

,December 2, 2003

California Fish & Game Commission  
1416 Ninth Street  
Sacramento, CA 95814

Acting Director  
Department of Fish & Game  
1416 Ninth Street  
Sacramento, CA 95814

Dear Commission Members and Acting Director:

Let me introduce myself, I am a biologist who grew up in Orange County during the 1960s. I witnessed a burrowing owl (BUOW) population that could best be described as abundant and ubiquitous in my youth descend to one that is now on the brink of extinction throughout southwestern California. During my 30 year career as a biologist, I have focused my research and conservation efforts on raptors in California as a private individual and as a long-term Research Associate of the Western Foundation of Vertebrate Zoology. I also worked in close collaboration with the California Department of Fish & Game (hereafter DF&G) on the California Condor program from 1982-87, and completed state-wide status assessments for the State on the Swainson's hawk (Bloom 1980) and northern goshawk (Bloom et al. 1985) for California Fish and Game Commission. I recommended State Threatened status for the Swainson's hawk and no change in legal status for the northern goshawk, recommendations that were followed by the DF&G Commission. I am presently a doctoral student at the University of Idaho, Moscow, investigating natal dispersal and philopatry in California birds of prey.

I and my associates have conducted both ecological and management related research on BUOWs since 1970. Over the 30+ year span we examined several thousand nests and banded several hundred owls in Lassen, Modoc, Orange, San Diego, Imperial, San Bernardino, Riverside, Ventura and Los Angeles Counties. The vast majority of the southwestern California BUOW territories no longer provide suitable habitat. Conversion of native and agricultural habitat types to urban landscapes is the principle reason for the loss of California's population.

I am writing to endorse the burrowing owl listing proposal and in response to a request in the Burrowing Owl Survey Protocol and Mitigation Guidelines (1997) (hereafter Guidelines) for follow-up commentary that might improve the Guidelines. This letter expresses my concern regarding the declining burrowing owl (BUOW) (*Speotyto cunicularia hypugaea*) population in California, and the relationship between the Guidelines co-endorsed by the Burrowing Owl Consortium and DF&G and the possible listing of the species by the State as either Threatened or Endangered. While formally published in 1997 in the *Journal of Raptor Research*, the document has been in use by the DF&G since at least 1995 when initially produced as a report (Staff Report on Burrowing Owl Mitigation 1995). Despite the good intentions of the authors and the

DF&G, I believe the two documents which are similar in many ways, but different in important details, have won precious little BUOW conservation in the state.

Rather than preserving owls and habitat in place the DF&G has been supporting the passive relocation and occasionally active relocation of BUOWS in California. A management program consisting predominantly of translocation and reestablishment efforts suggests a species that is already threatened or endangered and a recovery program that was initiated too late (Tear et al. 1993). Unfortunately, this is the program endorsed by the DF&G for the BUOW over most of the last decade but without the benefits of the California Endangered Species Act to secure habitat.

It has been said that the time to save a species is when they are still common (Scott et al. 1987). For the reasons cited in the Listing Petition (Center for Biodiversity 2003), my own results from southwestern California, and the fact that the DF&G's Staff Report on Burrowing Owl Mitigation (1995) found a steady declining population, and have failed to save owls or habitat, I believe the species should be listed, probably as threatened.

While there are many known causes of BUOW declines in California, all authorities concur that habitat loss is the most important issue (Remsen 1978, Desante and Ruhlen 1995, Center for Biological Diversity 2003, Haug et al. 1993) in California. The species propensity for nesting on relatively flat ground in California placed it in direct conflict with developers, particularly since the 1960s.

The BUOW Guidelines state that the material within is to be used as a guideline and that "Each project and situation is different and these procedures may not be applicable in some circumstances." However, since its adoption, most biologists have attempted to implement the Guidelines everywhere and that the most commonly used procedure, passive relocation, hasn't worked. The authors stated that "These are untested procedures and we ask for your comments on improving their usefulness". With this letter I hope to provide some positive feedback as a result of direct experience.

