

AGREEMENT FOR SERVICES #250-S1011

THIS AGREEMENT made and entered by and between the County of El Dorado, a political subdivision of the State of California (hereinafter referred to as "County") and EN2 Resources, Inc. dba Sierra Ecosystem Associates, a corporation, duly qualified to conduct business in the State of California, whose principal place of business is Placerville, California, and whose Agent for Service of Process is Sierra Ecosystem Associates, P.O. Box 2260/1024 Simon Drive, Suite H, Placerville, CA 95667 (hereinafter referred to as "Consultant");

RECITALS

WHEREAS, the County General Plan, adopted in 2004, mandates that County is to identify important wildlife habitat and establish a program for habitat preservation, effective management, monitoring and mitigation within five years of General Plan approval; and

WHEREAS, County has determined that it is necessary to obtain a Consultant to assist County in the preliminary stages of developing an Integrated Natural Resources Management Plan (hereinafter referred to as "INRMP"); and

WHEREAS, Consultant has represented to County that it is specially trained, experienced, expert and competent to perform the special services required hereunder and County has determined to rely upon such representations; and

WHEREAS, it is the intent of the parties hereto that such services be in conformity with all applicable federal, state and local laws; and

WHEREAS, County has determined that the provision of these services provided by Consultant is in the public's best interest, and that these services are more economically and feasibly performed by outside independent consultants as well as authorized by El Dorado County Charter, Section 210 (b) (6) and/or Government Code 31000;

NOW, THEREFORE, County and Consultant mutually agree as follows:

ARTICLE I

Scope of Services: Consultant agrees to furnish the personnel and equipment necessary to provide services described in the attachment entitled "Work Plan" and attached hereto and made a part hereof as Exhibit A. The Work Plan is only an outline of the work. Consultant acknowledges that the work is intended to result in a Final INRMP Implementation Alternatives Report which will be accepted by the Board of Supervisors of the County of El Dorado.

ARTICLE II

Term: This Agreement shall become effective upon final execution by both parties hereto and shall expire December 31, 2011. A project schedule is set forth in the attachment entitled "INRMP Project Schedule" and attached hereto and made a part hereof as Exhibit B.

ARTICLE III

Compensation for Services: For services provided herein, County agrees to pay Consultant monthly in arrears and within thirty (30) days following County's receipt and approval of itemized invoice(s) identifying services rendered. For the purposes of this Agreement, the compensation shall be as set forth in the attachment entitled "Budget by Deliverable" and attached hereto and made a part hereof as Exhibit C. Total amount of this Agreement shall not exceed one hundred ninety-nine thousand, eight hundred seventy-one dollars and no cents (\$199,871.00).

ARTICLE IV

Changes to Agreement: This Agreement may be amended by mutual consent of the parties hereto. Said amendments shall become effective only when in writing and fully executed by duly authorized officers of the parties hereto.

ARTICLE V

Consultant to County: It is understood that the services provided under this Agreement shall be prepared in and with cooperation from County and its staff. It is further agreed that in all matters pertaining to this Agreement, Consultant shall act as Consultant only to County and shall not act as Consultant to any other individual or entity affected by this Agreement nor provide information in any manner to any party outside of this Agreement that would conflict with Consultant's responsibilities to County during term hereof.

ARTICLE VI

Assignment and Delegation: Consultant is engaged by County for its unique qualifications and skills as well as those of its personnel. Consultant shall not subcontract, delegate or assign services to be provided, in whole or in part, to any other person or entity without prior written consent of County.

ARTICLE VII

Independent Consultant/Liability: Consultant is, and shall be at all times, deemed independent and shall be wholly responsible for the manner in which it performs services required by terms of this Agreement. Consultant exclusively assumes responsibility for acts of its employees, associates, and subConsultants, if any are authorized herein, as they relate to services to be provided under this Agreement during the course and scope of their employment.

Consultant shall be responsible for performing the work under this Agreement in a safe, professional, skillful and workmanlike manner and shall be liable for its own negligence and negligent acts of its employees. County shall have no right of control over the manner in which work is to be done and shall, therefore, not be charged with responsibility of preventing risk to Consultant or its employees.

ARTICLE VIII

Fiscal Considerations: The parties to this Agreement recognize and acknowledge that County is a political subdivision of the State of California. As such, El Dorado County is subject to the provisions of Article XVI, Section 18 of the California Constitution and other similar fiscal and procurement laws and regulations and may not expend funds for products, equipment or services not budgeted in a given fiscal year. It is further understood that in the normal course of County business, County will adopt a proposed budget prior to a given fiscal year, but that the final adoption of a budget does not occur until after the beginning of the fiscal year.

Notwithstanding any other provision of this Agreement to the contrary, County shall give notice of cancellation of this Agreement in the event of adoption of a proposed budget that does not provide for funds for the services, products or equipment subject herein. Such notice shall become effective upon the adoption of a final budget which does not provide funding for this Agreement. Upon the effective date of such notice, this Agreement shall be automatically terminated and County released from any further liability hereunder.

In addition to the above, should the Board of Supervisors during the course of a given year for financial reasons reduce, or order a reduction, in the budget for any County department for which services were contracted to be performed, pursuant to this paragraph in the sole discretion of County, this Agreement may be deemed to be canceled in its entirety subject to payment for services performed prior to cancellation.

ARTICLE IX

Default, Termination, and Cancellation:

- A. **Default:** Upon the occurrence of any default of the provisions of this Agreement, a party shall give written notice of said default to the party in default (notice). If the party in default does not cure the default within ten (10) days of the date of notice (time to cure), then such party shall be in default. The time to cure may be extended at the discretion of the party giving notice. Any extension of time to cure must be in writing, prepared by the party in default for signature by the party giving notice and must specify the reason(s) for the extension and the date on which the extension of time to cure expires.

Notice given under this section shall specify the alleged default and the applicable Agreement provision and shall demand that the party in default perform the provisions of this Agreement within the applicable period of time. No such notice shall be deemed a termination of this Agreement unless the party giving notice so elects in this notice, or the

party giving notice so elects in a subsequent written notice after the time to cure has expired. In the event of termination for default, County reserves the right to take over and complete the work by contract or by any other means.

- B. **Bankruptcy:** This Agreement, at the option of County, shall be terminable in the case of bankruptcy, voluntary or involuntary, or insolvency of Consultant.
- C. **Ceasing Performance:** County may terminate this Agreement in the event Consultant ceases to operate as a business, or otherwise becomes unable to substantially perform any term or condition of this Agreement.
- D. **Termination or Cancellation without Cause:** County may terminate this Agreement in whole or in part upon seven (7) calendar days written notice by County without cause. If such prior termination is effected, County will pay for satisfactory services rendered prior to the effective dates as set forth in the Notice of Termination provided to Consultant, and for such other services, which County may agree to in writing as necessary for contract resolution. In no event, however, shall County be obligated to pay more than the total amount of the contract. Upon receipt of a Notice of Termination, Consultant shall promptly discontinue all services affected, as of the effective date of termination set forth in such Notice of Termination, unless the notice directs otherwise.

