and Derbas thus disturbing any nesting activity
2006	Bittner	No (0)	No eagles observed via ground or helicopter surveys
2010	Bittner	No (0)	Over the past few years, some unverified observations of eagles from non-WRI staff have been reported; WRI has not seen a Golden Eagle on territory since 2005
<p>Considered extirpated sometime between 2005 and 2010.            * If eggs were collected, the number of eggs collected are indicated. If eggs were not collected, the number of young observed in the nest are indicated.</p>			

Table 27: Harmony Grove territory historic records.

## La Jolla

Dates/ Earliest Record	Name on Record	Egg Collection (Number of Eggs or Young)*	Nest Location
1920s	(Ranch Owner)	No Data	Nest reported to J.D. Bittner by Margie McSparrow, who as a young girl would come down from L.A. each spring with her family and make a special trip out in wagons to see the GE nest and watch the eagles fly. “The hills were all grazed by cattle in those days, but now it is all homes.”
1930s	Bittner/Oakley	No Data	Nesting last reported in the early 1930s; nest location was on east-facing mud cliffs behind bluffs facing away from the ocean, near present day I-5
<p>This pair was estimated to be extirpated in the late 1930s to early 1940s.</p> <p>* If eggs were collected, the number of eggs collected are indicated. If eggs were not collected, the number of young observed in the nest are indicated.</p>			

Table 28: La Jolla territory historic records.



## Loveland Reservoir

Dates/ Earliest Record	Name on Record	Egg Collection (Number of Eggs or Young)*	Nest Location
1979-82	Scott/Colton	No Data	Nests were below the Dam on cliffs facing north
1995	Bittner	No (1)	Seen in nest on east end of reservation
1996	Allysa Ing, WRI, CA State Parks	No (2)	Young observed with adults at east end of lake
1997-2003	Bittner/Oakley/Martin	No Data	No eagles observed and all but two nests were lost to fires in 2003
2010	Bittner	No Data	Two nests still on cliffs below the dam on North facing cliffs, Great Horned Owls were using one of them and had 2-3 young
Considered extirpated in 1997.			
* If eggs were collected, the number of eggs collected are indicated. If eggs were not collected, the number of young observed in the nest are indicated.			

Table 29: Loveland Reservoir territory historic records.

## Mission Gorge

Dates/ Earliest Record	Name on Record	Egg Collection (Number of Eggs or Young)*	Nest Location
1897 Mar 13	J. Hazelwood	Yes (2)	In cliff 25 feet from top
1898 Mar 15	A.M. Ingersoll	Yes (2)	On a cliff up about 35 feet from the bottom
1900 Feb 27	A.M. Ingersoll	No (1)	(New nest) on rock 30 feet from bottom of cliff
1901 Feb 16	A.M. Ingersoll	No (1)	40 feet up on cliff (old nest)
1902 Feb 24	A.M. Ingersoll	Yes (2)	On rocks of cliff on a steep mountainside
1903 Feb 19	A.M. Ingersoll	Yes (2)	Same nest as Feb 24, 1902
1903 Mar 20	A.M. Ingersoll	Yes (2)	Same nest as Feb 16, 1901
1905 Feb 2	John Lewis Childs	Yes (2)	Top of high peak, 1000 feet up
1909 Feb 14	A.M. Ingersoll	Yes (1)	Near Foster's (possible confusion with Foster pair or bad directions, J.D. Bittner)
1910 Feb 9	A.M. Ingersoll	Yes (2)	On rock of cliff on south side of river Same nest as 1901, 1902, and 1903
1910 Feb 26	A.M. Ingersoll	Yes (1 plus 1 egg not collected)	On cliff on steep side of a bush-covered mountain near top of a perpendicular cliff (nest found in 1903-1 egg not collected in 1910)
1911 Feb 11	S.M. Huey	Yes (2)	On ledge of 60-foot cliff (old nest)
1912 Feb 8	S.M. Huey	Yes (2)	On 40-foot cliff
1914 Feb 10	L.M. Huey	Yes (2)	Nest on cliff of rocks 40 feet high
1915 Feb 8	L.M. Huey	Yes (2)	In natural recess in large bluff
1916 Mar 2	A.M. Ingersoll	Yes (2)	Near Foster's
1917 Feb 10	L.M. Huey	Yes (2)	On cliff on east wall of the canyon
1919 Mar 8	C.L. & P.H. Field	Yes (2)	Cliff
1920s	Colton	No Data	
1920 Mar 4	A.M. Ingersoll	Yes (2)	Cliff on steep mountainside
1923 Mar 16	A.M. Ingersoll	Yes (2)	(Old nest) 40 feet from top of 60-foot cliff
1923 Apr 29	F.B. Heaton	Yes (1)	On rock shelf on high granite cliff near top on steep mountainside
1924 Feb 21	E.E. SeChrist	Yes (2)	Small cliff 35 feet high, 12 feet down with N exposure
1925 Feb 8	H.L., F.B., & C.L. Heaton	Yes (2)	On rock shelf of high granite cliff near top of a steep mountainside of the SD River Gorge