My concern is with the way the Guidelines have been implemented and how I believe they have contributed to the downward trend of the species. While described as "passive relocation" (The Burrowing Owl Consortium 1997, Trulio 1995, 1997), when habitat preservation (which is the responsibility of the DF&G) does not happen together with the "eviction" of the owls, the process can only result in a net loss of owls and habitat. The Guidelines are said to "offer a decision-making process aimed at preserving burrowing owls in place with adequate habitat." I have never seen the procedure accomplish the above goal in southern California. Unless the proposed development is large (> 300 acres) the amount of habitat that can be left on-site is always so small that on-site habitat preservation for a wide ranging species won't work. If the BUOW is to survive in southern California the Guidelines need an overhaul, and updated with the latest information. I will offer my comments in order of the topic's occurrence in the Guidelines.

While a minor issue, the credibility of the observer when conducting presence/absence surveys is important, the same way it is important for T&E species. Perhaps the first weakness in the Guidelines is the omission of a requirement for experienced personnel. BUOWs if present on a site tend to be easy to detect, but not always. While I agree that relatively minimal training is needed, I strongly feel that some training is required. If one writes the results of a Biological Assessment (BA) and concludes that the owl is not present, the readers need to be able to believe the author has previous direct knowledge of owls and nest burrows. As currently written, literally anyone can conduct habitat assessments and presence/absence surveys and the reader has no idea of the individual's expertise. I realize that the BUOW is not yet a threatened or endangered species in California but it likely will be within the decade and utilizing experienced people should be part of the BA process.

“These guidelines emphasize maintaining burrowing owls and their resources in place rather than minimizing impacts through displacement of owls to an alternate site.” While this objective is best, it rarely has substance in the real world because in most situations a development encompasses on-site burrows as well as home-ranges of both on and off-site breeding pairs. Passive relocation usually succeeds only in displacing the owls. Even if as prescribed in the Guidelines 6.5 acres are preserved for each pair, once the project development is completed and is later surrounded by other developments, whatever acreage has been set aside becomes useless for owl conservation.

The mean home-range (MCP) estimate for 11 male burrowing owls in 1998 and 22 males in 1999 was 177 ha and 189 ha respectively at Naval Air Station, Lemoore, California (Gervais et al. 2003). This suggests that the minimum 6.5 acre mitigation “per pair or unpaired resident owl” (CDF&G 1995) is too small by a factor of 60. However, since almost no habitat was set aside as a result of the CDF&G mitigation program for burrowing owls the low habitat acreage estimates for burrowing owls never mattered.

Given the recently published (Gervais et al. 2003) results of radio telemetry studies of BUOWs in the Central Valley, it would appear that the 150-m survey buffer area around a project site is inadequate and will need to be expanded to at least a 600-m survey buffer area in order to adequately address the needs of both on and off-site breeding pairs. Since male burrowing owls often move greater than 1,000 m (Gervais et al. 2003) when foraging in the breeding season, consideration for off-site foraging habitat affected by development, particularly in agricultural areas should be included in assessments. According to Gervais et al. (2003) habitat improvements should be planned within 600m of the nest site for breeding burrowing owls to maximize foraging efficiency.

I concur with most aspects of the survey protocol but recommend modifying the survey coverage in certain agricultural landscapes where visibility for 100s of meters is essentially 100%, as with alfalfa and disked fields. In these situations, walking all irrigation and road berms on the perimeter and inside of the project is adequate, when coupled with specific searches of localized breeding habitat that occasionally exist in the center of fields, and frequent scoping with binoculars, or night vision scopes. I would also suggest that requiring 4 surveys (Guidelines) on four different days is probably

excessive and can be effectively accomplished in two early morning and two late afternoon/night surveys. Again, this assumes a high level of competency on the part of the biologists. I would also suggest that if BUOWs are found on-site during the breeding season, winter surveys are redundant for the majority of projects and are not necessary. If winter surveys are performed first, whether the species is found or not, breeding season surveys will be necessary.