ARTICLE X

Notice to Parties: All notices to be given by the parties hereto shall be in writing and served by depositing same in the United States Post Office, postage prepaid and return receipt requested. Notices to County shall be addressed as follows:

COUNTY OF EL DORADO
DEVELOPMENT SERVICES DEPARTMENT
2850 FAIRLANE COURT
PLACERVILLE, CA 95667
ATTN: ROGER TROUT, DEVELOPMENT SERVICES DIRECTOR

Or to such other location as County directs.

With a carbon copy to:

COUNTY OF EL DORADO
CHIEF ADMINISTRATIVE OFFICE
PROCUREMENT AND CONTRACTS DIVISION
330 FAIR LANE
PLACERVILLE, CA 95667
ATTN: GAYLE ERBE-HAMLIN, PURCHASING AGENT

Notices to Consultant shall be addressed as follows:

RICK A. LIND, PRINCIPAL
SIERRA ECOSYSTEM ASSOCIATES
P.O. BOX 2260/1024 SIMON DRIVE, SUITE H
PLACERVILLE, CA 95667

Or to such other location as Consultant directs.

ARTICLE XI

Indemnity: Consultant shall defend, indemnify, and hold County harmless against and from any and all claims, suits, losses, damages and liability for damages of every name, kind and description, including attorneys fees and costs incurred, brought for, or on account of, injuries to or death of any person, including but not limited to workers, County employees, and the public, or damage to property, or any economic or consequential losses, which are claimed to or in any way arise out of or are connected with Consultant's services, operations, or performance hereunder, regardless of the existence or degree of fault or negligence on the part of County, Consultant, subConsultant(s) and employee(s) of any of these, except for the sole, or active negligence of County, its officers and employees, or as expressly prescribed by statute. This duty of Consultant to indemnify and save County harmless includes the duties to defend set forth in California Civil Code Section 2778.

ARTICLE XII

Insurance: Consultant shall provide proof of a policy of insurance satisfactory to the El Dorado County Risk Manager and documentation evidencing that Consultant maintains insurance that meets the following requirements:

- A. Full Workers' Compensation and Employers' Liability Insurance covering all employees of Consultant as required by law in the State of California.
- B. Commercial General Liability Insurance of not less than \$1,000,000.00 combined single limit per occurrence for bodily injury and property damage.
- C. Automobile Liability Insurance of not less than \$1,000,000.00 is required in the event motor vehicles are used by Consultant in the performance of the Agreement.
- D. In the event Consultant is a licensed professional, and is performing professional services under this Agreement, professional liability (for example, malpractice insurance) is required with a limit of liability of not less than \$1,000,000.00 per occurrence.
- E. Consultant shall furnish a certificate of insurance satisfactory to the El Dorado County Risk Manager as evidence that the insurance required above is being maintained.
- F. The insurance will be issued by an insurance company acceptable to Risk Management, or be provided through partial or total self-insurance likewise acceptable to Risk Management.

- G. Consultant agrees that the insurance required above shall be in effect at all times during the term of this Agreement. In the event said insurance coverage expires at any time or times during the term of this Agreement, Consultant agrees to provide at least thirty (30) days prior to said expiration date, a new certificate of insurance evidencing insurance coverage as provided for herein for not less than the remainder of the term of the Agreement, or for a period of not less than one (1) year. New certificates of insurance are subject to the approval of Risk Management and Consultant agrees that no work or services shall be performed prior to the giving of such approval. In the event Consultant fails to keep in effect at all times insurance coverage as herein provided, County may, in addition to any other remedies it may have, terminate this Agreement upon the occurrence of such event.
- H. The certificate of insurance must include the following provisions stating that:
1. The insurer will not cancel the insured's coverage without thirty (30) days prior written notice to County, and;
 2. County of El Dorado, its officers, officials, employees, and volunteers are included as additional insured, but only insofar as the operations under this Agreement are concerned. This provision shall apply to the general liability policy.
- I. Consultant's insurance coverage shall be primary insurance as respects County, its officers, officials, employees and volunteers. Any insurance or self-insurance maintained by County, its officers, officials, employees or volunteers shall be excess of Consultant's insurance and shall not contribute with it.
- J. Any deductibles or self-insured retentions must be declared to and approved by County, either: the insurer shall reduce or eliminate such deductibles or self-insured retentions as respects County, its officers, officials, employees, and volunteers; or Consultant shall procure a bond guaranteeing payment of losses and related investigations, claim administration and defense expenses.
- K. Any failure to comply with the reporting provisions of the policies shall not affect coverage provided to County, its officers, officials, employees or volunteers.
- L. The insurance companies shall have no recourse against County of El Dorado, its officers and employees or any of them for payment of any premiums or assessments under any policy issued by any insurance company.
- M. Consultant's obligations shall not be limited by the foregoing insurance requirements and shall survive expiration of this Agreement.
- N. In the event Consultant cannot provide an occurrence policy, Consultant shall provide insurance covering claims made as a result of performance of this Agreement for not less than three (3) years following completion of performance of this Agreement.

- O. Certificate of insurance shall meet such additional standards as may be determined by County contracting department either independently or in consultation with Risk Management, as essential for the protection of County.

ARTICLE XIII

Interest of Public Official: No official or employee of County who exercises any functions or responsibilities in review or approval of services to be provided by Consultant under this Agreement shall participate in or attempt to influence any decision relating to this Agreement which affects personal interest or interest of any corporation, partnership, or association in which he/she is directly or indirectly interested; nor shall any such official or employee of County have any interest, direct or indirect, in this Agreement or the proceeds thereof.

ARTICLE XIV

Interest of Consultant: Consultant covenants that Consultant presently has no personal interest or financial interest, and shall not acquire same in any manner or degree in either: 1) any other contract connected with or directly affected by the services to be performed by this Agreement; or, 2) any other entities connected with or directly affected by the services to be performed by this Agreement. Consultant further covenants that in the performance of this Agreement no person having any such interest shall be employed by Consultant.

