DRAFT I

LEGACY-The Landscape Connection

Long Range Strategy

Creating a Biodiversity Conservation Network

Through Community Collaboration in the

North Coastal Basin of California

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Creating a Biodiversity Conservation Network

Introduction

1.1. LEGACY– The Landscape connection

1.1.1. Who We Are

LEGACY - The Landscape Connection (LEGACY-TLC), a California based 501(c)(3) non-profit organization, works collectively with other local and regional organizations to provide information to facilitate planning efforts for the protection and restoration of native biodiversity in the Klamath Ecoregion. LEGACY-TLC is a collaboration of community members, scientists, educators, wildlife advocates, and students united under the vision of creating a regional biodiversity conservation strategy. LEGACY-TLC is also represented through an official student club of Humboldt State University. Our expertise and dedication to conveying the complex biological messages of our place provides a regional context for various groups in their land management decisions.

Since 1992, LEGACY-TLC has built organizational capacity and secured a modern office featuring a 'state of the art' GIS laboratory. We have synthesized methodologies to design and implement a nature reserve network which focuses on the following three program areas: 1) Community outreach and education aimed at establishing needed information and networks between community members, scientists, students, agencies and others who share common conservation interests; 2) Applied conservation biology as the basis of site selection and land management strategies; and 3) Geographic information system (GIS) to analyze and integrate spatial data.

1.1.2. What We Do / Scope and Focus

The LEGACY-TLC mission is "To provide information for the protection and restoration of the Klamath Ecoregion. We promote conservation of native biodiversity through the integration of local knowledge and science". We provide scientific and GIS expertise to assist local conservation groups in developing their local watershed plans and datasets. The long-term goal of LEGACY - The Landscape Connection is to implement a Biodiversity Conservation Plan (BCP) for the California North Coastal Basin.

Based on scientific analysis and collective community input, we are currently delineating ecologically and culturally important areas in the California North Coastal Basin (CNCB). Upon completion of this mapping process, we will work collectively to develop watershed level biodiversity conservation plans that responds to the site-specific requirements of each community within the planning area and the CNCB as a whole. We promote social, cultural, and economic practices that maintain or restore the region's ecological integrity.

In order to develop the organizational structure necessary to implement this Long Range Strategy, LEGACY-TLC has recruited staff, directors, and scientific advisors with skills in reserve design, wildlife and plant ecology, wildlife and vegetation mapping, GIS analysis, sociology, and community organizing. A multi-disciplinary Scientific Advisory Committee advises directors and staff on the scientific validity of the methodologies used in designing reserves, field sampling techniques, and data analysis.

LEGACY-TLC supports local conservation efforts by providing a regional perspective on biodiversity issues in northwestern California. Through education, training, and supplying GIS services, LEGACY-TLC provides community groups with technical assistance. We ask individuals and organizations for their help and advice in locating places of special ecological value. In turn we help them conduct ecological inventories. This information is then incorporated into a regional Geographic Information System (GIS). Scientific data is compiled in LEGACY's Spatial Analysis and GIS Mapping Laboratory gathered from numerous sources, including our current and past projects. Data layers will be used in landscape level models to identify reserve components. GIS maps are produced to illustrate the positions of these components in relation to each other, as well as to watershed boundaries, riparian areas, roads, and urban centers. This information allows us to create a sound vision for the future by identifying appropriate management strategies to implement site-specific conservation and land-use practices.

This strategy allows us the opportunity to create and analyze regional data sets while developing working relationships with community groups and individuals. We realize that these are the same people who will actually implement biodiversity conservation plans that are developed for their home place.

LEGACY-TLC is working in cooperation with Dr. Allen Cooperrider (conservation biologist), Dr. Lawrence Fox III (Spatial Information System Institute; Humboldt State University Natural Resources Department), Dr. Luke George (Humboldt State University Wildlife Department), Dr. William Zielinski (research wildlife biologist; USDA Forest Service Pacific Southwest Research Laboratory).

1.1.3. Where We Work

Our area of interest is the Klamath Ecoregion, which is one of 52 regions defined by the US Fish and Wildlife Service. Located in south central Oregon and northwestern California, this region consists of all watersheds draining into the Pacific Ocean from the Smith River south to Bodega Bay. Our primary area of interest is the California North Coastal Basin (CNCB). Located within the Klamath Ecoregion, it is a geographically, culturally and biologically defined region.

2. DESCRIPTION OF PROPOSED METHODOLOGY

2.1. INTRODUCTION

2.1.1. The California North Coastal Basin (CNCB)

The CNCB is a hydrologic region of extreme northwest California. It is comprised of all westward-draining watersheds of the northern Coast Ranges between Bodega Bay and Redwood Creek, and is here defined to include coastal marine terraces extending northward to Oregon. Major CNCB watersheds include the Russian, Eel and Mad Rivers, as well as, Humboldt and Bodega Bay.

Geologically, the CNCB landscape is dominated by the Northern Coast Ranges, which are formed by the uplifted Franciscan Formation and comprised of highly erosive sedimentary rocks. The highest mountains within the region (South Fork Mountain and the Yolla Bolly's) extend between 5,000 and 7,000 ft. in elevation and may be covered in

snow for many months during the year. Sand dunes, marine terraces, coastal bluffs, and estuaries are prominent features of the coastal lowlands.