Passive relocation should only be used as a mitigation technique when the BUOW nesting territories in question are directly adjacent to permanently protected lands such as a military reservation, airport, wildlife reserve, agricultural reserve with appropriate crop type (alfalfa and others), or a park with significant grasslands. And under these best of all situations where the land is already protected, it would be prudent if 1) there is an existing BUOW colony, and 2), a large ground squirrel colony. Should neither colony currently exist, artificial BUOW burrows should be installed only if significant grassland or appropriate agricultural habitats are present. Ground squirrel colonies are an integral part of BUOW ecology, and if not present should be considered for reintroduction to the immediate vicinity as a way of providing new burrows and an early warning predator system.

Passive relocation may also be an effective technique when used on fast moving, low impact, short term projects such as pipeline installations with relatively little permanent habitat loss and where the owl can remain on-site on either unprotected or protected lands. While the need for protected habitat is mentioned in the Guidelines (1995) and in Trulio (1995, 1997), it was not emphasized strongly enough and the technique, at least in southern California has been misapplied, particularly by forcing owls from one unprotected private property parcel to another unprotected private property parcel. The same issue then repeats itself the next month or several years later when the next development is approved. I suspect that in many situations the owls that are evicted, have no close permanently protected habitat, and are very quickly victims of predation rapidly thereafter.

A more appropriate term for the passive relocation of BUOW pairs is eviction (Trulio 1995), meaning the pairs have no "home", no protective burrows to escape to. While artificial burrows are required as part of the process, there is no guarantee that the owls will find the new burrows once evicted, and adequate monitoring and maintenance of the artificial burrows almost never occurs. Eviction of pairs leads directly to local extirpations and then to regional extirpation. The passive relocation technique, except for sporadic ineffective fragmented land set aside has been no different than the previous 4 decades of land development with zero mitigation. Evidence of the level of this failure can easily be obtained by evaluating all previous DF&G approved passive relocations.

Because passive location has little ability to direct where the evicted owls are going to move when forced from private land, I also wonder about the legal ramifications of DF&G endorsing the forced (passive relocation) movement of owls that at least initially and perhaps permanently, will shift to the next closest parcel of private property.

I have spoken with many California DF&G biologists who have further confirmed my suspicions about the ineffectiveness of passive relocations and lack of concomitant habitat preservation that should follow. For evidence of the above observations, I recommend that the DF&G determine the number of sites where passive relocation was involved, how much habitat was set aside, and whether any breeding BUOWs ever used it, and whether still occupied by breeding BUOWs. I'm willing to predict that passive relocation efforts that involved evicting owls from private land to more unprotected private land failed and that the owl territories no longer exist. This outcome is predictable because either the land was developed, or the nest boxes were not maintained and no squirrels were present to create natural burrows.

Successful BUOW pairs need multiple burrows, one as the nest burrow, and several as escape burrows which the adults can retreat into and fledglings can intermittently reside in. Depending upon the availability of natural burrows, if none are available, then a minimum of 4 well spaced artificial burrows per passive or active relocated owl pair should be installed. In many regions artificial burrows should be maintained on a monthly basis or quarterly basis. Burrowing mammals often bury the entrances, tunnels, or nest chambers. The use of artificial nest boxes as mitigation represents a commitment to permanently manage the boxes as long as BUOWs exist on the site and perhaps 5 years post extirpation, should it happen. Should the relocation effort fail within 5 years, the project proponents should provide alternative mitigations such as BUOW nesting and/or foraging habitat.

Artificial burrowing owl burrows need regular maintenance. Sixteen artificial burrows that I and my colleagues placed out at Naval Weapons Station, Seal Beach, were all rendered useless within 3 months because California ground squirrels either buried the entrances, or filled the nest boxes, or both with soil. Some Mojave and Sonoran desert locations were not subject to as rapid a burial. My point is that simply placing artificial burrows in the ground (with or without owls) as part of mitigation without regular permanent maintenance is useless.