ARTICLE XV

Conflict of Interest: The parties to this Agreement have read and are aware of the provisions of Government Code Section 1090 et seq. and Section 87100 relating to conflict of interest of public officers and employees. Consultant attests that it has no current business or financial relationship with any County employee(s) that would constitute a conflict of interest with provision of services under this contract and will not enter into any such business or financial relationship with any such employee(s) during the term of this Agreement. County represents that it is unaware of any financial or economic interest of any public officer or employee of Consultant relating to this Agreement. It is further understood and agreed that if such a financial interest does exist at the inception of this Agreement either party may immediately terminate this Agreement by giving written notice as detailed in the Article in the Agreement titled, "Default, Termination and Cancellation".

ARTICLE XVI

California Residency (Form 590): All independent Consultants providing services to County must file a State of California Form 590, certifying their California residency or, in the case of a corporation, certifying that they have a permanent place of business in California. Consultant will be required to submit a Form 590 prior to execution of an Agreement or County shall withhold seven (7) percent of each payment made to Consultant during term of the Agreement. This requirement applies to any agreement/contract exceeding \$1,500.00.

ARTICLE XVII

Taxpayer Identification Number (Form W-9): All independent Consultants or corporations providing services to County must file a Department of the Treasury Internal Revenue Service Form W-9, certifying their Taxpayer Identification Number.

ARTICLE XVIII

County Business License: It is unlawful for any person to furnish supplies or services, or transact any kind of business in the unincorporated territory of El Dorado County without possessing a County business license unless exempt under County Code Section 5.08.070.

ARTICLE XIX

Administrator: The County Officer or employee with responsibility for administering this Agreement is Peter Maurer, Principal Planner, or successor.

ARTICLE XX

Authorized Signatures: The parties to this Agreement represent that the undersigned individuals executing this Agreement on their respective behalf are fully authorized to do so by law or other appropriate instrument and to bind upon said parties to the obligations set forth herein.

ARTICLE XXI

Partial Invalidity: If any provision of this Agreement is held by a court of competent jurisdiction to be invalid, void or unenforceable, the remaining provisions will continue in full force and effect without being impaired or invalidated in any way.

ARTICLE XXII

Venue: Any dispute resolution action arising out of this Agreement, including, but not limited to, litigation, mediation, or arbitration, shall be brought in El Dorado County, California, and shall be resolved in accordance with the laws of the State of California.

ARTICLE XXIII

Entire Agreement: This document and the documents referred to herein or exhibits hereto are the entire Agreement between the parties and they incorporate or supersede all prior written or oral Agreements or understandings.

Requesting Contract Administrator Concurrence:

By: _____ Dated: _____
Peter N. Maurer
Principal Planner
Development Services Department

Requesting Department Head Concurrence:

By: _____ Dated: _____
Roger Trout
Director
Development Services Department

IN WITNESS WHEREOF, the parties hereto have executed this Agreement on the dates indicated below.

-- COUNTY OF EL DORADO --

Dated: _____

By: _____

Chairman
Board of Supervisors
"County"

ATTEST:

Suzanne Allen de Sanchez, Clerk
of the Board of Supervisors

By: _____ Dated: _____

Deputy Clerk

-- CONSULTANT --

By: _____

Dated: _____

Rick A. Lind
Principal
Sierra Ecosystem Associates
"Consultant"

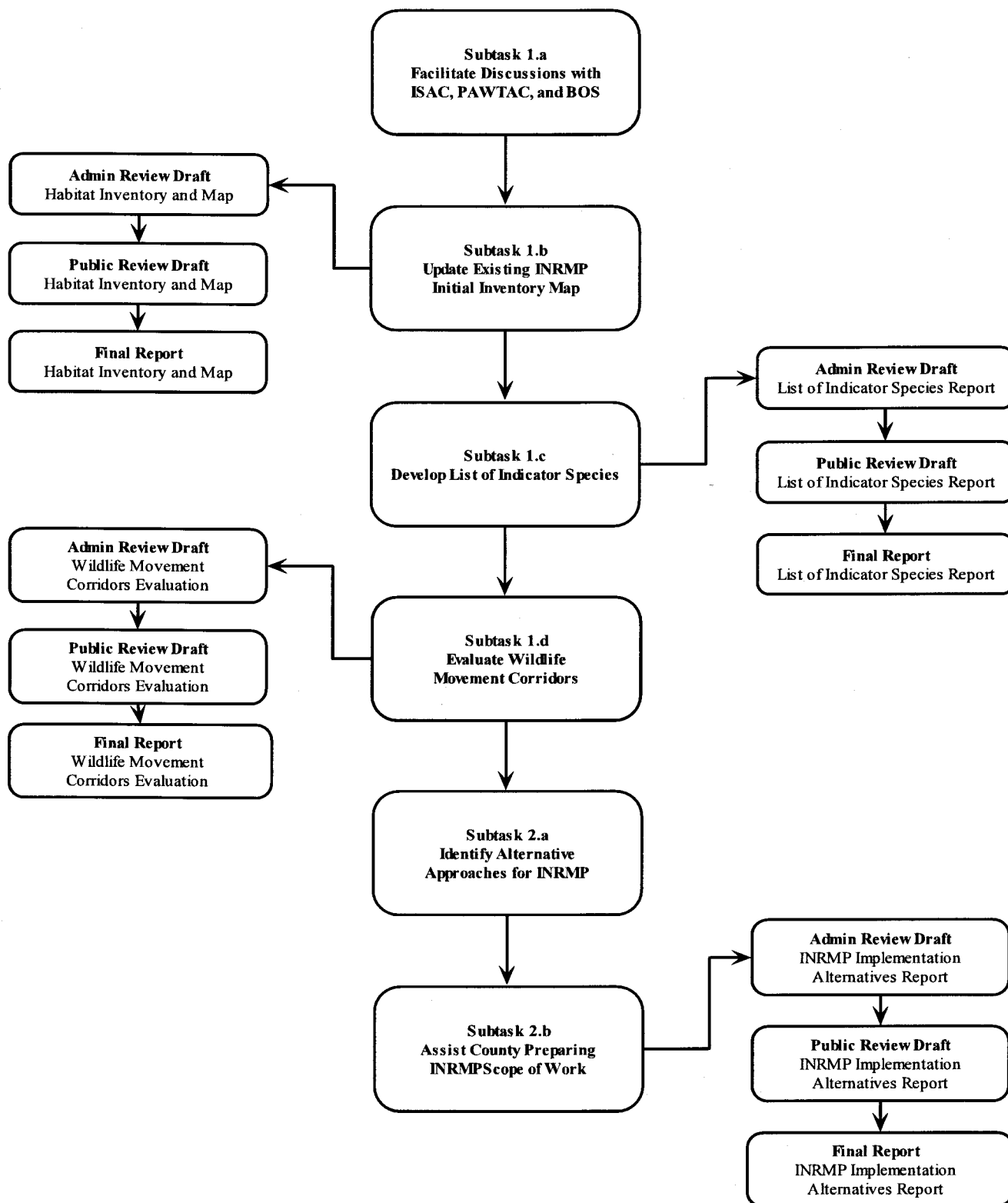
Exhibit A
Agreement #250-S1011
Work Plan