The maritime climate of the CNCB is Mediterranean and typified by cool wet winters and mild dry summers. Over seventy percent of the seasonal rain occurs between November and March. Summer precipitation in the form of fog is an important phenomenon in coastal areas.

The CNCB falls within the California Floristic Province, but is also considered part of the Pacific Northwest coastal temperate rain forest region, which extends northward into Alaska. Broadly defined habitat/community types of the CNCB include redwood and associated coastal forests, mixed evergreen forests, oak woodlands, chaparral, coastal prairies, north coastal scrub, beach and dune vegetation, coastal salt marsh, closed-cone pine and cypress forests, and montane and subalpine vegetation (Barbour and Major 1977).

One of the many striking biological features of the CNCB is its floristic diversity. This diversity is reflected in the abundance of rare plants and unique plant assemblages that characterize the region. The CNCB encompasses most of the world's coastal redwood forest, including old-growth stands that include the world's tallest trees. The region includes other relict conifer forests that were once more widespread in North America. Several endemic native grass communities occupy the coastal terraces, prairies, and sand dunes that characterize the regional landscape. Freshwater stream, pond, and marsh habitats of the region are inhabited by rare riparian vegetation. Coastal salt and brackish marshes contain assemblages of plants that have been largely eliminated from other areas in the state. In terms of its vegetation, the California North Coastal Basin is clearly of global significance. The region is an integral part of the rich natural heritage of California, a state known worldwide for its tremendous floristic diversity.

2.1.2. Modern Conservation Biology Approach

The establishment and management of nature reserves is one of a variety of methods promoted to help conserve biological diversity. To insure that the reserve design for the Biodiversity Conservation Plan is based on sound Conservation Biology, we employ the following three steps:

1) Mapping special elements, i.e. sites of high value such as Wilderness Areas, roadless areas, location of rare and endemic species, etc.
2) Representational analysis to include all vegetation types
3) Evaluation of the requirements of selected focal species (Noss 1996).

Reserve selection and design, like most areas of conservation biology, is rapidly evolving. Methods for designing reserve networks that were considered innovative in the mid '80's and earlier would generally not be considered scientifically defensible today. LEGACY -TLC seeks to integrate local knowledge with applied conservation biology by fostering community land stewardship practices that apply the most advanced techniques and approaches to biodiversity conservation. LEGACY-TLC has incorporated methodologies used in other current North America's regional wildlife conservation projects to develop the methods described here such as the Yellowstone to Yukon Corridor Initiative (Y2Y) (Johns 1998), Klamath~Siskiyou Project, Sky Island Alliance (Foreman et al., in prep), and Southern Rockies Ecosytem Project (SREP 1998).

In an approach emphasizing wilderness and the ecological role of animals, the importance of each species must to be considered in the evaluation of ecosystem function and integrity. We are currently in the process of determining which species are indicators

of ecological integrity. LEGACY-TLC has identified a preliminary list of focal species for each habitat type within the CNCB (Slauson, et. al., in press)

Focal species based biodiversity conservation planning alone fails to insure that all areas of high biological diversity (hot spots) are adequately identified for protection. Special elements that are characteristic and unique to the CNCB include rare, threatened, and endemic elements occurring as vegetation communities or as individual plant and animal species. Developing geographically referenced information on special elements throughout the CNCB is a fundamental step towards protecting rare species occurrences at a regional scale. Its role is fundamental in the development of a Biodiversity Conservation Plan.

The GAP Analysis, recently completed in California, provides a coarse scale assessment of risks to biodiversity. The basic procedure is to first overlay geographic data sets depicting the distribution patterns of vegetation types with those depicting land ownership and management profiles (Thorne, 1995). Then secondly, conduct an assessment to determine which vegetation types are adequately represented in a system of protected areas. The California GAP results will be used for an initial assessment of under-represented habitat types. We will again use this approach to analyze the cores, stewardship zones, and the landscape linkages identified after combining the results of the focal species analysis and special mapping process. Polygons of vegetation types not represented or under-represented will then be added to the reserve design.

The methods proposed here and the results of initial phases are being reviewed by our Science Advisory Committee, cooperating groups, and individuals participating in the peer review process. This strategy puts a priority on methods to involve the community in regional reserve design.

2.1.3. Community-Based Planning

Community outreach forms the foundation of our efforts. Through extensive outreach to communities we will develop a broad group of citizens to participate in the development of the Biodiversity Conservation Plan for the CNCB. Following guidelines in TWP's outreach model (Johns, 1998), LEGACY-TLC is encouraging a tiered approach among regional and national conservation groups to educate and implement the BCP in the CNCB. This includes the development of key partnerships with other conservation groups, building support with cooperating groups, and involving diverse members of the public.

Public acceptance and encouragement to restore and protect landscape level connectivity for wildlife and viable habitat for native species in the North Coastal Basin will require understanding and involvement of diverse and key community members. The initial messages to members of the public will focus on the integral relationships between the health of human communities and the health of the natural world. Key elements for citizen participation will include participatory community planning and hands on field training and mapping. We will provide presentations and ecological mapping seminars to encourage citizens to map focal species and special element locations and encourage these same people to participate in the creation of watershed level biodiversity conservation plans.

