California Department of Fish and Game

Guidance for Burrowing Owl Conservation

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California Department of Fish and Game
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BACKGROUND

Additional immediate protection is needed for the Burrowing Owl (*Athene cunicularia*), a vulnerable California Bird Species of Special Concern (Gervais et al. 2008) and federal Bird of Conservation Concern (U.S. Fish and Wildlife Service 2002), that was the subject of a listing petition to the State of California Fish and Game Commission in 2003. Most Burrowing Owl populations in California still face the same primary threats they did three decades ago (Gervais et al. 2008). Burrowing Owl population declines continue, primarily caused by habitat loss and control of California ground squirrels (*Spermophilus beecheyi*) and other host burrowers.

Concerted conservation actions are needed to maintain viable burrowing owl populations in California and to help prevent the need to list this species under the state or federal endangered species acts. A comprehensive strategy for its conservation in California is now in progress, which will provide more detailed guidance on measures to protect this species.

Existing legal protection under the California Environmental Quality Act (CEQA), one of the State's principal statutes to address significant environmental impacts, does not substantially contribute to burrowing owl conservation because lead agencies have broad discretion in identifying environmental impacts as significant and, even where they do, significant impacts need only be mitigated to the extent feasible. As a result, lead agencies do not consistently require sufficient or effective habitat mitigation for immediate or cumulative impacts to burrowing owls. Current conservation activities, except under a few approved regional conservation plans, are usually implemented piece-meal, typically at the level of the individual owl, to avoid take. In addition, prohibitions on take of burrowing owls are often circumvented, and due to buried or transitory evidence, are not easily enforced.

Suitable conservation areas that could benefit this species through acquisition and management have yet to be identified in most of the State. All these deficiencies remain obstacles to long-term owl conservation, can lead to local extirpation of resident owl populations, and could cumulatively preclude options for future conservation of this species.

PURPOSE OF THIS DOCUMENT

- Provide updated recommendations from the California Department of Fish and Game (Department) to biologists, planners, land managers, and CEQA lead agencies.
- Provide guidance that supersedes and augments or clarifies the Department's Staff Report on Burrowing Owl Mitigation (1995; http://www.dfg.ca.gov/wildlife/species/docs/burowlmit.pdf) and the California Burrowing Owl Consortium's Survey Protocol and Mitigation Guidelines (1993, 1997; http://www.dfg.ca.gov/wildlife/species/docs/boconsortium.pdf.
- Provide a statewide vision for burrowing owl conservation goals and actions.
- Promote a consistent approach to burrowing owl conservation throughout the State, while allowing local flexibility.

CONSERVATION GOALS FOR THE BURROWING OWL IN CALIFORNIA

1) Maintain size and distribution of extant burrowing owl populations (allowing for natural population fluctuations).
2) Where possible, increase geographic distribution of burrowing owls into formerly occupied historic range where suitable habitat still exists, or where it can be created or enhanced.
3) Increase size of existing burrowing owl populations where possible and appropriate (for example, consider carrying capacity, predator-prey relationships, and conflicts with other species at risk).
4) Protect and restore self-sustaining ecosystems or natural communities which do or could potentially support burrowing owls at a landscape scale, and which will require minimal long-term management by humans.
5) Remove or ameliorate unnatural causes of burrowing owl population declines (e.g., nest burrow destruction, control of rodent hosts and prey).
6) Recover (augment; restore) populations of burrowing owls and their natural dynamics including movement and genetic exchange among populations, such that the species does not require listing and protection under the California Endangered Species Act (CESA) or federal Endangered Species Act (ESA).
7) Begin to engage stakeholders, including ranchers; farmers; military bases; local, state, and federal agencies; non-governmental organizations; and scientific research and education communities in burrowing owl protection and habitat management.

GUIDING PRINCIPLES FOR BURROWING OWL CONSERVATION

1) Use the Precautionary Principle (Noss et al. 1997), by which the alternative of increased conservation is deliberately chosen in order to buffer against incomplete knowledge of burrowing owl ecology and uncertainty about the consequences to burrowing owls of potential impacts, including those that are cumulative.

2) Employ basic conservation biology tenets and population-level approaches when determining what constitutes appropriate avoidance, minimization, and "mitigation" for impacts. Include mitigation effectiveness monitoring and reporting, and modify measures based on results.

3) Avoid impacts to owls during the burrowing owl breeding season, generally February 1 through August 31.

4) Protect/conserve owls in wild, semi-natural, and interstitial urban and agricultural habitats (conserve is defined here pursuant to FGC 1802 and 2061).

5) Protect nest burrows AND *sufficient foraging habitat.* *

6) Burrows (or burrow surrogates) are a critical component of burrowing owl habitat throughout the year, as most owls in California are resident year-round and have high burrow and site fidelity.

7) Protect auxilliary "satellite" burrows because they contribute to burrowing owl survivorship and natural behavior of owls

8) Lands intended for burrowing owl conservation need to be of *sufficient size* to ensure ecological sustainability with minimum long-term maintenance needed by humans (e.g., rely on native grazers, compatible livestock grazing practices, burrow excavation by native animals, and, where feasible, controlled burns)

9) Lands intended for burrowing owl conservation should be chosen with regard to the problems caused by the urban-wildland interface, for example, burrow disturbance and destruction by unleashed dogs, human foot and vehicle traffic, predation by cats and dogs and urban-adapted wildlife, including raptors attracted to urban landscapes.

10) Habitat compensation, management, monitoring, and reporting should be provided pursuant to CEQA mitigation requirements (CEQA Guidelines; Section 15097).

11) Case-by-case impact analyses for CEQA and any other purpose should consider the full extent of owl habitat use (home range) on and off the project site, as well as demographic connectivity among local and regional populations.

* Quantitative prescriptions for the factors highlighted in *italics* will be analyzed during the Burrowing Owl conservation assessment and strategy effort that is in progress, to provide a range of values that are appropriate in different habitats and regions.