Speaking from my experience in southern California, no passive relocations have been attempted from private land to adjacent protected lands. Quite the opposite has occurred with no alternative protected landscape for evicted owls to move to. If the successful passive relocation of BUOWs from private lands to protected lands has happened in other parts of California it is a rare event compared to direct eviction where the owl pairs disappear. The end result of this approach is the BUOW listing petition (Center for Biodiversity 2003). Should passive relocation continue with limited habitat protection, I predict that the steep BUOW decline witnessed by petitioners in almost all regions will continue to complete extirpation in many areas. Speaking for southern California, this process was well on its way in the early 1990s (Desante and Ruhlen 1995) and has already occurred in Santa Barbara, Ventura, and western Los Angeles County (LA Basin) (Bloom et al. 2003a). If the remnant Orange County breeding population at Naval Weapons Station, Seal Beach had not been augmented by an active relocation program by the DF&G, FWS, and Department of Defense, the species would most assuredly be

extirpated in that county also (Bloom et al. 2003a). Given this continuing scenario, Federal listing in California is only few years away.

The NCCP process in Orange County, while very successful at protecting vast quantities of a wide variety of nesting raptors, other wildlife and their habitats, has failed to capture even one BUOW breeding territory. Essentially all BUOW breeding territories outside of Naval Weapons Station, Seal Beach had been eliminated prior to the NCCP. In San Diego County, while a few pairs (<10) have apparently been protected within the MSHCP, good quality BUOW habitat is extremely limited, and the species' numbers are so small that colonies can only be ephemeral over the long term. In western Riverside County several existing reserves have small numbers of BUOW pairs but they are now widely spaced suggesting that a few stochastic events, or even a short drought might eliminate the remaining owls. During the early to mid 1990s when I was regularly on the Lake Skinner property no breeding BUOWs were found despite the species recent historic presence.

The level of success for active BUOW translocations for which we have published information is poor (Trulio 1997). However, the techniques, age groups, sex ratios and perhaps seasons were variable with small numbers of birds (<10) per release and limited follow-up. Since many were adults not necessarily held in enclosures, or long enough, the fact that 7/27 owls returned to their traditional breeding site is not a surprise. Essentially, active translocations have not been done correctly anywhere in North America. Performed differently with the combined acquired knowledge we have today from various individuals, I believe these results could be significantly improved upon.

If the success of translocations is evaluated on the numbers of individuals being moved that stay at the new location, than active translocations should be focused not so much on the success of translocated adults but whether their young stay at the new location, and in the case of juvenile dispersers, return to where they were fledged. Previous translocation studies (Feeney 1997, Schultz 1997, Trulio 1995, 1997) involving only adults or fledglings with no intent of breeding within enclosures have had limited results.

The use of pre-breeding season adult owls by Delevoryas (1997) suggests the greatest potential for successful translocations to date and the results of work in southern California seems to corroborate this (Bloom et al. 2003b). Together with some of my colleagues I have performed several active translocations of BUOWs in southwestern California to distant localities in the same region. The owls were captured during the non-breeding season or at the close of the breeding season and either released directly thereafter at the new site or held in a rehabilitation center for later release. Translocations were accomplished with approval of the DFG, FWS, and Department of Defense. Under the same permits we have also performed successful active translocations of construction threatened nestling red-tailed hawks to the nests of wild foster pairs. We have also been requested by the DF&G to capture and remove overly aggressive adult red-shouldered hawks and Cooper's hawks, and relocated their young into the nests of wild foster parents.

There still remain many tiny groups of owls, sometimes single pairs that are widely dispersed across certain counties and are imminently threatened with territory loss. Rather than using passive relocation, or doing nothing, if appropriate habitat will not be preserved, these owls should become part of active relocation programs to bolster existing, or planned reserve lands. Every pair lost to passive relocation is an opportunity lost to potentially maintain the species in local areas or regions.