E. WORK PLAN

In 2004, the County adopted its General Plan. Mitigation measures included in the General Plan Environmental Impact Report (EIR) include Policy 7.4.2.8 and Implementation Measure CO-M, which are intended to protect natural resources and are the focus of this proposal. Other policies from the General Plan which are relevant to the effort to protect natural resources include 7.4.2.9 and Measure CO-U. The County is directed to identify important habitat and to establish a program for habitat preservation, effective management, monitoring and mitigation (i.e., an INRMP) within five years of the General Plan approval. This includes developing land conservation strategies that conserve and restore habitat connectivity to offset the effects of increased habitat loss and fragmentation elsewhere in the County. It also includes identifying habitat preservation areas, with preference for large continuous blocks of habitat and where possible, corridors to facilitate species movement among these blocks. These areas will then form a network of priority preservation lands in the County to provide proactive preservation planning at a landscape level so as to reduce future endangered species listings, human-wildlife conflicts, and make the County better equipped to deal with expected land-use and global climate change.

The tasks identified as being necessary to develop the INRMP in the May 8, 2009 Request for Proposals are listed below and Figure 2 identifies SEA's proposed work plan in flowchart form.

Figure 2: Proposed Work Plan



TASK 1 MAP IMPORTANT HABITAT AND CONNECTIVITY

According to General Plan Policy 7.4.2.8 (A), this part of the INRMP shall inventory and map the following important habitats in the County:

- a. Habitats that support special-status species;
- b. Aquatic environments including streams, rivers, and lakes;
- c. Wetland and riparian habitat;
- d. Important habitat for migratory deer herds; and
- e. Large expanses of native vegetation.

In addition, the Policy states that the County should update the inventory every three years to identify the amount of important habitat protected, by habitat type, through County programs and the amount of important habitat removed because of new development during that period. The inventory and mapping effort shall be developed with the assistance of two County oversight groups, the PAWTAC and ISAC. Additional help will be sought from the California Department of Fish and Game (CDFG) and U.S. Fish and Wildlife Service (USFWS). The inventory shall be maintained and updated by the County Planning Department and shall be publicly accessible.

Subtask 1.a Facilitate Discussions with PAWTAC, ISAC & Board of Supervisors

Project Team members will attend and facilitate discussions at monthly meetings with the PAWTAC and ISAC. These discussions will include efforts to define "Important Habitat", "Large Expanses", and "Native Vegetation" as used in General Plan Policy 7.4.2.8. Team members will also attend public meetings, as necessary, with the County Board of Supervisors, the Agricultural Commission, the Planning Commission and the Parks and Recreation Commission, to include them in the discussions and update them in the project findings and schedule. For budgetary purposes, a total of 36 meetings have been included as a part of this proposal. Any additional meetings will be charged on a Time and Materials basis.

Subtask 1.b Update Existing INRMP Initial Inventory Map

The existing INRMP Initial Inventory map for El Dorado County displays information on existing important wildlife habitats for the entire County (March 26, 2008). The study area for the INRMP is now defined as the west side of the County below the 4,000-foot elevation contour. The map will be updated to reflect the study area as it is now defined.

The existing map displays the following data:

1. Special-status species point locations (California Natural Diversity Database)
2. Aquatic environments (El Dorado County)
3. Wetland and riparian habitat (U.S. Fish and Wildlife Service [USFWS] – National Wetlands Inventory)
4. Important deer habitat (CDFG)
5. California Red-legged frog critical habitat (USFWS)
6. Pine Hill Preserve areas (Bureau of Land Management)
7. Priority Conservation Areas from the Oak Woodland Management Plan (OWMP, EN2 Resources, Inc.)
8. Important Biological Corridors identified in the 2004 General Plan
9. Valley Oak Woodland (FRAP 2002)
10. Lands that are publicly owned, subject to conservation easements and designated Open Space or Natural Resource in the 2004 General Plan

General Plan Policy 7.4.2.8 specifically calls for the mapping of five types of habitats and environments for the Habitat Inventory (7.4.2.8). SEA will update the initial inventory map from the 2004 General Plan using the most current data available. For example, the existing map has data from 2000 and the CNDDDB is updated monthly, therefore, SEA will use the most current month's data to overlay on the map. In addition, we will modify the map to display the data in the most effective way to convey the extent of habitats in the study area. As an example, the current map uses point data to display the location of special-status species from the CNDDDB; however, the CNDDDB data also includes polygon data, which better approximates location of special-status species occurrences.

Several additional data-sets may be used to more accurately display the range of habitat types in the study area. The latest vegetation data from the California Land Cover Mapping and Monitoring Program (LCMMP) provides vegetation data obtained from remotely sensed data, which is classified according to the California Wildlife Habitat Relationship (CWHR). This information is useful in determining where there are large expanses of native vegetation as required by the 2004 General Plan. We also are aware of recently-developed maps of historic vegetation types, possible future vegetation distributions (with climate change), and historic wildlife occurrences. In addition, to more accurately map where special-status plant species are likely to occur, Natural Resources Conservation Service (NRCS) soil data can be used to show the location of gabbro- and serpentine-derived soil types. Many rare plants are associated with these soil types. SEA would research and evaluate additional existing data, including the 1991 EIP Rare Plant Study, the OWMP, and County GIS data, to include on the map as necessary.

Subtask 1.c Develop List of Indicator Species

The Project Team will develop a recommended list of Indicator Species to be utilized in identification of potential core habitat areas, corridors and linkages. For each Indicator Species, the Team will identify habitat relationships and discuss relevant characteristics such as distribution, status, dispersal and home range requirements.

Indicator species can represent particular structural and functional values of habitat, they can be species of particular management or regulatory concern (e.g., endangered species), or they can exert substantial influence on an ecosystem (e.g., mule deer). The presence of indicator species can provide information about habitat quality and extent in an area. The combination of information about a suite of indicator species and structural information about habitat (quality and threats) is often sufficient for conservation planning. We will describe a combination of indicator species suitable for analyzing habitat quality, extent of usable habitat, connectivity, and habitat conservation. Because there can be a reciprocal relationship between choosing indicator species and finding sufficient data to evaluate their distribution and status, we will develop both a list of "best indicator species" and a list of "available indicator species".

Team member Dr. Fraser Shilling has developed the only connectivity analysis for the Sierra Nevada, which was based in part on actual occurrences, or GIS models of habitat, for indicator species. These species were chosen for their rarity (e.g., wolverine), keystone role (mule deer), or management status (e.g., California Spotted Owl). We also have extensive field research experience with the species most likely to play a key role as indicator species.