Several strategies found in recent community vision statements and action plans for the recovery of degraded ecosystems in the Klamath~Siskiyou bioregion reveal examples of agreement with Aldo Leopold's land ethic. The community members that participated in these plans enlarged the boundaries of their community to include soil, water, plants,

and animals, or collectively "the land" (Leopold, 1949). Conservationists such as Bill Devall encourage those practices found in "intentional communities" or those that Aldo Leopold refers to as "land communities", which foster patterns of human relationships that engender responsibility for elements in the natural world as integral components of the community (Devall, 1988). How can communities function sustainably? Writer and farmer Wendell Berry responds, if the members of a local community wanted their community to cohere, to flourish, and to last, they would first ask of any proposed change or innovation: What will this do to our community? How will this affect our common wealth?(Berry, 1994).

In recognition that humans inhabit and share the landscape, Gary Synder (Synder, 1995) and Peter Berg (Berg, 1978) refer to reinhabitation or living in a human inhabited wildlife corridor that enhances wildlife survival even as people continue to live there. In the northern Sierras, Snyder relates helpful experiences for encouragement of both non-human and human inhabited wildlife corridors and reconnection of core habitat areas.

To effect constructive change, ecophilosopher Arne Naess, has designed the Deep Ecological Approach to assist in communication and confrontation of disagreements. Threats and obstacles to changes in land management are based largely on lack of knowledge, misunderstandings, misinformation and subsequent denial (Glasser, 1996). His hypothesis rests on the assumption that individuals, on the level of their core beliefs, desire a socially and ecologically sustainable existence. Drawing out the presumed inconsistencies between an individual's actions and their fundamental beliefs can begin to eliminate the misunderstandings that plague effective communication. (Glasser, 1996).

2.1.4. "Vision Map"

A 'Vision Map', which we are defining as a preliminary reserve design based on existing, available scientific data, is being developed for the CNCB. It will delineate core conservation areas, stewardship zones, and zones of landscape connectivity. The goal is to design a reserve system that will:

1) Represent all ecosystem types and seral stages across their natural range of variation
2) Maintain viable populations of all native species, across their natural range of distribution and patterns of abundance
3) To maintain ecological and evolutionary processes; such as disturbance regimes, hydrological process, nutrient cycles, and biotic interactions.
4) Incorporate adaptability to allow for long-term and short-term environmental change, both natural and human-induced, to maintain the evolutionary potential of the biota. (Noss and Cooperrider, 1994).

The 'Vision Map' will be used in conjunction with more detailed information collected by citizens and participating groups to develop finer scale, watershed level biodiversity conservation plan and promote the concept of rewilding to the general public, land management and regulatory agencies, and academia. We will work with partners and cooperators to implement the BCP through wilderness area designation, establishment of conservation easements to protect reserves or corridors, purchase of land, cooperative community based wildlife management programs, sustainable forestry cooperatives, general plan updates, and change in land use designation on public lands. Additional methods for protecting and preserving habitat include: certification and labeling of sustainable products, nature cooperatives, linking government funding to

conservation objectives such as water quality, and riparian restoration and soil erosion reduction, (Ritchie, 1998).

LEGACY-TLC works in cooperation with The Wildlands Project, a North American continental wide project, through the California Wilderness Coalition, the coordinating body for California. 'Vision Maps' produced by LEGACY-TLC and other California wildland cooperators will be appended together to create a statewide conservation "blueprint". The California Wilderness Coalition will use the "blueprint" to begin a state-wide Wildlands Project campaign in the spring of 2000, with the objective to persuade the state of California to integrate Wildlands Project type plans into the state planning process.

2.2. COMMUNITY OUTREACH

2.2.1. Develop Partnership Groups

Effective community outreach requires us to develop a core group or partnership between key regional conservation organizations. The partnership of the core groups will be based upon the goal to design and implement a biodiversity conservation plan that will protect and restore all native ecosystem types in the North Coastal Basin using principles of conservation biology. LEGACY-TLC is currently working with California Wilderness Coalition (CWC), Institute for Sustainable Forestry (ISF), and Ancient Forests International (AFI) as possible members in a Regional Steering Committee while also seeking out additional groups. Vicinity and regional coordinating committees will be developed consisting of representatives of core partner groups, which enables a broad representation across the CNCB. Core group partnerships will enter into a memorandum of understanding or a similar means for deciphering roles of partners and provide clearer communication and direction. The BCP Long Range Strategy is under review by tentative Regional Steering Committee members (CWC, AFI and ISF). Upon final approval of the BCP Long Range Strategy by the LEGACY-TLC Board and scientific advisors, the Steering Committee Members and LEGACY-TLC will schedule the completion of task in order to reach each objective within the Strategy. Partners will participate in joint-fundraising efforts of writing funding proposals, contacting major donors and hosting fundraising events. The development of collaborative fundraising strategies will include identification of potential sources of support that involve community-based land stewardship.

2.2.2. Develop a Network of Cooperating Groups

LEGACY-TLC and Partners will give presentations to conservation groups and diverse members of the public on how to plan for biodiversity regionally but will focus on developing watershed level biodiversity conservation plans. Successful implementation of the BCP, will require a diversity of groups and individuals involved including key conservation groups, indigenous traditionalists, the recreational community, agriculture, livestock, timber and mining industries, family ranchers and farmers, scientists, religious leaders, agencies and economic and transportation planners. By developing relationships with members of the public at large, we will integrate citizens' knowledge of local conditions with existing data and garner cooperation and support for our Long Range Strategy.