12) Projects impacting owls and owl habitat should mitigate all project-specific and cumulative impacts to nesting, foraging, wintering, dispersal, and migration habitat (i.e., breeding and non-breeding season) under CEQA, to below a level of significance. The standard of 6.5 acres will no longer be used because it does not adequately compensate for habitat loss. Mitigation requirements will be based on the acreage of any suitable habitat disturbed or destroyed, with consideration of number of owls present and significance of the area for all burrowing owl life history stages.

13) Conduct any management actions in an adaptive management framework, in order to test alternative hypotheses and learn from monitoring and experimental management.

14) Avoid reliance on the use of artificial burrows, except to temporarily attract owls, or where burrow installation is necessary as an integral owl population management tool. Artificial burrow installation must be accompanied by a management plan for the site, and programs for burrow maintenance and effectiveness monitoring. Performance criteria should include site tenacity by owls, yearly successful reproduction by owls, documented fledging by juvenile owls, and colonization by owls from elsewhere.

15) Where owls and ground squirrels are not desired, do not disk, grade, mow, or leave debris piles or open pipes ("ecological traps") that could attract them, At the same time consider or adhere to local fire and other ordinances.

16) Take advantage of temporary opportunities to conserve burrowing owls while longer-term regional programs and conservation plans are developed.

TOOLS FOR BURROWING OWL CONSERVATION

Legal Protection

Pursuant to California Fish and Game Code (FGC) Section 1801, it is the policy of the state to encourage preservation, conservation, and maintenance of wildlife resources, including perpetuation of all species of wildlife for their intrinsic and ecological values. In addition, pursuant to FGC Section 1802, the Department has jurisdiction over the conservation, protection, and management of fish, wildlife, native plants, and habitat necessary for biologically sustainable populations of those species.

Additional legal protection for burrowing owls exists pursuant to the California Fish and Game Code and United States Migratory Bird Treaty Act (MBTA), and additional protection can be provided by CEQA.

CEQA

CEQA requires public agencies in California to mitigate significant environmental impacts to the extent feasible. Project-specific CEQA mitigation is important for Burrowing Owl conservation because most populations exist on privately-owned parcels that, when proposed for development or other activities, may be subject to the environmental review requirements of CEQA.

Regional Conservation Plans

Regional multiple species conservation plans offer long-term assurances for conservation of burrowing owls and other covered species at a landscape scale, in exchange for biologically appropriate levels of incidental take defined during plan development. California's Natural Community Conservation Planning (NCCP) Act (FGC §2800 et seq.), which governs such plans at the state level, was designed to conserve species, natural communities, ecosystems, and ecological processes across a jurisdiction or a collection of jurisdictions. Complementary federal Habitat Conservation Plans (HCPs) are governed by the Endangered Species Act (Section 10). Regional conservation plans (and certain other landscape-level conservation and management plans), may provide conservation for unlisted as well as listed species. Because the geographic scope of NCCPs/HCPs may span many hundreds of thousands of acres, they have the potential to play a significant role in conservation of burrowing owls, and grasslands and other habitats.

Take Avoidance

Avoidance of take of individual burrowing owls and their nests is currently mandated under FGC Sections 86, 3503, 3503.5 and 3513.

Because the current operating definition of a nest (as used by the Department and by the U.S. Fish and Wildlife Service under the Migratory Bird Treaty Act) is restricted to the period when eggs or chicks are present, burrows used by owls during the non-breeding season have no legal protection, although direct take of owls is prohibited. The common practice of evicting owls from burrows during the non-breeding season has the potential to depress reproduction, and to increase predation, thermoregulatory stress, energetic costs, and risks posed by having to find and compete for available burrows.

Burrows are an essential ecological requisite for burrowing owls throughout the year. Loss of nest burrows, satellite burrows, breeding concentrations, foraging habitat, dispersal and migration habitat, wintering habitat, habitat linkages and stepping stones, including habitat supporting host burrowers, and other essential habitat attributes, can individually or collectively have significant impacts on burrowing owls. The Department will work with project proponents and lead agencies to develop compensatory mitigation for impacts to burrowing owls.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) implements various treaties and conventions between the U.S. and Canada, Japan, Mexico, and the former Soviet Union for the protection of migratory birds, including the burrowing owl. Under the MBTA, taking, killing, or possessing migratory birds is unlawful as is taking of any parts, nests, or eggs of such birds (16 USC 703). Taking is defined more narrowly under MBTA than under the ESA and includes only the death or injury of individuals of a migratory bird species or their eggs. Take under the MBTA does not include the concepts of harm and harassment as defined by the ESA.

Fish and Game Commission Policies

There are already a number of Fish and Game Commission policies (see FGC 2008) that can be applied to burrowing owl conservation. These include policies on: Raptors, Cooperation, Endangered and Threatened Species, Land Use Planning, Management and Utilization of Fish and Wildlife on Federal Lands, Management and Utilization of Fish and Wildlife on Private Lands, and Research. See Attachment B for the content and intent of these policies.

Habitat Protection

Identify and acquire lands (presently occupied or having high potential *suitability*) for long-term owl habitat through conservation easements, purchase, and other mechanisms.

Permanently protect *sufficiently large acreage* of suitable vegetation communities (grassland, scrublands, desert, urban, and compatible agricultural uses) for burrowing owl nesting, foraging, wintering, dispersal, and migration (i.e., during breeding and non-breeding seasons).

Protect appropriate interstitial habitat that is occupied by owls in urban and agricultural landscapes (e.g., urban parks/open space, school campuses, airports, golf-courses, fallow fields and field margins, road shoulders, railroad right-of-ways, levees).

Ensure availability of temporary or permanent “stepping stones” of habitat (Hilty et al. 2006) to attract dispersing or displaced owls and host burrowers from habitats at high risk of destruction to permanently protected habitats.

Identify and secure mitigation and conservation banks for burrowing owls and associated species. In select cases, consider deferred mitigation via developer fees in order to leverage acquisition of conserved lands and to consolidate and enlarge conservation areas.

Habitat Management

Manage protected lands for natural ecological components and processes, including grazing herbivores, host burrowers (ground squirrels, badgers, foxes, coyotes, etc.), suitable prey, and natural levels of predation on owls. Facilitate natural processes to minimize the effort and cost of active management required.