Habitat Relationships

Wildlife occupy specific habitat types, often indicated by particular assemblages of plant types. Planning for conservation of wildlife species often depends on knowing two critical pieces of information: 1) the use of different habitat types by each of these species (some species can use more than one habitat type) and 2) the distribution and quality of the habitat types. These relationships are often modeled, although the modeling is not a perfect science, with both known and unknown limitations. For each indicator species, we will describe the essential habitat relationships, including the ranked habitat preferences and the caveats and accuracy of these relationships. We will use the California Wildlife Habitat Relations (CWHR) model, which was developed by CDFG and other biologists. This model provides habitat associations for each vertebrate species in California, ranks habitats for their utility for species, and includes accuracy for the model's predictions. The primary output will be a map of the highest quality habitat areas for each species.

Dr. Shilling has used the CWHR modeling approach for the last decade as part of road system analyses, habitat reserve design, and connectivity analysis in El Dorado County and other parts of the Sierra Nevada.

Distribution

El Dorado County is home to varied habitat types, from oak savannahs and woodlands in the West, to Alpine forests and barren areas to the East. All major vegetation types in the County have been mapped and for many, qualities of these habitats are known (e.g., crown cover). We will use this information to describe the likely distribution of indicator species in the County. In addition, there have been wildlife records collected during the implementation of infrastructure, restoration, and other projects. Although these don't indicate numbers of individual wildlife, this information can be used to indicate presence/absence of certain species.

Dr. Shilling has prior experience in the Sierra Nevada and other places in the world in digital mapping of actual occurrences and distributions, as well as likely distributions, for many of the likely indicator species.

Status

The actual presence and numbers of wildlife species is one of the most challenging pieces of information to collect for indicator species. It is also one of the most important, as species status correlates with habitat quality and threats and trends in status can act as a surrogate for improving or declining ecosystem status. One indicator of species status is their regulatory status. However, there is not always as much information about the status and changing status of species to equate legal status with biological status. We will collect as much information as is available for the indicator species regarding their biological, legal, and local status.

Dispersal

The ability of different species to disperse within and among habitat areas is often critical for their survival and well-being. Dispersal can be affected by both natural and artificial barriers and opportunities. For example, for small species, a large river may represent as effective a barrier as a freeway. In addition, some species may take advantage of highway structures (e.g., culverts) to opportunistically cross highways. For each indicator species, we will describe their basic

dispersal needs, local and regional barriers to dispersal, and information about their actual dispersal and potential dispersal pathways.

Home Range Requirements

Habitat type and quality can determine the actual use of individuals and pairs of wildlife species of the landscape. The size of the home range depends on a combination of the species, individual's reproductive stage, habitat quality, habitat type, and disturbances. The most probable home range size is known for many species occurring in El Dorado County, allowing for modeling the likely extent on the landscape of potential home range areas. Actual home range areas can be determined by tracking the movements of individual animals. We will describe the home range sizes, potential distributions in the County, and threats to home ranges for all major mammal species and certain birds of legal concern (e.g., spotted owl). For other taxonomic groups, there may not be enough known to discuss home range size.

Subtask 1.d Evaluate Wildlife Movement Corridors

The SEA Team will evaluate the need for north-south wildlife movement corridors and linkages, including identification of species with north-south migration patterns. The Team will analyze the barrier effect of Highway 50 and other major roadways in the project area (i.e., Motherlode Road). The Team will identify existing locations along Highway 50 that allow safe passage for terrestrial mammals. The Team will examine and discuss issues involved with retrofitting existing drainage structures and undercrossings to provide for discrete wildlife crossings, including an approximation of the cost, to allow the County to assess the feasibility of such an approach. Prior research studies, such as the 2002 Saving & Greenwood report and initial oak-corridor mapping conducted for the OWMP by EN2 Resources, Inc., will also be analyzed. Alternative locations for wildlife movement across Highway 50 (such as Weber Creek and areas east of Placerville), will be identified and examined as to the relative feasibility of those locations. General Plan Policy 7.4.2.8 (A) and the Oak Woodland Management Plan will be considered as part of this task.

Wildlife movement often follows natural corridors, such as riparian forests, from one important to another. Wildlife also move within zones of habitat types that they require for survival. In El Dorado County, this equates to north-south movement within belts of woodland habitat, or mixed conifer forest habitat, or other vegetation and climatic zones. Road and other development in the County has proceeded in both north-south and east-west orientations (as well as others) and can thus pose barriers to wildlife movement. One critical issue that mammals moving through El Dorado County face is traffic on Highway 50. This highway has sufficient traffic that only the fastest animals at certain times of the day will be able to successfully cross the surface of the right-of-way. Other major roads also have enough traffic (e.g., Latrobe Rd) that wildlife are at risk of collisions with vehicles if they try to cross.

Caltrans has collected wildlife-vehicle collision data for Highway 50 and provided those data to Dr. Shilling as part of a collaborative study. These data reveal that deer are commonly killed on Highway 50 and primarily where traffic levels are moderate (10,000 to 20,000 vehicles per day), within a zone that stretches west of Placerville to Echo Summit. In addition, these collisions tend to occur in the foothill zone more commonly in the winter and summer and at higher elevations in the spring and fall. Similarly, SACOG has collected data on wildlife-vehicle collisions

resulting in death, injury, and property damage and provided these data to Dr. Shilling. In the last 10 years, there have been 180 accidents caused by collisions with wildlife on Highway 50 in western El Dorado County, 32 of which resulted in death or injury. Interestingly, 126 of the collisions were between dusk and dawn and 54 were during daylight hours.

The Team will investigate the likelihood that wildlife can cross Highway 50 from the western County line to the 4,000 foot elevation on the eastern project area boundary. We will do this in two ways: 1) use existing maps and knowledge of habitat areas near or adjacent to the highway to map areas of likely concern and 2) field a small crew of UC Davis student-scientists to map (GPS) and describe (dimensions) all potential pathways for wildlife to opportunistically cross the Highway 50 right-of-way. We will also describe the factors that may constrain or enable wildlife crossing of major roads and Highway 50, in order to allow for a more general understanding of barriers and opportunities for crossing. Existing structures can sometimes provide opportunities to expand the range of possibilities for wildlife to more safely (for them and people) cross highways.