LEGACY-TLC's and partners will contact 100 groups throughout the CNCB to develop a cooperative agreement with approximately 25 groups. A series of 24 outreach meetings will be scheduled from June 1999 through Earth Day 2000. We will identify key people within various communities to step forward into leadership roles and act as liaisons between their own community and the Biodiversity Conservation Plan cooperators. Cooperating groups will plan and provide community meetings and Ecological Mapping Seminars and encourage acceptance of nature as an integral component of the community. The objective of the on-going network is to engage residence of the CNCB to decipher and then to act to restore the biological health of the region through a system of connected wildlands.

2.2.3. Create Ecological Mapping Manual for Inventorying Special Elements & Focal Species

Information and protocols for inventorying and monitoring biodiversity within the CNCB will be compiled from various sources into an ecological mapping manual. It will include descriptions, photographs, and illustrations of ecosystems, focal species, and special elements. Other sources of information pertinent to the study of ecosystems, focal species, special elements, within the CNCB, will also be cited. The manual will be a useful resource to the community by specifying the actual methods to do a biological inventory of their own watershed. It will assist community members in mapping important ecological attributes in areas of their interest. The Ecological Mapping Manual will guide the acquisition of field data concerning specific habitat attributes and standardize its' collection and processing. It will provide a methodology for a wide spectrum of individuals and groups. As an educational document, it will also create a greater awareness of biodiversity of the North Coastal Basin and what community members can do to conserve it.

2.2.4. Conduct Ecological Mapping Seminars To Train community Members

LEGACY-TLC will hold Ecological Mapping Seminars that will engage community members in the assessment of biodiversity and threats to it and help show how they can use science based-reserve design in their conservation efforts. Ecological Mapping Seminars will use the Ecological Mapping Manual to assist in the training of community members to collect and map current gaps in the data.

The Ecological Mapping Seminars will consist of multiple sessions covering basic and advanced skills for identifying critical attributes including focal species identification, natural history, and inventorying and tracking procedures. Successful completion of the seminars will enable the participants to apply appropriate inventorying methods in data gathering for the Regional Conservation Strategy. The seminars will give citizens the means necessary to integrate their knowledge of local areas into a scientific framework. Locally acquired data is valuable because it allows citizens' interests and needs to be integrated within the strategy. The seminars and manual will direct data collection to make it useful for landscape analysis by standardization of methods across the region.

2.2.5. Coordinate Field Surveys In Six Vicinities

Filling the data gaps is necessary for more in depth landscape analysis of core habitat, stewardship zones, and zones of connectivity in a watershed level planning process. A community inventory project is being developed so community members can participate in the inventory of species in their own "backyards". LEGACY-TLC and cooperators will assist community members who are participating in the inventory process. Our staff and interns will also conduct inventories with community participation on ecologically significant public lands.

LEGACY-TLC is currently initiating a track plate survey for fishers and martens in the Mateel Vicinity (one of six Vicinities making up the CNCB) as a pilot project to develop a model for future community based field inventory. This project is a collaboration between community members in the Mateel Vicinity, the Mattole Restoration Council, and LEGACY-TLC. No systematic survey for marten and fisher has ever been conducted in the Mateel Vicinity. A habitat suitability model created by Carlos Carroll (1997) has determined that suitable habitat still exists in the area. The sub-species of Humboldt Marten is still considered extinct in this area, all though a new, small population was discovered near Orleans California. The experiences and information gathered will provide valuable precedents to follow in subsequent field projects.

2.2.6. Outreach to Diverse Community Members

The ability to focus the momentum built by these events and interactions will greatly increase the likelihood of mobilizing members of the public in the next stage of community outreach. We estimated that the success of developing such a far reaching strategy, both in geographical acreage and the consideration of changes in management, will require the involvement of thousands of citizens and working relations with at least four timber corporations (totaling one million acres of forests lands), four large family land owners, and many small land owners.

Integral input from partners and cooperating groups will assist in continuation of the outreach to the community at large. Public participation is determined by the adoption of specific tasks to reach goals that are based on research of focal species habitat needs. There are several examples across the nation of Wildland Projects consisting of efforts toward community collaboration and establishment of wildlife reserves. (sites in Florida, the Klamath~Siskiyou Project, Yukon to Yellowstone, Sky Island Reserve, The Southern Rockies Ecosytem Project and The Greater Laurentian)

2.3. SPECIAL ELEMENTS MAPPING

2.3.1. Acquire Information on Special Elements

Since 1995 LEGACY-TLC has been developing both physical and biological information on the CNCB in a partnership with the Klamath Bioregional Assessment Project (Dr. Larwence Fox III, director; Humboldt State University). This endeavor has led to a rich data set that is now incorporated into LEGACY-TLC GIS at our facility in Arcata, CA. The best data sources on special elements within the CNCB is the Natural Diversity Data Base (NDDB)(produced by the Natural Heritage Division of California Department of Fish and Game) and the California Native Plant Society Electronic Inventory Database. There are still problems with the NDDB in that it is missing many of the rare vegetation types and has overall poor coverage. The CNPS Database has more

rare types but the sighting locations are generalized to the 7.5 minute USGS Topographic Quadrangle Series (6 x 10 miles). These two important data sets are still lacking in completeness and requires the input of a great deal of additional information on the locations of special elements within the CNCB. Many of the GIS coverages that are needed to analyze the special elements have already been secured in the partnership with Klamath Bioregional Assessment Project.