Burrows excavated by host burrowers are essential for burrowing owl survival and reproduction, and some host species, for example, ground squirrels, provide owls early warning of predator presence. Therefore, conserve and restore self-sustaining populations of host burrowers by reducing, limiting, or prohibiting lethal rodent control measures, by maximizing opportunities for host burrower population connectivity and colonization, and by ensuring food availability for host burrowers.

Where owls are not present, employ temporary enhancement techniques (artificial burrows, perches, burrowing owl decoys) to attract burrowing owls to lands permanently conserved on their behalf. Avoid reliance on the use of artificial burrows, except to temporarily attract owls until natural burrows are established. Consider carrying capacity, territoriality, attracting predators, alteration of reproductive behaviors, and other factors, during development of a feasibility assessment for the potential habitat enhancement project. If owls currently occupy a site, or occupy nearby lands, evaluation of the above factors is particularly important.

Host burrowers, for example, ground squirrels, can often be attracted to a site by reducing and maintaining vegetation height to a level that is generally low or sparse, providing limited ground disturbance and cover such as rock piles, and adequate forage plants.

Temporary artificial burrows may also be useful where needed to satisfy mitigation requirements for short-term project impacts (for example, levee maintenance).

In limited circumstances, artificial burrow installation may also be recommended where there is a lack of host burrowers and natural burrows, where ground squirrels are controlled to protect infrastructure or landscaping (levees, golf courses, sport fields), or to limit owl occupancy to constrained areas (for example, at airports where ground squirrels are not desired).

Artificial burrow installation must be accompanied by a management plan for the site, and programs for burrow maintenance and effectiveness monitoring. Performance criteria should include site tenacity by owls, yearly successful reproduction by owls, documented fledging by juvenile owls, and colonization by owls from elsewhere.

Maintain *appropriate vegetation height and density* (especially in immediate proximity of burrows) by mowing/grazing. (Appropriate vegetation structure varies across sites and vegetation types, but should generally be short (usually less than 10 inches) and/or sparse, except where perch sites are available and used by owls.)

Employ experimental prescribed fires (controlled, at a small scale) to manage *appropriate vegetation structure* (try to learn more about compatibility of prescribed fires and owl persistence).

While local ordinances may require fire prevention through vegetation management, activities like disking, mowing, and grading during the breeding season can result in take of burrowing owls and collapse of burrows, causing nest destruction. Timing, extent, and configuration of vegetation reduction or ground disturbance should be carefully considered during the breeding season in order to avoid take, while still accomplishing necessary vegetation management that benefits owls. Areas to be modified should first be surveyed for burrowing owl presence and heavy equipment operators should avoid occupied and satellite burrows.

Promote *adequate natural prey distribution and abundance*, especially proximate to occupied burrows, during the breeding season.

Population-Level Information on Spatial Distribution and Abundance

Document and publicize burrowing owl distribution and abundance in order to have a better basis for conservation of owls through land use planning decisions and for minimization of cumulative impacts.

Contribute to and use the Department's California Natural Diversity Data Base (CNDDB) (http://www.dfg.ca.gov/bdb/html/cnddb.html) and BIOS (http://bios.dfg.ca.gov/whatis.asp) systems for storing and accessing information on spatial distribution of burrowing owls.

Conduct and promote *periodic* statewide burrowing owl surveys to sample owl distribution across and between ecoregions and to provide time series data for evaluation of population trends. Stakeholders could assist with these surveys.

Conduct and promote regional and local inventories to document locations of burrowing owls, in order to prioritize owl habitat for acquisition or other protection measures, to predict which populations are most at risk, and to more accurately assess population size and reproductive status. Stakeholders could assist in these inventories.

Determine Burrowing Owl Presence

Breeding Season Surveys

Standardized surveys are necessary to determine presence (or presumed absence) of burrowing owls for the purposes of inventory, monitoring, avoidance of take, and determining appropriate mitigation. In California the breeding season begins as early as February 1 and continues through August 31.

The California Burrowing Owl Consortium (Consortium) survey protocol specifies a multi-phase approach, which is recommended in order to adequately evaluate burrowing owl use of an area and to inform the CEQA process. Phase 1 of the protocol begins with a habitat assessment that recognizes that burrows are the essential component of burrowing owl habitat and that burrowing owls may use man-made structures as burrows (see Page 1 of Consortium guidelines). If suitable habitat (appropriate vegetation and burrow(s) or burrow surrogate(s)) is present, then a Phase 2 intensive burrow survey is necessary even if owl sign is not present during the habitat assessment phase. Owl sign includes molted feathers, cast pellets, prey remains, egg shell fragments or excrement at or near burrow entrance or perch site. During the intensive burrow survey phase, burrow concentration areas should be mapped. Phase 3 of the protocol requires 4 survey visits whether or not owl sign is observed during Phase 2. The Department recommends that the Consortium survey protocol for breeding season surveys be adhered to (4 survey visits spread evenly (roughly every 3 weeks) during the peak of the breeding season, from April 15-July 15) until enough information is available to warrant their revision or until new detailed protocols are developed as part the Conservation Strategy. The habitat assessment, intensive burrow surveys and burrowing owl surveys should include the area within 150 meters of the project boundaries (approximately 500 feet).

Non-Breeding Season Surveys (including Winter)

Surveys during the non-breeding season (September 1- January 31) are recommended by the Department but are not generally required because burrowing owls are much more difficult to detect during the non-breeding season, and the number or type of surveys that would be needed to detect presence then has not been studied or quantified. Owls detected during non-breeding season surveys may be year-round residents or their young from the previous nesting season, pre-breeding territorial adults, winter residents, dispersing juveniles, migrants, or new colonizers. Negative results during any non-breeding season surveys are not conclusive proof that owls do not use the site. Because of this complication, the Department recommends breeding season surveys as the first step, but project applicants should consult with the Department if burrowing owls have been documented on the project site during the non-breeding season.