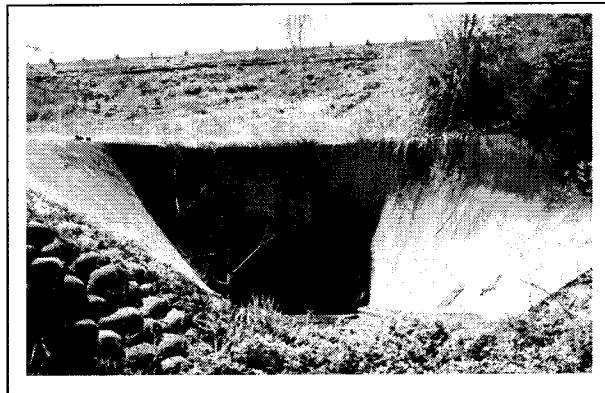
Dr. Shilling is a co-author of the California Wildlife Crossing Manual (developed under contract with Caltrans), which describes in detail how to determine wildlife crossing potential of highways, as well as approaches to reduce conflict at that crossing.

Structure Retrofit

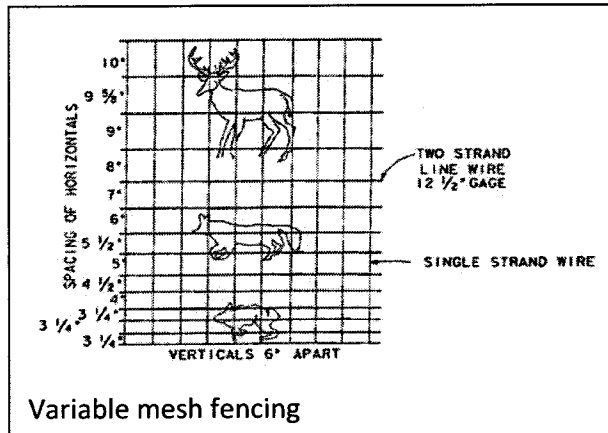
One of the cheapest and sometimes most effective ways to improve wildlife movement through areas with busy roads and highways is to improve existing right-of-way crossing opportunities. There are several general concepts that can guide the placement and choice of type of enhanced crossing structure. These include: adjacent land-ownership status, adjacent habitat quality, type and dimensions of existing crossing structure, other uses of existing crossing structure. There are also aspects of the right-of-way that can be enhanced to reduce crossing in certain areas (through fencing) and increase it in others (access paths through median barriers). Finally, driver education and traffic management can reduce the likelihood that wildlife crossing results in collision. The following section describes possible retrofit recommendations that we will make to improve wildlife crossing on County highways and major roads.

1) Bridges over major roads may function as a crossing pathway for wildlife capable of perceiving and using these structures. Three issues associated with retrofit would be access to the bridge, traffic management on the bridge, and creation of a wildlife friendly walkway adjacent to the roadway.

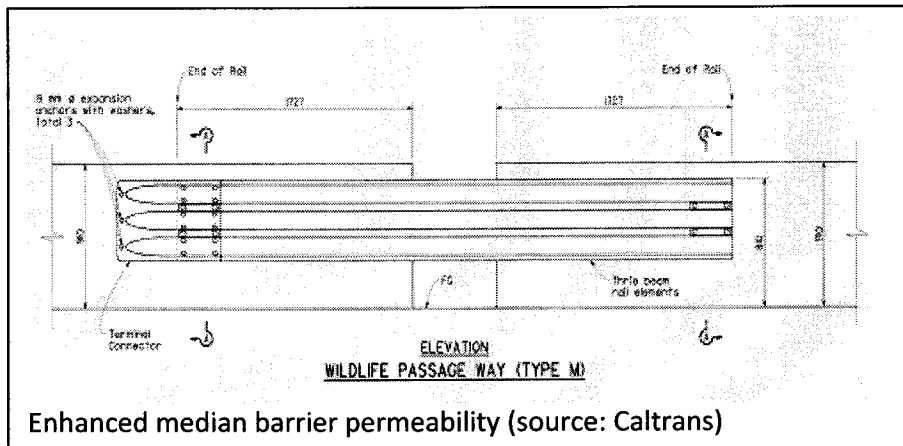
2) Culverts provide one of the best crossing pathways for small and medium-sized wildlife species. They sometimes have a natural bottom, but if not can be retrofitted with a naturalized bottom or with a wildlife ledge that can be attached to the side of the tunnel.



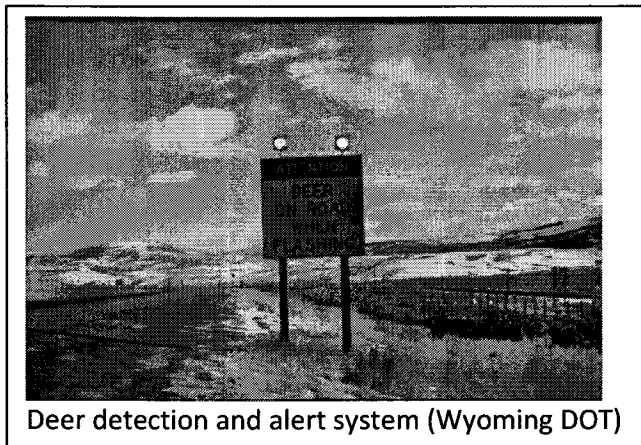
3) Fencing is a useful and cost-effective way to stop wildlife crossing in certain areas and channel them toward better places to cross. In one study (Aresco, 2005), a wildlife biologist used a vinyl erosion control fence as a drift fence to encourage turtles, and other herpetofauna to use a culvert to move between water-bodies on either side of 1 km of a busy highway. The fence was >99% effective for diverting turtles, resulting in thousands fewer deaths on the surface of the road. Variable mesh-size fencing can be used to divert wildlife of a wide range of sizes to appropriate crossing opportunities.



4) Median barriers are usually very effective crossing barriers. When wildlife attempt to cross highways and busy roads despite the presence of traffic, it is important to get them off the road surface as quickly as possible. Most



animals cannot jump over a typical concrete median barrier and even those that can may not because of the unfamiliarity of the obstacle. Recognizing this, two main solutions have been developed. One is to offset barrier segments from each other at the ends, so as to create a space. Another approach is to use scuppers to allow small animals to penetrate through the barrier.



5) Traffic management has been effectively used to reduce vehicle speed and increase awareness of the likelihood of collision with wildlife in specific areas. One way this is accomplished is using wildlife detection systems to alert drivers to the presence of large wildlife on or near the roadway. There is a UC Berkeley study that is looking at how these systems could be cost-effectively used in California. Other ways are to alert people to likely presence of wildlife on or near the road, for specific roads

and to reduce permitted speeds on roadways that have frequent collisions.

We will describe how and where these types of crossing enhancement strategies could be used for major roads and highways in the County. We will include cost-ranges for the strategies, based upon costs elsewhere in California or the US.