Dates/ Earliest Record	Name on Record	Egg Collection (Number of Eggs or Young)*	Nest Location
1928 Feb 26	E.E. SeChrist	Yes (2)	On shelf of cliff 35feet up
1928 Mar 24	A.M. Ingersoll	Yes (2)	40 feet from bottom of cliff
1936 Feb 22	Ed N. Harrison	Yes (2)	80 feet up on face of cliff
1970s	Colton	No Data	Eagles nested on cliffs of Mission Gorge until late 1970s Disturbance of nest site probable since feeding area still exists
1979-1982	Tom Scott	No Data	Nested on cliffs south of Route 52 and once in Sycamore Canyon
2003-2010	J.D. Bittner	No Data	After Foster's nests burned, repeated reports of Golden Eagles nesting on the cliffs above Mission Valley Parkway in the Mission Gorge City Park were received; helicopter and ground surveys did not reveal any Golden Eagles, although a nest large enough to support them was located. Red-tailed Hawks were the sole species nesting on these cliffs by 2005
Extirpation occurred in the early 1980s due to climbing activity on nest cliffs. This site is a viable option for reintroduction of Golden Eagles since the 18,000 acres of Miramar, Mission Gorge City Park, and county-owned Sycamore Canyon is a productive foraging area.			
* If eggs were collected, the number of eggs collected are indicated. If eggs were not collected, the number of young observed in the nest are indicated.			

Table 30: Mission Gorge territory historic records.



## Olivenhain

Dates/ Earliest Record	Name on Record	Egg Collection (Number of Eggs or Young)*	Nest Location
1920s	Dixon/ Maurice Burns	Yes (No Data)	Collected eggs, but no data
1930 Apr 11	A.M. Ingersoll & H. Heaton	Yes (2)	Nest about 9 feet from top of small cliff
1960	Bittner/Oakley	No Data	No eagles on territory after 1960
Extirpation occurred around 1960.			
*If eggs were collected, the number of eggs collected are indicated. If eggs were not collected, the number of young observed in the nest are indicated.			

Table 31: Olivenhain territory historic records.

## Otay Dam

Dates/ Earliest Record	Name on Record	Egg Collection (Number of Eggs or Young)*	Nest Location
1930 Feb 20	Paul H. Field & C.L. Field	Yes (2)	50 feet from top of 100-foot cliff
1934 Feb 18	C.L. Field	Yes (2)	Rock cliff 75 feet from top
1970s	Colton	No Data	Observed pair regularly
2002	Bittner	No Data	Report of pair flying into cliff ledges
<p>Extirpation occurred in the late 1970s. Nest site area is currently used by firemen to train their personnel for cliff rescues.                      * If eggs were collected, the number of eggs collected are indicated. If eggs were not collected, the number of young observed in the nest are indicated.</p>			

Table 32: Otay Dam territory historic records.

## Peñasquitos Canyon (McGonigle Canyon, Deer Creek)

Dates/ Earliest Record	Name on Record	Egg Collection (Number of Eggs or Young)*	Nest Location
1909 Mar 21	B.P. and N.K. Carpenter	Yes (1)	Shelf of cliff overhung by a rock 30 feet from bottom
1924 Mar 9	J.B. Dixon	Yes (2)	
1989-1900s	Culver	No Data	Eagles reported by Culver, but never verified nesting. Development in territory (possibly the Chickarita pair)
1982	Culver/ T Stephen/Oakley	No (2)	Nest in sycamore tree near what is now I-5
<p>Extirpation occurred in 1982 when the last nest in a Sycamore tree was robbed of 2 young and their feet were cut off by a 16 year old boy. He took the feet to school to show them and was turned in. This was the last recorded nesting of the pair. It is now the position of WRI, after analysis of the nesting records, that this pair and the Chickarita Creek pair are the same.</p> <p>* If eggs were collected, the number of eggs collected are indicated. If eggs were not collected, the number of young observed in the nest are indicated.</p>			

Table 33: Peñasquitos Canyon (McGonigle Canyon, Deer Creek) territory historic records.