Avoid Impacts (destruction, disturbance) to Individual Owls

Pre-Construction Surveys for Owl Presence

Pre-construction surveys (usually initiated during the non-breeding season) are necessary for assessing owl presence at a site within a short time period before site modification is scheduled to begin. Pre-construction surveys are supplemental to the existing breeding season survey protocol (4 survey visits spread evenly during the peak of the breeding season, from April 15-July 15), and should not be used in place of it without consulting with the Department in advance. The pre-construction surveys are intended to document if colonizing owls have recently moved onto the site, or if burrow locations of resident owls have changed, or if young of the year are still present and have not yet fledged or dispersed. Because any one or all of these events may have occurred on site since the breeding season (protocol) surveys were completed, it is important to also complete the pre-construction surveys in order to avoid direct take of owls or their nests and to design proper minimization and mitigation measures (e.g., document number and reproductive status of resident owls and location of satellite burrows, establish buffer zones and equipment/personnel travel routes and work/storage areas, unequivocally evict owls and ground squirrels from burrows).

Initial pre-construction surveys should be conducted outside of the owl breeding season (from February 1-August 31) but as close as possible to the date that ground-disturbing activities will begin, to avoid the problem of waiting until March or April when the project would be delayed if owls are detected. Generally, initial pre-construction surveys should be conducted no more than 30 days prior to ground-disturbing activities (for example, disking, clearing, grubbing, grading). The time lapse between surveys and site disturbance should be as short as possible and will be determined by DFG based on specific project conditions but generally should not exceed 7 days. Additional surveys are necessary when the initial disturbance is followed by periods of inactivity or the development is phased spatially and/or temporally over the project area.

The number of pre-construction surveys necessary to accurately detect current owl presence and owl locations will be driven by a number of interacting criteria such as: 1) the time period that has elapsed since the last breeding survey was completed; 2) height and density of vegetation that may obscure owl presence; 3) topographical conditions that may obscure owl presence; 4) time of year (e.g., in the

winter owls are more cryptic and spend more time in their burrows); 5) time of day and weather conditions when surveys are conducted; 6) long-term history of owl use at the site; 7) size of the parcel and degree of coverage by walking or by intensive observations via spotting scope, and 8) tolerance of owls to human presence. Generally, at a minimum, 4 survey visits on at least 4 separate days will be necessary, especially given the cryptic nature of this species during the non-breeding season.

Biologists conducting pre-construction surveys should expend enough effort, based on the above criteria, to assure with a high degree of certainty that take of owls will not occur once site modification and grading activities begin. The full extent of pre-construction survey effort must be described and mapped in detail (e.g., dates, time periods, area(s) covered, and methods employed) in a biological report. Current vegetation and topographical conditions and their corresponding effect on visibility should also be described. The report should be submitted to the Department for review.

The Department's concurrence with the pre-construction survey results will depend on the level of detail that is provided in the Consultant's biological report that summarizes the methods ,results, and level of survey effort. The Department has a responsibility to give input regarding measures that would result in avoiding take and minimizing unavoidable impacts to owls.

Buffer Zones Around Occupied Burrows (Year-Round)

Buffer zones to protect burrowing owls from direct disturbance should be implemented pursuant to the Consortium Guidelines and the Department's Staff Report (1995) until the comprehensive conservation strategy is completed. Generally, the buffers recommended in these reports for protecting burrowing owls from disturbance is 75 meters (250 feet) from occupied burrows during the breeding season and 50 meters (160 feet) from occupied burrows during the non-breeding season. Consultation with the Department may result in site-specific buffer specifications, on a case-by-case basis. For example, if the level and duration of disturbance will be brief and tolerance of human activity by individual owls at the site is high, then buffer zones may be smaller in size.

In addition, because burrowing owls in many study areas have been documented to forage primarily within 600 m of their nests, extensive use of harmful pesticides within 600 m of occupied burrows should be avoided (Gervais et al. 2003). Data suggest that herbicides may not be as much of a threat to burrowing owl reproductive success, and may even benefit them due to the resulting reduction of vegetation cover.

Translocation of Burrowing Owls (also known as Active Relocation)

Translocation is the deliberate movement by humans of individual plants and animals from one location to another. It includes, but is not limited to, species introductions and re-introductions, population supplementation, fish and game stocking and re-stocking, nuisance animal removal, rehabilitated wildlife relocation, mitigation, and habitat creation.

The Department does not generally support translocation of owls as a take-avoidance or management tool or as mitigation at this time, as it is still experimental and there is a lack of demonstrated success for burrowing owls (see Klute et al. 2003, "Reintroduction and Relocation" section). Success should be measured by long term population persistence and population growth at

the release site, not by short-term site tenacity post-release, or breeding "success" for one year or intermittently thereafter.

However, for scientific purposes, the Department may consider translocation if it is a research project, or potentially as a tool in regional conservation plans, but only if the following steps are in place, with appropriate Department permits. Many of these considerations are described in the IUCN Position Statement on Translocation of Living Organisms at http://www.iucn.org/themes/ssc/publications/policy/transe.htm and the IUCN/SSC Guidelines for Re-Introductions at http://www.iucn.org/themes/ssc/publications/policy/reinte.htm.

1) Conduct a biological assessment that describes habitat suitability and carrying capacity for burrowing owls. A biological report must be produced that maps and describes the habitat on site, and ranks habitat suitability for a) nesting and foraging based on scientific studies of burrowing owl habitat requirements, and b) potential foraging range based on surrounding land uses.

2) Legally secure the release site with conservation easement or similar protective measures before translocation is attempted.

3) An approved management plan specific to burrowing owls and other sensitive resources must be prepared for the release site prior to translocation. Measures must be included in the plan that describe what steps will be taken should burrowing owls prove to be impacting other sensitive, threatened or endangered species, and what steps will be taken if the translocation fails. Management plans should be created and implemented in an adaptive framework..

4) Avoid significant impacts to any recipient population of burrowing owls, if present. Consider carrying capacity, territoriality, attracting predators, alteration of reproductive behaviors, and other factors, during development of a feasibility assessment for the potential translocation project.

5) In order to ensure the potential for naturally-occurring genetic processes, and permit local adaptation, owls may not be translocated across ecological boundaries or vast distances.

6) Significant impacts to sensitive, Threatened, and Endangered species must be avoided or minimized at the release site.