Alternative Highway 50 Crossings

There are very few places where Highway 50 is completely permeable to wildlife movement. One critical lower-elevation area includes the two un-named tributary streams to Deer Creek that cross Highway 50 adjacent to Silva Valley Parkway. These vegetated crossings are probably important to species that can tolerate the El Dorado Hills residential neighborhoods in the vicinity to the north. A paved under-crossing that may be important is Bass Lake Road at Highway 50. Because of habitat to the north and south of the highway, this may be an important crossing. There are other possible opportunistic crossings between the western County line and Placerville, but Weber Creek is likely to be the most important one. The forested and scrub areas it connects provide the best lower/mid-elevation connection between the Cosumnes and American River watersheds.

We will evaluate the various Highway 50 crossing alternatives, starting at the western County line and extending to elevation 4,000 feet to the east. We will characterize each potential crossing's relative importance and feasibility for enhancement and maintenance.

Subtask 1.e Deliverables

- *Administrative Draft Important Habitat Inventory Report and Map*
- *Public Review Draft Important Habitat Inventory Report and Map*
- *Final Important Habitat Inventory Report and Map*

- *Administrative Draft Indicator Species Report*
- *Public Review Draft Indicator Species Report*
- *Final Indicator Species Report*

- *Administrative Draft Analysis of North-South Wildlife Movement Corridors Report*
- *Public Review Draft Analysis of North-South Wildlife Movement Corridors Report*
- *Final Analysis of North-South Wildlife Movement Corridors Report*

**TASK 2 IDENTIFY ALTERNATIVE APPROACHES FOR PREPARATION OF
THE INRMP**

The purpose of the INRMP is to identify important habitat in the County and establish a program for effective habitat preservation and management. The policy goes on to state that the INRMP shall include the following components:

1. Habitat Inventory
2. Habitat Protection Strategy
3. Mitigation Assistance
4. Habitat Acquisition
5. Habitat Management
6. Habitat Monitoring
7. Public Participation
8. Funding

Subtask 2.a Identify Range of Alternatives for INRMP

The Project Team will identify a range of alternative approaches available to the County to complete the INRMP. Advantages and disadvantages of each alternative will be discussed along with their probable cost of implementation. This shall include accounts for the implementation cost of mitigation, including acquisition, monitoring, and management. This task shall also include a discussion on the methodology employed in other jurisdictions for similar conservation plans. By way of example, some of the methods to be discussed might include GIS-based computer modeling, a criteria-based program, and a Conceptual Conservation Plan approach.

There are a wide array of possible computer-based spatial modeling approaches that can be used to estimate connectivity, habitat quality, conservation priorities, and wildlife species needs. There are also conceptual conservation strategies commonly used in habitat conservation planning that may require less computer-intensive analysis (e.g., Bay-Delta Conservation Plan), but have clear links to conservation goals.

Dr. Shilling has prior experience developing GIS-based models of important habitats for wildlife needs, structural and functional connectivity, and potential impacts of roads for private organizations and local, state, and federal agency clients. These models include: Ecosystem Management Decision Support, Least Cost Path & Corridor Analysis, PATCH, Patch Analyst (ESRI), FRAGSTATS, the Hawth's Tool Set, SITES/MARXAN, FunnConn, Criterium Decision Plus, and others. All of these approaches provide maps of provable accuracy that are also easy to understand, unlike some of the more esoteric, academic approaches (e.g., graph theory and circuit theory). These tools vary in their ease of use and the accuracy and utility of their outputs. In all cases, a moderate level of GIS expertise is required to ensure that the outputs are meaningful. In all cases, the modeler must have a clear question in mind. Finally, in all cases, the models have been successfully tested for accuracy and use in real-life planning.

The Project Team will coordinate with the consultants and staff working on the Pine Hill plant issues to ensure that the Pine Hill plant work will fit into the INRMP, but will not do extensive work on this issue. We will also be prepared to assist the County with evaluating potential

policy changes and in preparing a General Plan Amendment, should that become necessary during this process.

Subtask 2.b Assist County Preparing INRMP Scope of Work

The Team will also assist the County in preparation of a revised Scope of Work in compliance with General Plan Policies 7.4.2.8. The revised Scope of Work will be based on the findings from the studies prepared as a result of this proposal and will identify all remaining tasks necessary to complete the INRMP. The INRMP will evaluate the extent to which resources are or can be protected on public lands as a first priority. Costs associated with preparing the Final INRMP shall also be provided.

Subtask 2.c Deliverables

- *Administrative Draft INRMP Implementation Alternatives Report*
- *Public Review Draft INRMP Implementation Alternatives Report*
- *Final INRMP Implementation Alternatives Report*