2.3.2. Rare and Threatened Vegetation Inventory

LEGACY-TLC has completed A Rare and Threatened Vegetation Inventory that synthesized important information regarding the location, ecology, and status of uncommon or threatened tree and shrub assemblages throughout the CNCB. The purpose of the Rare and Threatened Vegetation Inventory was to identify rare and threatened vegetation in the CNCB. The first set of this analysis was to create a regional rare plant database and perform distribution analysis. The regional rare plant database was created from the California Native Plant Society's and the Natural Diversity Data Base (NDDB) electronic inventory. The distribution patterns were analyzed at the landscape scale and addresses floristic diversity primarily at the series-level. There were four primary objectives. 1) Identify vegetation to the series level those that are uncommon, rare and threatened on a statewide and/or global scale. 2) Identify habitats and community types associated with high numbers of uncommon, rare, and threatened series within the region. 3) Recommend strategies for identifying and protecting rare and threatened vegetation. 4) Present this information in a format that is useful to citizens, scientists, educators, and activists interested in the protection of the rare and unique vegetation types of the region.

Rare and threatened vegetation types of the CNCB have been identified to the series level and the relationship of series to broader habitat and community types have been investigated. Such elements include other rare or threatened plant communities (i.e. grasses, shrubs), habitat-based plant associations (i.e. vernal pools, sand pools, and intact estuaries), rare plants, relict forests and seral stage information significant to biological diversity conservation efforts in the CNCB. The diverse and unique vegetation of the California North Coastal Basin reflects a mixing of elements from northern (Pacific Northwest) and southern (California) floristic provinces. A distinct climactic, geologic, and biogeographic history underlies characteristic patterns of diversity. The CNCB tightly encompasses an area noted as a center of endemism and refugia for relict species. This unusual flora is manifest in the various and unique types of vegetation that characterize the region.

The primary purpose of this phase of the project is to assess broad patterns of rare plant distribution throughout the region, especially in relation to habitat, geology and geographic location. Methods employed by this inventory have identified 44 rare and threatened vegetation types at the series and sub-series levels. Twelve of these are globally rare and threatened. Fifteen are rare and threatened in California. Seventeen additional series have been identified as uncommon and possibly rare in the state, and require further consideration in conservation planning. 80% of the series listed in this inventory are predominantly included in one (or more) of eight broadly defined habitat/community types, a factor which should be considered in efforts to locate, map, and protect rare vegetation types across the regional landscape. Conservation emphasis should initially be placed on rare and threatened vegetation types. An integrated effort that combines local knowledge with scientific expertise and technology is well suited to the task of assessing and protecting rare vegetation across the region.

2.3.3. Identify And Prioritize Rare Vegetation Types

The Rare and Threatened Vegetation Inventory document identifies rare vegetation at the series and sub-series levels, and defines the scale of rarity (i.e. global or statewide). The next step is to expand this effort to include a broader range of botanically significant elements. Recommendations of the Rare and Threatened Vegetation Inventory need to be implemented to synthesize important information regarding the location, ecology, and status of uncommon or threatened tree and shrub assemblages throughout the CNCB. Specific objectives are to create a list of California Native Plant Society List 1A, List 1B, and List 2 plants that occur in the CNCB and summarize the findings in a short document.

Findings will enable LEGACY-TLC to direct citizen efforts to locate and map rare plant populations in an efficient manner and produce a document with maps that emphasize the significance of rare plants and their distribution throughout the region. The following tasks are needed to insure that all rare vegetation types, at or below the series-level, are identified and included in the special elements mapping portion of the BCP. 1) Clarify further the rarity status of some types that are still undecided. 2) Prioritize rare vegetation types for conservation. 3) Assess the factors that underlie rarity for each type (i.e. rare as a result of endemism, land-use history, or because the species is at the end of its range. 4) Conduct a risk assessment to determine which types are most threatened. 5) Determine when and where it is appropriate to address rare vegetation at the association-level.

2.3.4. Fill Gaps in Rare Vegetation Data

Gaps in rare vegetation distribution data delineated to the sub-series level will be assessed for its availability and prioritized for collection. The exact locations of many rare vegetation types are often scarce or lacking entirely. After gaps have been identified, research will be conducted at libraries, government agencies, and herbariums to locate and acquire missing information. This information will be updated with local knowledge collected through the Community Mapping Program. Acquired data will be integrated into a GIS database with other special elements. Vegetation mapping efforts should be restrict solely to rare and threatened vegetation narrowly focusing available resources on the specific series and sub-series of concern and map their distributions throughout the region. The tendency for the CNCB's rare and threatened series to be concentrated in particular community/habitat types suggests that landscape-level assessment techniques, particularly the use of remotely sensed data, can be effectively synthesized with regional efforts to locate and map rare and threatened series on the ground. Spectral signatures characterizing known stands of a particular rare type will be used in some cases to identify similar stands in other locations. This phase will facilitate further cooperation from local organizations such as the California Native Plant Society

2.3.5. Assess Factors That Underlie Rarity For Each Rare Vegetation Type

Assessing the risk of degradation or loss for each rare vegetation type is an important step in prioritizing conservation activities in the region. This assessment will provide weights to be used in the watershed characterizing process and also serve as the basis for developing site-specific conservation strategies that initially target those types most at risk.