7) All necessary CEQA or NEPA procedures must be followed by the appropriate lead agency prior to initiating translocation, in consultation with the Department and US Fish and Wildlife Service. The project impacting owls and the translocation project itself are each subject to the requirements of disclosure of potentially significant environmental effects and any necessary mitigation.

8) There must be sufficient and secured funding (e.g., endowments) in place to cover scientific monitoring and reporting, adaptive management, habitat maintenance, and other measures to assure, to the best of our ability, long term persistence of burrowing owls at the release site, and to determine the success or failure of the attempted mitigation.

9) Qualified biologists must be secured under contract or via some other means to conduct the necessary monitoring. Sufficient funding must exist for full biological reporting of results in standard scientific format. Reports must be submitted to the Department and US Fish and Wildlife Service.

Exclusion of Owls From Occupied Burrows (Passive Relocation and Eviction)

Exclusion of owls from burrows during the non-breeding season, usually by installation of one-way doors, has been used to avoid take and allow for development or other projects to proceed as approved under CEQA. It has been commonly used as a take avoidance measure, but the long-term demographic consequences of this technique have not been evaluated, and the fate of evicted owls has not been systematically studied. Because owls are dependent on burrows for survival and reproduction, excluding them from nesting, roosting, and satellite burrows on a project site may actually lead to direct or indirect take. For these reasons, in order to avoid or minimize take, owls must be provided, and must be documented to actually use, compensatory burrows (natural or artificial) in proximity (generally within 100 meters) to the exclusion site.

Exclusion from burrows, when necessary (as approved by the Department), must be conducted during the non-breeding season (generally September 1-January 31). It requires constant monitoring and exclusion of owls and squirrels, and removal of any surrogate burrows (including open pipes or debris piles that are potential owl refugia) at the project site. The impacted site should continue to be made inhospitable to burrowing owls and fossorial mammals (by allowing vegetation to grow tall, heavy disking, installation of one-way doors in burrow entrances, or immediate and continuous grading) until development is complete. Monitoring of the site must be conducted to determine if owls or host burrowers re-inhabit the site during any phase of project development.

Existing practices for excluding owls usually employ only portions of the methods described above, or employ the methods inadequately, and therefore have a higher likelihood of resulting in take. For example, “passive relocation” efforts typically provide alternative (i.e., artificial) nearby burrows for the owls that will be displaced, but do not confirm before burrow destruction that new burrows are being used. “Eviction” is exclusion from the burrow without providing alternate burrows that the displaced owls can find.

For the purposes of this guidance document, compensatory burrows and foraging habitat should be provided as near as possible to the impacted site, and confirmed occupation by owls of a natural or artificial burrow on adjacent or nearby land (generally within 100 meters, or as near as possible to the impacted site), must be documented, before owls are excluded or burrows are destroyed. The time required for an owl to find and adopt a substitute burrow on nearby land may vary between a few hours and many days. The Department will work with applicants to develop a site-specific plan for owl exclusion when exclusion is absolutely necessary, and will provide guidance on possible color-marking of owls and making the compensatory habitat attractive to owls (e.g., ensure multiple burrows are available, vegetation is short, perches are present, prey is abundant, and human disturbance is limited; and take actions to minimize predation on burrowing owls). The Department will also provide guidance regarding potential alternative mitigation measures if the “passive relocation” is not successful.

In many cases, habitat adjacent to or near sites where owls are excluded will not provide for conservation of burrowing owls in perpetuity nor will it adequately mitigate for project impacts (due to zoning, surrounding land uses, fragmentation, or poor quality habitat). In such cases, acquisition of compensatory habitat may have to occur farther away from the project site, but must be approved by the Department.

However, under some circumstances, small adjacent or nearby parcels may serve as valuable "stepping stone" habitats (possibly temporary or "interim") to larger permanently preserved conservation areas. For stepping stone habitat areas, management and monitoring must be secured for the interim period. Such areas should be tied to an agreement that ensures additional conservation land acquisition elsewhere for permanent protection of owls, and should include an adequately funded Department-approved plan for management and monitoring in perpetuity. Mitigation habitat should be protected for the long-term by acquisition in fee title or conservation easement.

Compensatory Mitigation for Impacts

Where avoidance and minimization measures are infeasible, the design of mitigation measures for owls should consider the local, regional, and larger-scale environmental context in which the habitat loss or alteration is occurring. Mitigation required must be roughly proportional to level of impacts (including cumulative impacts) in accordance with the provisions of CEQA (Guidelines Sections 15126.4(a)(4)(B), 15064, 15065, and 15355). Mitigation measures must be specific, feasible actions that will actually improve environmental conditions, in order for them to be considered adequate mitigation.

The rate at which direct impacts on owls and their habitat have commonly been expected to be compensated for under CEQA (6.5 acres of land per single owl or pair, pursuant to the Department's 1995 Staff Report) is not based on the amount of habitat known to be required by owls, but rather on a minimal buffer area thought to be necessary around a burrow to avoid disturbance from construction activities. Therefore, this standard of 6.5 acres will no longer be used because it does not adequately compensate for habitat loss. Instead, projects impacting owls and owl habitat should mitigate all significant impacts to nesting, foraging, wintering, and dispersal habitat (i.e., during breeding and non-breeding seasons) and cumulative impacts under CEQA, to below a level of significance.

Mitigation requirements should be based on the number of acres of all suitable habitat disturbed or destroyed, with consideration of number of owls present, duration of occupancy, and significance of the area for all burrowing owl life history stages. Suitable habitat generally includes, but is not limited to, short or sparse vegetation (at least at some time of year), presence of burrows, burrow surrogates or presence of fossorial mammal dens, well-drained soils, and abundant and available prey,

Mitigation requirements will be based on site conditions assumed to be extant prior to any recent site modification. If suitable habitat is destroyed prior to adequate burrowing owl surveys, the Department may assume owls to have been present, and mitigation should be required by the lead agency in consultation with the Department. If burrowing owls have been documented to occupy burrows at the

project site at any time during the previous three years, the site should be considered occupied by owls and mitigation should be required.