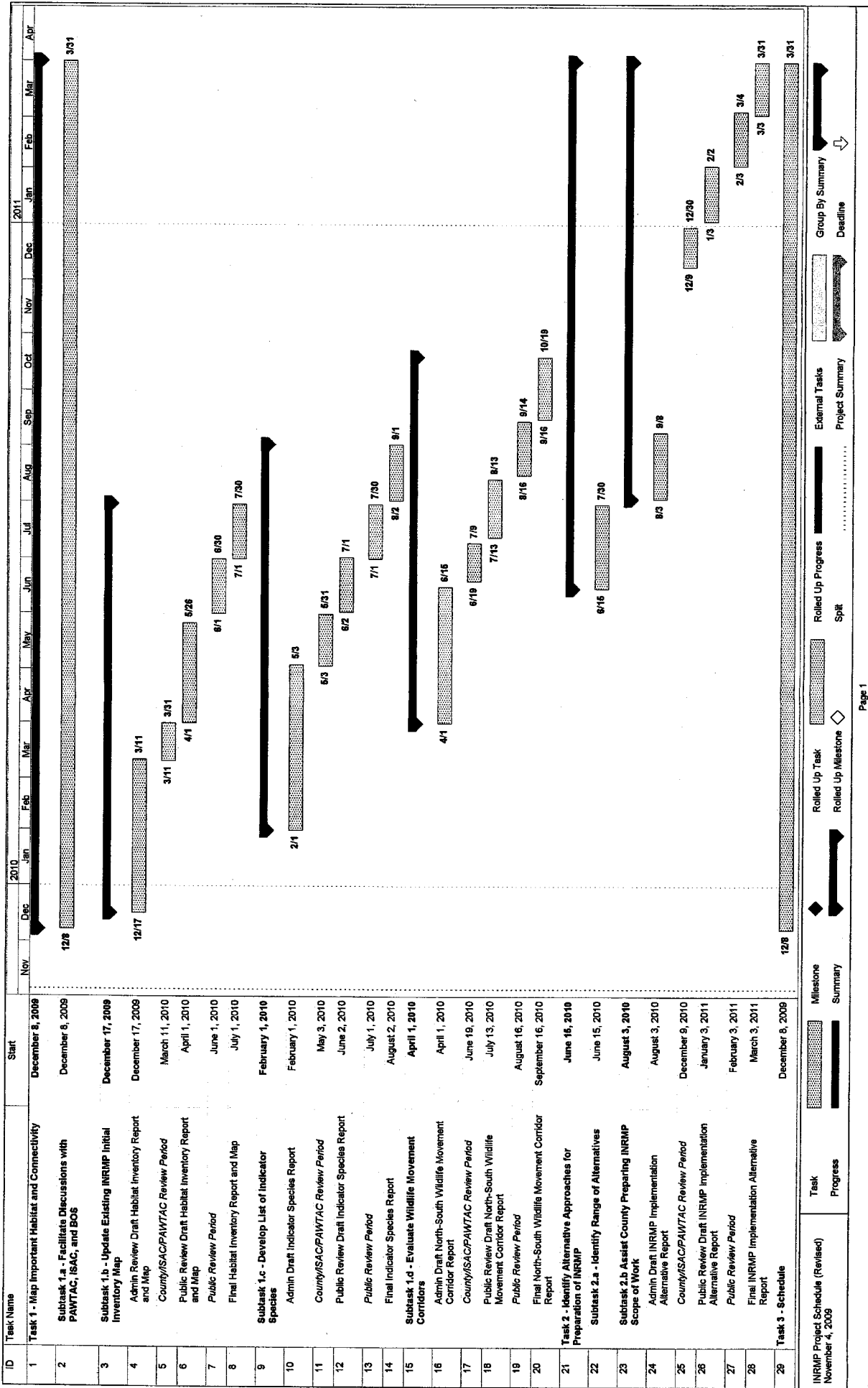
TASK 3 PROJECT SCHEDULE

A copy of the Project Schedule is included herein. As work progresses, this schedule will be updated on a monthly basis and shared with County staff and PAWTAC and ISAC members.

Exhibit B

Agreement #250-S1011

INRMP Project Schedule



INRMP Project Schedule (Revised) November 4, 2009

Legend: Milestone (Diamond), Summary (Thick Bar), Task (Thin Bar), Progress (Dotted Bar), Rolled Up Progress (Dotted Bar with Arrow), Rolled Up Milestone (Diamond with Arrow), External Tasks (Dotted Bar with Arrow), Project Summary (Dotted Bar with Arrow), Group By Summary (Dotted Bar with Arrow), Deadline (Dotted Bar with Arrow)

Page 1

Exhibit C

Agreement #250-S1011

Budget by Deliverable

El Dorado County
 Integrated Natural Resources Management Plan and Environmental Document Preparation
 Calculation Sheet for Budgets by Deliverable*

Task 1B - Update Existing INRMP Initial Inventory Map		
Charged Labor		\$ 19,652.00
¼ of Task 1A Budget - Facilitate Discussions with PAWTAC/ISAC/BOS		\$ 5,330.50
¼ of Task 3 Budget - Schedule		\$ 669.50
¼ Project Expenses		\$ 250.00
	Deliverable	Cost
Admin. Review Draft		\$ 18,131.40
Public Review Draft		\$ 5,180.40
Final Report		\$ 2,590.20
	<i>Total Task 1B</i>	<i>\$ 25,902.00</i>

Task 1C - Develop Recommended List of Indicator Species		
Charged Labor		\$ 32,057.00
¼ of Task 1A Budget - Facilitate Discussions with PAWTAC/ISAC/BOS		\$ 5,330.50
¼ of Task 3 Budget - Schedule		\$ 669.50
¼ Project Expenses		\$ 250.00
	Deliverable	Cost
Admin. Review Draft		\$ 26,814.90
Public Review Draft		\$ 7,661.40
Final Report		\$ 3,830.70
	<i>Total Task 1C</i>	<i>\$ 38,307.00</i>

Task 1D - Evaluate Need for Wildlife Corridors		
Charged Labor		\$ 51,832.00
¼ of Task 1A Budget - Facilitate Discussions with PAWTAC/ISAC/BOS		\$ 5,330.50
¼ of Task 3 Budget - Schedule		\$ 669.50
¼ Project Expenses		\$ 250.00
	Deliverable	Cost
Admin. Review Draft		\$ 40,657.40
Public Review Draft		\$ 11,616.40
Final Report		\$ 5,808.20
	<i>Total Task 1D</i>	<i>\$ 58,082.00</i>

Task 2 - Assist County Identifying Alternative Approaches for Preparation of INRMP		
Charged Labor for 2A - Identify Range of Alternative Approaches for INRMP		\$53,504.00
Charged Labor for 2B - Assist County in Preparing Revised Scope of Work		\$17,826.00
¼ of Task 1A Budget - Facilitate Discussions with PAWTAC/ISAC/BOS		\$5,330.50
¼ of Task 3 Budget - Schedule		\$669.50
¼ Project Expenses		\$250.00
	Deliverable	Cost
Range of Alternatives		\$ 15,516.00
Admin. Review Draft		\$ 38,790.00
Public Review Draft		\$ 15,516.00
Final Report		\$ 7,758.00
	<i>Total Task 2</i>	<i>\$77,580.00</i>

INRMP TOTAL BUDGET	\$199,871.00
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*Based on SEA's June 11, 2009 INRMP Cost Proposal.

El Dorado County
 Integrated Natural Resources Management Plan and Environmental Document Preparation
 Budgets by Deliverable

Task 1B – Update Existing INRMP Initial Inventory Map	
Admin. Review Draft	\$ 18,131.40
Public Review Draft	\$ 5,180.40
Final Report	\$ 2,590.20
<i>Total Task 1B</i>	<i>\$ 25,902.00</i>
Task 1C – Develop Recommended List of Indicator Species	
Admin. Review Draft	\$ 26,814.90
Public Review Draft	\$ 7,661.40
Final Report	\$ 3,830.70
<i>Total Task 1C</i>	<i>\$ 38,307.00</i>
Task 1D – Evaluate Need for Wildlife Corridors	
Admin. Review Draft	\$ 40,657.40
Public Review Draft	\$ 11,616.40
Final Report	\$ 5,808.20
<i>Total Task 1D</i>	<i>\$ 58,082.00</i>
Task 2 - Assist County Identifying Alternative Approaches for Preparation of INRMP	
Range of Alternatives	\$ 15,516.00
Admin. Review Draft	\$ 38,790.00
Public Review Draft	\$ 15,516.00
Final Report	\$ 7,758.00
<i>Total Task 2</i>	<i>\$77,580.00</i>
INRMP TOTAL BUDGET	\$199,871.00