## San Dieguito River Gorge

Dates/ Earliest Record	Name on Record	Egg Collection (Number of Eggs or Young)*	Nest Location
1921 Mar 9	J.B. Dixon	Yes (1)	Small oak tree on steep hillside (new nest)
1921 Apr 5	J.B. Dixon	Yes (1)	On cliff facing river (old nest)
1922 Apr 16	J.B. Dixon	Yes (2)	In cliff overlooking river bottom (old nest)
1925 Mar 8	J.B. Dixon	Yes (2)	On large congl cliff on mountain overlooking ocean (old nest)
1928 Feb 19	N.K. Carpenter & Dad	Yes (2)	On shelf of granite cliff about 20' up on 60' cliff
1934 Feb 16	Ed N. Harrison	Yes (2)	Side of cliff 100 feet up
1935 Mar 15	J.B. Dixon	Yes (2)	(Old nest) cliff face 25 feet down on top of cliff Pair nested on cliff above and below what is now the dam for Lake Hodges Fed in what is now Rancho Santa Fe and 4-S Ranch development
1978-1982	Scott/Oakley	No Data	John Oakley remembers the nests when they were active but no detailed notes were available from this period (pers. comm.)
From verbal records from Colton/Oakley/Culver; extirpation likely occurred by the early 1970s.			
*If eggs were collected, the number of eggs collected are indicated. If eggs were not collected, the number of young observed in the nest are indicated.			

Table 34: San Dieguito River Gorge territory historic records.

## San Marcos

Dates/ Earliest Record	Name on Record	Egg Collection (Number of Eggs or Young)*	Nest Location
1913 Feb 9	J.B. Dixon	Yes (3)	In Eucalyptus tree 30 feet up in edge of grain field (new nest)
1913 Mar 8	J.B. Dixon	Yes (2)	In cliff (old nest)
1922 Mar 6	Fred Gallup	Yes (2)	50 feet up in Eucalyptus tree
1923 Feb 18	Fred Gallup	Yes (2)	On ledge 100 feet up
1923 Mar 6	Fred Gallup	Yes (2)	30 feet up in niche in boulders
1929 Mar 9	J.S. and J.B. Dixon	Yes (2)	Eucalyptus tree (old large nest)
1932 Feb 21	J.B. Dixon	Yes (2)	Eucalyptus tree, 80 feet from ground (new, old hawk nest)
1939 Feb 19	J.B. Dixon	Yes (2)	Tree nest about 80 feet up (new)
1940 Feb 18	J.B. Dixon	Yes (2)	In Oak tree in rough, steep mountain over-looking valley below (old nest)

\* If eggs were collected, the number of eggs collected are indicated. If eggs were not collected, the number of young observed in the nest are indicated.

Table 35: San Marcos territory historic records.

## Starvation Mountain

Dates/ Earliest Record	Name on Record	Egg Collection (Number of Eggs or Young)*	Nest Location
1920s	Dixon (15)	No Data	Pair active at same time Bandy and Iron Mountain were active; foraging area is West down slope toward Poway
1981	Scott/Oakley	No Data	Foraged west of mountain which is now Rancho Bernardo/Carmel Mountain/Poway
1982	Oakley/Scott	No Data	In small cliff on SE side of mountain
2010	Bittner	No (0)	Helicopter survey recorded Red-tailed Hawks nesting on old Golden Eagle nest ledge, no GEs observed
Extirpation occurred in the 1980s as avocado groves covered Starvation Mountain and disturbance was constant.			
*If eggs were collected, the number of eggs collected are indicated. If eggs were not collected, the number of young observed in the nest are indicated.			

Table 36: Starvation Mountain territory historic records.



## Sycamore Canyon

Dates/ Earliest Record	Name on Record	Egg Collection (Number of Eggs or Young)*	Nest Location
1970	Culver/Scott	No Data	Pair reported; no confirmed nest since 1970s when pair nested in Sycamore tree (probably last nesting of Mission Gorge pair) Feeding area for Foster's, and previous Mission Gorge and Goat Peak; possible reintroduction area
1990s	Miramar Naval Air Station	No (0)	Miramar Naval Air Station placed 3 nest boxes for Golden Eagles on transmission towers but they were never used
<p>Considered extirpated in the 1980s. It is now the position of WRI, after analysis of the nesting records, that Mission Gorge is the same pair.</p> <p>*If eggs were collected, the number of eggs collected are indicated. If eggs were not collected, the number of young observed in the nest are indicated.</p>			

Table 37: Sycamore Canyon territory historic records.

## Vista

Dates/ Earliest Record	Name on Record	Egg Collection (Number of Eggs or Young)*	Nest Location
1956	Dixon/Oakley	No Data	J. Oakley notes that the pair did not appear in tree nest until after the Morro Hill pair abandoned the cliffs at Morro (possibly a last attempt to survive due to rapid development in area)
1960s	Oakley	No Data	Nesting ceased; pair remained for several years, 2 Vista nests might exist

Table 38: Vista territory historic records.

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