Projects that impact either breeding and/or non-breeding habitat affect owl home range size and spatial configuration, and could negatively affect burrowing owl population persistence, increase energetic costs, lower reproductive success, increase vulnerability to predation, and decrease the chance of procuring a mate.

Foraging habitat is essential to burrowing owl persistence. Mitigation for impacts to burrowing owl foraging habitat within home ranges should be required based on site-specific evaluation of existing land use patterns, prey availability, and other ecological factors. Useful as a rough guide to evaluating project impacts and appropriate mitigation for burrowing owls, adult male burrowing owl home ranges have been documented (calculated by minimum convex polygon) to comprise anywhere from 280 acres in intensively irrigated agroecosystems in Imperial Valley (Rosenberg and Haley 2004) to 450 acres in mixed agricultural lands at Lemoore Naval Air Station, CA (Gervais et al. 2003), to 600 acres in pasture in Saskatchewan, Canada (Haug and Oliphant 1990). But owl home ranges may be much larger, perhaps by an order of magnitude, in non-irrigated grasslands such as at Carrizo Plain, California (Rosenberg, pers. comm.), based on telemetry studies and distribution of nests. Because of the larger owl home ranges and more difficult access for telemetry studies in these ecosystems, home range size is not well understood (Rosenberg, pers. comm.) In general, burrowing owls in many study areas have been documented to forage primarily within 600 m of their nests (within approximately 300 acres, based on a circle with a 600 m radius) during the breeding season (Gervais et al., 2003, Haug and Oliphant 1990, Rosenberg and Haley 2004).

Any project impacting burrowing owls or owl habitat should provide compensation, based on the best available scientific information provided above, that is roughly proportional to the impacts of the project (CEQA Guidelines 15126.4(a)(4)(B)).

There are a number of ways to assess the amount of mitigation/compensation needed to offset impacts to burrowing owls and their habitat. As for other special status species, mitigation recommendations should be based on the function and value of habitat being impacted and conserved. For burrowing owls, essential habitat includes breeding, foraging, wintering, and dispersal habitat.

Impacts to burrowing owl habitat will be compensated through permanent conservation and management of habitat whose attributes are comparable to or better than those of the impact area. Mitigation should be based on a comparison of the attributes of the impacted and conserved lands and the level of effective enhancement on the conserved lands, including enhancement of reproductive capacity, enhancement or expansion of breeding areas and dispersal opportunities, and removal or control of population stressors.

For each project an assessment and comparison of attributes of the impacted area and the conservation area is necessary. Some of the attributes to consider include the following: quality of habitat being impacted or conserved; density of burrowing owls in impacted and conserved habitat; value of impacted or conserved habitat to the species range-wide.

Spatial assessments should consider the following: acreage being lost; fragmentation/edge being created; distance to other suitable habitat; additional habitat degradation.

Temporal assessments should consider the following: the amount of time the habitat will be lost to the species and the effect of that loss on essential behaviors or life history requirements of the species.

Cumulative/indirect effect assessments should consider the following: the project's proportional share of reasonably foreseeable impacts on burrowing owls that are caused by that project, or in combination with other projects having impacts on burrowing owls.

Mitigation should be based on the assumption that the acquired lands do or will provide equal or superior habitat value compared to the impacted lands. This will likely require habitat enhancement and long-term habitat management. These activities will be crucial when compensatory habitat is not currently occupied by burrowing owls.

Where a lead agency under CEQA has agreed to mitigation recommended by the Department, habitat should not be altered or destroyed, and owls should not be excluded from burrows, until the mitigation lands have been legally secured, are managed for the benefit of burrowing owls according to Department-approved management, monitoring and reporting plans, and the endowment or other long-term funding mechanism is in place.

These guidelines will be revised as new information becomes available, and as the statewide conservation strategy for the burrowing owl is implemented. The conservation strategy will provide more detailed quantitative recommendations and research ideas than were possible to give here.

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California Department of Fish and Game

Attachment A

Burrowing Owl Legal Protection in California

CALIFORNIA FISH AND GAME CODE SECTIONS 1801-1802 (2008)

1801. It is hereby declared to be the policy of the state to encourage the preservation, conservation, and maintenance of wildlife resources under the jurisdiction and influence of the state. This policy shall include the following objectives:

(a) To maintain sufficient populations of all species of wildlife and the habitat necessary to achieve the objectives stated in subdivisions (b), (c), and (d).

(b) To provide for the beneficial use and enjoyment of wildlife by all citizens of the state.

(c) To perpetuate all species of wildlife for their intrinsic and ecological values, as well as for their direct benefits to all persons.

(d) To provide for aesthetic, educational, and nonappropriative uses of the various wildlife species.

(e) To maintain diversified recreational uses of wildlife, including the sport of hunting, as proper uses of certain designated species of wildlife, subject to regulations consistent with the maintenance of healthy, viable wildlife resources, the public safety, and a quality outdoor experience.

(f) To provide for economic contributions to the citizens of the state, through the recognition that wildlife is a renewable resource of the land by which economic return can accrue to the citizens of the state, individually and collectively, through regulated management. Such management shall be consistent with the maintenance of healthy and thriving wildlife resources and the public ownership status of the wildlife resources.

(g) To alleviate economic losses or public health or safety problems caused by wildlife to the people of the state either individually or collectively. Such resolution shall be in a manner designed to bring the problem within tolerable limits consistent with economic and public health considerations and the objectives stated in subdivisions (a), (b) and (c).

(h) It is not intended that this policy shall provide any power to regulate natural resources or commercial or other activities connected therewith, except as specifically provided by the Legislature.

1802. The department has jurisdiction over the conservation, protection, and management of fish, wildlife, native plants, and habitat necessary for biologically sustainable populations of those species. The department, as trustee for fish and wildlife resources, shall consult with lead and responsible agencies and shall provide, as available, the requisite biological expertise to review and comment upon environmental documents and impacts arising from project activities, as those terms are used in the California Environmental Protection Act (Division 13 (commencing with Section 21000) of the Public Resources Code).