2.3.6. Fill Gaps In Other Special Elements

LEGACY-TLC has identified significant digital spatial data gaps and information needs related to the evaluation of watershed conditions in the CNCB. LEGACY-TLC is currently acquiring and compiling available digital spatial special element data to fill identified data gaps through a cooperative project with Citizens for Better Forestry. Accumulated data is being integrated into LEGACY-TLC's GIS database. In addition to rare, threatened, endangered, and sensitive animal species, endangered ecosystems, critical watersheds and other sites of high ecological value data on the following themes is also being collected (Table 2.1)

1. fish and aquatic organism status and distribution	10. riparian buffer zones
2. land ownership	11. vegetation patterns
3. land use patterns (agricultural lands)	12. mines
4. timber and grazing allotments	13. dams
5. water quality and in-stream habitat conditions	14. soils, geology, slopes, erosion hazard, and stability
6. 1 : 24,000 roads	15. precipitation
7. roadless areas	16. urban and developed areas
8. 1 : 24,000 streams	17. timber harvest plans (private) and timber sales (federal), including silviculture
9. updated wetlands coverage	18. 30 meter digital elevation model

Table 2.1 Indicators of high ecological value

We will collect available information from various published, as well as, unpublished sources. The information will also be used to produce maps for ongoing public outreach and education efforts, and should facilitate further cooperation between both the general public and agencies. Additionally, hardcopy documents of the inventory will be produced to better serve a diverse range of citizen efforts to conserve biological diversity in the region.

2.3.7. Watershed Characterization

We will perform preliminary watershed characterizations of the North Coastal Basin. This will be accomplished by evaluating and characterizing the spatial patterns of

significant ecological features using GIS overlay analysis and the best available existing digital data in LEGACY-TLC's GIS database. The preliminary characterization is designed to provide baseline information on the status and spatial distribution of significant ecological features within watersheds of the CNCB. The results of this characterization will supplement the Focal Species Analysis and the Representative Analysis to develop a 'Vision Map' for the CNCB. Preliminary objectives of the watershed characterization include the identification of:

1. Concentrations of rare and vulnerable species
2. Significant areas of late-succesional and old growth forests
3. Outstanding examples of rare community types
4. Important watersheds for native salmonids and other aquatic life
5. Large relatively unfragmented landscapes

The watershed characterization will be accomplished by using GIS overlay analysis to assign ecological integrity scores to each "CALWATER Planning Watershed" within the CNCB. The analysis will utilize the following datasets; each weighted according to their relative ecological value, (Ecological value takes into account the spatial extent, total number or area covered by each element, dispersion and connectivity to other significant elements):

1. Concentration of Rare species and communities data (Element Occurrences) from the Natural Diversity Database (NDDB)
2. Red flag element occurrence of G1 and S1
3. Locations of Rare Vegetation Communities
4. Late-Succesional / Old-Growth Polygons from satellite habitat relationship (SHR) classifications derived from 1994 Landsat TM imagery
5. Salmonid presence and absence data by watershed
6. Roadless
7. High road densities

Each of the indicators varies in its level of detail, accuracy, and relative importance. These differences will be taken into consideration through the differential weighting of each indicator. Each watershed will be characterized using each of the seven indicators individually and cumulatively. The weighted values of all the elements located there will be summed. A final GIS coverage will be produced showing the relative ranking of each watershed. Watersheds will be characterized based on the total number of element occurrences within each watershed individually for each element and cumulatively for all elements. Please see "Preliminary Biodiversity Conservation Plan for the Oregon Coast Range" by Dr. Reed Noss for more details regarding this process (Noss, 1993). A final report will be produced outlining the methods and objectives of the characterization, and a description of the results. The report will list all of the significant ecological elements found within the watershed.

2.4. FOCAL SPECIES ANALYSES

2.4.1. Identify Focal Species and Attributes

An initial set of focal species (Table 2.2a) and ecosystem attributes (Table 2.2b) have been selected using a two tiered system. The first step employed was that of Lambeck's (1997) "focal species" approach with three additional categories (Keystone species, Narrow endemics, Special cases) recommended by Noss et al. (1997). The second step

involved a stressor-based approach (Noon unpubl. rept.) which links individual stressors within a landscape or community to the species or attribute most impacted by the impacts of the stressor. We defined stressors as "perturbations that alter resources or act as physiological disrupters such that responses are elicited from the biota, resulting in structural and compositional changes in the biota and detectable population responses" (Noon unpubl. rept.). Both processes were linked in a conceptual model which had several steps designed to "weed out" species or attributes that do not show strong relationships to the stressor or would be too costly to measure in the field. In each case species and attributes best fitting the focal species criteria and those which show the strongest relationships between stressors were selected.