Without going into great detail about the five approaches we have employed to release owls, I can say that active translocations involving wild adult paired owls prior to egg laying in which the adults are housed in on-site breeding enclosures, or similar “hack-sites”, is the most successful. DF&G is advocating use of the method that has proven the least successful. With this letter I am also endorsing the proposed listing of the BUOW in California. All five approaches that we used have had at least some success with retaining owls on new properties. We have successfully captured paired adults in the wild, transported them to Naval Weapons Station, Seal Beach, had them produce eggs, hatched young, released both adults and young, and had some individuals stay and breed as long as three years. Burrowing Owl numbers at Seal Beach have increased from 2 to 6 pairs in the last three years at least in part due to these translocations. Similarly, Mr. Greg S. Clark of Wild at Heart, based in Arizona whom I met in November 2003 at the Sacramento Wildlife Society BUOW conference has taken a proactive role in the development of BUOW translocation techniques with many proven successful translocations.

As with all the BUOW translocation research in California, and with most translocations around the world, our southern California study also suffers from a lack of significant post release monitoring (Griffith et al. 1989). However, the early results particularly Delevoryas (1997) and our own (Bloom et al. 2003b) strongly suggest that successful active translocations and establishment of BUOW colonies is possible if carefully planned and implemented. In lieu of purchasing occupied BUOW habitat, I am convinced that in many situations well planned active translocations with proper monitoring and follow through is a far better alternative than passive relocation. This is true whether it involves the large robust colonies of the Imperial Valley nesting in alfalfa fields or the relictual BUOW pairs nesting in fragmented non-native grasslands of western Riverside County.

The use of active relocation to perpetuate owl populations in vast agricultural landscapes or on military reservations etc. needs to be implemented more frequently if the BUOW is to avoid potential State or Federal listing (Ayers et al. 2001). BUOW conservation seems particularly feasible in locations where agricultural and wildlife HCPs can be planned together.

Tremendous potential exists for a positive conclusion to the dilemma of BUOW nests versus development. While the owl will likely, with rare exceptions be permanently extirpated in most of southwestern California (Bloom 2003a) and other areas, the agricultural regions of the Imperial Valley and Blythe region show great potential for unaffected active agriculture and thriving BUOW populations.

In summary, in my experience the best management program for the BUOW is to first attempt management of the species *in situ*. If long-term development projections indicate that the colony will ultimately become an isolated fragment in a sea of development, then the birds should be actively translocated through a formal hacking/breeding program to a permanently protected parcel with suitable habitat such as a military reserve, State Park, or HCP type reserve, etc., preferably combined with alfalfa and certain other crops. In my opinion the only occasion when passive relocation should be used is in the rare situation where an existing colony is directly adjacent to permanently protected BUOW habitat or on short term limited habitat loss projects. The punch line to BUOW preservation, whether you support passive relocations or active relocations is that without protected high quality habitat, existing populations will disappear and there will be no place to relocate owls or to reestablish themselves naturally.

A common theme carried through all of the above cited publications dealing with releases and translocations is that further research on this subject is needed (Griffith et al. 1989). I would suggest that the DF&G more routinely use active relocation when confronted with most situations where passive relocation is not an acceptable mitigation.

The door is wide open relative to our current knowledge about the effectiveness of BUOW translocations and I think we are on the brink of perfecting the technique. The numerous investigators cited in the text as well as the DF&G biologists that have approved each translocation have all assisted greatly in bringing us to this point.

With this letter I am also endorsing the proposed listing of the BUOW in California. Based upon the evidence of regional and local extirpations the species should probably have been listed more than a decade ago. Again, the time to save a species is when it is still common (Scott et al. 1987).

Thank you for your consideration of the above information. I would be happy to help in anyway you suggest too develop new guidelines for management of BUOWs in California.

Sincerely,

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