CALIFORNIA FISH AND GAME CODE SECTIONS 2800-2835

NATURAL COMMUNITY CONSERVATION PLANNING ACT
(Repealed and Added by Statutes 2002, Amended by Statutes 2003)

2800. This chapter shall be known, and may be cited, as the **Natural Community Conservation Planning Act**.

2801. The Legislature finds and declares all of the following:
(a) The continuing population growth in California will result in increasing demands for dwindling natural resources and result in the continuing decline of the state's wildlife.
(b) There is a need for broad-based planning to provide for effective protection and conservation of the state's wildlife heritage while continuing to allow appropriate development and growth.
(c) Natural community conservation planning is an effective tool in protecting California's natural diversity while reducing conflicts between protection of the state's wildlife heritage and reasonable use of natural resources for economic development.
(d) Natural community conservation planning promotes coordination and cooperation among public agencies, landowners, and other private interests, provides a mechanism by which landowners and development proponents can effectively address cumulative impact concerns, promotes conservation of unfragmented habitat areas, promotes multispecies and multihabitat management and conservation, provides one option for identifying and ensuring appropriate mitigation that is roughly proportional to impacts on fish and wildlife, and promotes the conservation of broad-based natural communities and species diversity.
(e) Natural community conservation planning can provide for efficient use and protection of natural and economic resources while promoting greater sensitivity to important elements of the state's critical natural diversity.
(f) Natural community conservation planning is a voluntary and effective planning process that can facilitate early coordination to protect the interests of the state, the federal government, and local public agencies, landowners, and other private parties.
(g) Natural community conservation planning is a mechanism that can provide an early planning framework for proposed development projects within the planning area in order to avoid, minimize, and compensate for project impacts to wildlife.
(h) Natural community conservation planning is consistent with, and will support, the fish and wildlife management activities of the department in its role as the trustee for fish and wildlife within the state.
(i) The purpose of natural community conservation planning is to sustain and restore those species and their habitat identified by the department that are necessary to maintain the continued viability of those biological communities impacted by human changes to the landscape.
(j) Natural community conservation planning is a cooperative process that often involves local, state, and federal agencies and the public, including landowners within the plan area. The process should encourage the active participation and support of landowners and others in the conservation and stewardship of natural resources in the plan area during plan development using appropriate measures, including incentives.

2802. The Legislature further finds and declares that it is the policy of the state to conserve, protect, restore, and enhance natural communities. It is the intent of the Legislature to acquire a fee or less than fee interest in lands consistent with approved natural community conservation plans and to provide assistance with the implementation of those plans.

OTHER CALIFORNIA FISH AND GAME CODE SECTIONS

86. "Take" means hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill.

3503. It is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by this code or any regulation made pursuant thereto.

3503.5. It is unlawful to take, possess, or destroy any birds in the orders Falconiformes or Strigiformes (birds-of-prey) or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by this code or any regulation adopted pursuant thereto.

3513. It is unlawful to take or possess any migratory nongame bird as designated in the Migratory Bird Treaty Act or any part of such migratory nongame bird except as provided by rules and regulations adopted by the Secretary of the Interior under provisions of the Migratory Bird Treaty Act.

CALIFORNIA CODE OF REGULATIONS
TITLE 14. NATURAL RESOURCES DIVISION
1. FISH AND GAME COMMISSION - DEPARTMENT OF FISH AND GAME SUBDIVISION
2. GAME AND FURBEARERS
CHAPTER 1. GENERAL PROVISIONS AND DEFINITIONS

251.1. Harassment of Animals.
Except as otherwise authorized in these regulations or in the Fish and Game Code, no person shall harass, herd or drive any game or nongame bird or mammal or furbearing mammal. For the purposes of this section, harass is defined as an intentional act which disrupts an animal's normal behavior patterns, which includes, but is not limited to, breeding, feeding or sheltering. This section does not apply to a landowner or tenant who drives or herds birds or mammals for the purpose of preventing damage to private or public property, including aquaculture and agriculture crops.

Attachment B

Policies Adopted by the California Fish and Game Commission Pursuant to Section 703 of the Fish and Game Code

RAPTORS

It is the policy of the Fish and Game Commission to:

I. Recognize that raptors, including vultures, hawks, eagles, falcons, kites, ospreys and owls, are part of California's native fauna, are integral to their ecosystems, and have intrinsic, ecological, scientific, educational, economic and recreational values.

II. It is the intent of the Commission to insure that raptor populations and their habitats shall be identified, monitored, maintained, restored and enhanced through research, management and protection by the Department and to insure that the utilization of or impacts to any population of raptor species will not contribute to its depletion in the wild.

In instances where depredation by raptors occurs, reasonable measures shall be taken by the landowner to protect his/her property before permission may be obtained to take depredating animals as authorized by federal law. However, taking of endangered or threatened species and the indiscriminate take of raptors shall not be permitted.

The Commission recognizes falconry, as authorized in the Fish and Game Code, as a legitimate use of this wildlife resource. The Commission recognizes that captive raptor breeding programs may be an important management tool in the re-establishment of endangered or threatened species in the wild.

Species found to be endangered or threatened shall receive maximum protection and management effort to ensure their survival.

(Amended 12/3/93)

COOPERATION

It is the policy of the Fish and Game Commission to:

The Commission, its staff, and the Department shall cooperate with local, state and federal agencies and with all interested persons, groups or organizations in every way to further the aims and purposes of fish and game conservation, preservation, propagation, protection, management, and administration. To this end, agreements may be entered into with such agencies, groups or persons when authorized by law.

ENDANGERED AND THREATENED SPECIES

It is the policy of the Fish and Game Commission to:

Protect and preserve all native species of fishes, amphibians, reptiles, birds, mammals, invertebrates and plants, and their habitats, threatened with extinction; or those experiencing a significant decline which, if not halted, would lead to a threatened or endangered designation. The Department will work with all interested persons, agencies and organizations to protect and preserve such sensitive resources and their habitats.

LAND USE PLANNING

It is the policy of the Fish and Game Commission that:

The preservation, protection and restoration of fish and wildlife resources within the State is of significant public interest and is inseparable from the need to acquire, preserve, protect and restore fish and wildlife habitat to the highest possible level, and to maintain in a state of high productivity those areas that can be most successfully used to sustain fish and wildlife and which will provide appropriate consumptive and nonconsumptive public use. To carry out these purposes, it is essential that a comprehensive program be implemented by the Department to assure that there will be close coordination with state, federal and local planning agencies, including county boards of supervisors and other decision-making entities in the formulation and implementation of any plans including, but not limited to, county general plans and any modifications to such plans, which may impact fish or wildlife.