The current levels of knowledge about communities and species within the CNCB vary considerably. In many cases the conceptual model asked several questions of potential focal species and attributes that we were not able to answer at this time. In these cases we made judgments based on the best available information. For several communities we chose to directly measure the extent of a stressor due to lack of strong measurable relationships to species or attributes

Table 2.1a. Preliminary Focal Species

1. Northern spotted owl	20. all bat species	38. western toad
2. Northern goshawk	21. ringtail cat	39. NW pond turtle
3. Cooper's hawk	22. Pt Arena mtn. beaver	40. rubber boa
4. sharp-shinned hawk	23. Badger	41. Coho
5. golden eagle	24. mountain lion	42. summer steelhead
6. bald eagle	25. southern torrent sal.	43. pink salmon
7. varied thrush	26. clouded salamander	44. chum salmon
8. marbled murrelet	27. Pacific giant sal.	45. river lamprey
9. pileated woodpecker	28. Del Norte salamander	46. coastal cutthroat
10. yellow breasted chat	29. black salamander	47. Cal. freshwater shrimp
11. yellow warbler	30. brown salamander	48. green sturgeon
12. Ardeid roosts/nests	31. arboreal salamander	49. Russian River tule perch
13. Western snowy plover	32. Cal. tiger salamander	50. Cal. roach subspecies
14. Pacific fisher	33. California newt	51. hardhead
15. Humboldt marten	34. red bellied newt	52. winter steelhead
16. Northern flying squirrel	35. tailed frog	53. tidewater goby
17. white-footed vole	36. foothill yellow-legged frog	
18. red tree vole		
19. shrew-mole	37. Northern red-legged frog	

Table 2.1b. Preliminary Focal Attributes

1. Road density	11. Level of human disturbance
2. Fragmentation Metrics	12. Level of disturbance of dunes and vegetation
3. Land Use	
4. Old growth	13. Forest structure and age classes
5. Grazing	14. Presence and relative density of obligate riparian birds during the breeding season
6. Exotic plant/native plant ratios	
3. Oak age class structure	15. Level of OHV use in riparian forest
7. Burn potential and burn need	16. Diversity and density of selected native breeding amphibians
8. Stand recruitment	
9. Fire/fuel brakes	17. Presence of bullfrogs
10. Patch size of salt marsh	18. Natural lake

2.4.2. Classify Focal Species per Ecosystem and Species Type

LEGACY-TLC has determined focal species by habitat type (Slauson, et. al, in prep). Next, in order to evaluate ecological integrity of the CNCB, a rigorous classification is being developed to categorize focal species by focal species type. This process will categorize each species by their importance in reserve design. These classes will be used to delineate reserves components and to provide community members with important species to inventory in their watershed. Focal species categories include keystone, umbrella, flagship, process limited, resource limited, area limited, dispersal limited, habitat quality indicator, wilderness quality indicator, prey, wide-ranging predators, and narrow endemic

2.4.3. Select Sub-Set of Focal Species for the 'Vision Map'

A limited number of focal species as described in the Ecological Integrity Assessment have been additionally selected for the analyses to create a 'Vision Map' based on Sky Island Wilderness Proposal (Forman et al., in prep) (Table 2.3). The criteria for the selection of a focal species sub-set are those which:

1) most closely represent the conservation needs of the majority of biodiversity in the CNCB
2) have an adequate amount of current information available
3) inspire community conservation.

These species include the Coho salmon, Pacific fisher, Humboldt Marten, Northern spotted owl, marbled murrelet, Roosevelt and Tule elk, mountain lion, and grizzly bear. This subset of focal species is an initial attempt to nominate the focal species needed for the reserve design process. Upon further analysis and as information becomes available, this initial list of the focal species subset may be altered

1) Salmonids – Coho, Steelhead, & Chinook salmon

Salmonids are important indicators of watershed health. They are a keystone, flagship, umbrella, habitat quality indicator, and dispersal limited species. If viable populations of salmonids are to continue to exist in the North Coastal Basin, than watershed restoration will be necessary. Conserving salmonid habitat protects riparian corridors along class I, II, and III streams, along with the many other species which use riparian corridors as travel routes.

2) Pacific fisher and Humboldt marten

The fisher and marten are mid-size forest carnivores from the Mustelidae family. They are umbrella, flagship, wilderness and habitat quality indicators, wide-ranging predators, habitat specialists, and dispersal limited species. The Humboldt marten is additionally an endemic sub-species that was thought to be extinct until 1997, when a small population was found near Orleans, California. Managing for these habitat-specialists will provide landscape connectivity, and conservation of forest cover temporally and spatially. Distribution data will be collected on these mustelids in areas of private and public land, concentrating in areas that have never been surveyed.

3) Mountain lion

The mountain lion is an umbrella species, a keystone species, a wilderness quality indicator, and a wide-ranging carnivore. Though it is a habitat generalist, the mountain

lion is an important focal species in determining areas of contiguous wildlands in a heterogeneous landscape comprised of oak woodlands and grasslands found in the south-eastern extent of the CNCB (i.e. the Russian and the eastern reaches of the Eel River Watersheds).

4) Northern spotted owl

The spotted owl is an umbrella, habitat quality indicator, wide-ranging predator, dispersal limited, and habitat specialist species. The spotted owl is an important species in determining areas of connectivity and native forest protection. The spotted owl is associated with the presence of old-growth and late seral forests habitats.