I. Commensurate with this policy, the Commission recognizes that:

A. The land resources of the state provide an essential habitat component necessary for the annual renewability and well-being of the state's fish and wildlife resources;

B. The land resources are a limited resource subject to increasing demands;

C. Conservation, efficient planning and implementation of various land uses are necessary to meet the competing needs of urban communities, industry, agriculture, recreation, and fish and wildlife; and

D. There is a need for the Department to provide timely consultation with Federal, State and local governments and agencies on land use planning and projects with a view toward resolving conflicts with the Department management plans, programs and other responsibilities.

E. Locally developed regional landscape conservation planning is a forward-looking method which can provide early resolution of land use/wildlife resource protection conflicts and lead to the

preservation of essential wildlife habitat while allowing for appropriate growth and economic development.

II. To provide maximum protection and enhancement of fish and wildlife, the Department shall:

A. Promote the development of regional conservation planning at the ecosystem level through active participation in the local development of regional Natural Community Conservation Planning (NCCP) and other forward-looking multiple habitat conservation planning efforts.

B. Review, coordinate and provide comments and recommendations on federal, state, local general plans, special plans and proposed projects as appropriate, including the conservation and land use elements adopted by local government pursuant to provisions of Section 65300 et seq., of the Government Code for the purpose of determining the consistency of such plans with Commission policies, and the goals and objectives of the Department's management plans, programs and other responsibilities for the state's fish and wildlife resources. An initial review of local general plans will be completed by January 1986;

C. Carry out subsequent reviews of general and special plans and proposed projects and provide appropriate comments and recommendations to the affected federal, state and local government or agency, as needed to assure such plans remain consistent with the Commission's policies and the Department's management plans, programs and other responsibilities;

D. Notify the Commission prior to adoption, if possible, but as soon as feasible, when a federal, state or local general or special plan, or a proposed project authorized by such a plan, is determined to be in conflict with Commission policy or the Department's management plans and programs, and would have a significant adverse impact on fish or wildlife resources. In the case of local agency plans or special projects where changes are made late in the review and comment period or at an adoption hearing, notification of the Commission will be within 30 days following the receipt by the Department of the text of the approved plan or project;

E. Provide to the Commission as soon as feasible, the Department's remedial action or actions for responding to such findings and determinations or the Department's reasons for finding that no remedial action is necessary. In the case of local agency plans or special projects, notification of the Commission will be within 30 days following the receipt by the Department of the text of the approved plan or project;

F. Participate in the local land use planning process and project review implemented in connection with the requirements of Section 21,000, et seq., of the Public Resources Code, for the purpose of conserving and protecting fish or wildlife habitat consistent with the Department's management plans, programs and other responsibilities;

G. Oppose the adoption of plans or portions of plans for land use or approval of proposed projects if, after following diligent efforts to resolve issues affecting fish and wildlife resources, the Department finds that such actions are not consistent with the Department's management plans, programs and other responsibilities and will result in significant losses to fish and wildlife resources.

MANAGEMENT AND UTILIZATION OF FISH AND WILDLIFE ON FEDERAL LANDS

It is the policy of the Fish and Game Commission that:

The Department manage and protect all fish and wildlife and threatened or endangered native plants within the state's jurisdiction on lands administered by the federal government in accordance with the laws of this state and regulations adopted pursuant thereto. This policy will not extend to lands over which the state has ceded exclusive jurisdiction nor to the right of the federal government to manage habitat and control access in its proprietary capacity. Management and protection of migratory fish and wildlife will be coordinated between the Department and the federal government on all lands under federal jurisdiction, if appropriate. It is recognized that the federal government has the right under treaty to regulate migratory, endangered and threatened species, and marine mammals under the appropriate Federal Statutes.

MANAGEMENT AND UTILIZATION OF FISH AND WILDLIFE ON PRIVATE LANDS

It is the policy of the Fish and Game Commission that:

I. Program Assistance

The owners or tenants of privately owned lands shall be actively encouraged to propagate, conserve, and promote the wise use of fish and wildlife populations on their lands, consistent with other reasonable uses. The Department shall, whenever possible, provide interested persons with guidance and information on programs for developing and employing management techniques to effect such purposes and which will protect and enhance native wildlife or vegetation, even though access to such private lands is subject to the owner's or tenant's control.

The Department, before processing any application for a license for a new Private Lands Wildlife Habitat Enhancement and Management Area (herein referred to as a Private Wildlife Management Area), shall determine that:

(a) The applicant has sent a copy of the application, by certified mail, to each adjoining landowner; and

(b) The applicant has published a notice in a paper of general circulation in the area affected. Such notice shall include: the applicant's name; the name of the Private Wildlife Management Area; the total acreage and its location by county, section, township, and range; the species to be taken; and the proposed seasons. That notice shall also specify that comments regarding the application should be sent to the Department of Fish and Game, Wildlife Management Division, 1416 Ninth Street, Sacramento, California 95814, within 15 days of the notice publication date.

RESEARCH

It is the policy of the Fish and Game Commission that:

I. Research, including the investigation of disease, shall be performed to provide scientific and management data necessary to promote the protection, propagation, conservation, management or administration of fish and wildlife resources of this state when such data is not available by other means.

II. Whenever possible and advantageous, the services of the University of California or other academic or research institutions, or federal, state or local agencies shall be used.

III. The Department shall review the following information, which must be clearly stated in any proposed research programs: (a) goals and objectives of proposed research, including benefits to be derived from such research; (b) pertinent background information, including a literature review which supports this research; (c) experimental design, including methods of data collection and analysis; (d) estimated cost of program; (e) its estimated duration; and (f) how results will be presented to the Department. The provisions of this paragraph shall not extend to emergency investigations of disease.

IV. The Department shall report regularly to the Commission on the status of major research programs in progress.

(Amended 6/16/94)