5) Native Grazers – Roosevelt Elk & Tule Elk

Roosevelt Elk and Tule elk are keystone, flagship, habitat quality indicator, and dispersal limited species. These native grazers are important in maintaining balanced predator-prey relationships, and maintaining proper ecosystem processes in grasslands, woodlands and wetlands. Managing for Native Grazers will require restoration of riparian woodlands and associated wetlands. Another important conservation issue includes ungulate migration barriers, such as cattle fences and roads.

6) Marbled murrelet

The marbled murrelet is a habitat quality indicator, and a habitat specialist. In California this endangered species only nests in old-growth forest within 50 miles from the coast. Extensive surveys have been and are currently being conducted for this elusive, old-growth dependent ocean going bird.

7) Grizzly bear

The grizzly bear is an umbrella species, a flagship species, a habitat quality indicator, a wilderness quality indicator and a wide-ranging predator. Grizzlies were once present in this region and abundant in some areas. This extinct California endemic subspecies was extirpated from its last stronghold in the Klamath bioregion within the last hundred years. Grizzly populations require large, intact wild lands to maintain population viability. The grizzly aids in achieving the goals of carnivore recovery and restoration of landscape connectivity. Grizzlies try to avoid humans and they are vulnerable to opportunistic poaching from vehicles, so they require large Wilderness Areas for habitat. If there is a possibility of returning grizzlies to California, the sparsely populated Klamath bioregion may provide the best chance to eventually re-introduce this amazing and most powerful carnivore.

Table 2.3 Preliminary Focal Species Sub-Set

FOCAL SPECIES	SPECIES CATEGORY						
	Keystone Species	Umbrella Species	Flagship Species	Habitat Quality Indicator	Wildernes s quality Indicator	Wide ranging Predator	Dispersal Limited
Salmonids	x	X	x	x		x	x
Pacific fisher		X	x	x	x	x	x
Humboldt marten		X	x	x	x	x	x
Roosevelt and Tule Elk	x		x	x			x
Northern spotted owl		X		x		x	x
Marbled murrelet				x			
Mountain lion	x	X	x	x		x	
Grizzly bear	x	X	x	x	x	x	x

2.4.4. Collect and Compile Information on Focal Species Autecology and Distributions

Gaps in information and distributional data on each focal species will be identified. Literature on focal species will be compiled, and synthesized into a summary on each focal species. Information needed for each focal species should include:

1) habitat requirements and suitability based on foraging, nesting, migration, etc
2) impediments to movement such as dams, roads, heavily clearcut areas, and other limiting factors to spatial distribution
3) historical and current distribution, including status of current populations
4) viable population conservation techniques
5) field inventory techniques.

This information is necessary in a conservation approach that is scientifically based, and seeks to protect, recover, and reintroduce missing and reduced-in-number populations of focal species and their habitat. Focal species data and information will be compiled from all possible sources including literature and spatial data sets. As a part of LEGACY's Ecological Mapping Project, community members will be trained to collect and record important missing distributional data in cooperation with LEGACY-TLC field biologists. After research and data collection on focal species is complete, each species-specific data set will be analyzed as to which species has insufficient data to be included as a focal species.

2.4.5. Identify Models that Best Delineate Core Habitat of Focal Species

Methods and spatial explicit models used to delineate suitable habitat of the sub-set of focal species will be reviewed in the current literature. For each focal species, the best model will be selected. Our initial inquiry into available habitat suitability models for our preliminary sub-set of focal species is shown below.

1) Salmonids – Coho, Steelhead, & Chinook salmon

A database of the current and historic distribution of salmonids within the CNCB is being created by Greg Bryant (NMFS) and Al Olsen (USFS) and is almost ready for release. Coho and other salmonids have extensive past and current distribution data available. Present, suitable salmonids habitat along with historic ranges, will be used to

create a model. We will identify the best remaining habitat within the historic ranges, which is where recovery will most likely occur.

2) Pacific fisher and Humboldt marten

Potential fisher and marten habitat have been derived from habitat suitability indexes for the CNCB (Carroll, 1997). Currently these models are being revised to reflect new distributional information

3) Mountain lion

Steve Torres has developed a model for the mountain lion in Northern California using the CALVEG state wide vegetation map. Another model is being developed by the Ventana Wildlands Project at UC Santa Cruz' GIS lab. These models can be modified as needed to use in the sub-series level map produced.

4) Northern spotted owl

Spotted owls have extensive current distribution data and habitat suitability models available. Scientists at the Redwood Science lab created a viable population model for the NSO. The USFWS and CDFG have also created NSO suitability habitat models.

5) Native Grazers – Roosevelt Elk & Tule Elk

Lawrence Fox III of HSU has created an elk model by delineating elk foraging and cover habitat in the CNCB. The habitat types were delineated from a modofied California Wildlife Habitat Relationship model created from Landsat TM imagery.

6) Marbled Murrelet

Marbled murrelet has very good distributional data available. Spatial data for late seral and old growth forests will be used to identify suitable habitat.

7) *Grizzly bear*

Carlos Carol with Conservation Biology Institute is currently developing a grizzly bear model. He has expressed verbal commitment to share these results with LEGACY-TLC.

2.4.6. Develop, Parameterize, and Run Models to Delineate Reserve Components

After methods and spatial explicit models have been identified and the focal species specific information has been compiled, suitable habitat for the focal species sub-set will be modeled. In cases where a habitat suitability model will have to be created, it will be written in ArcInfo aml computer code. In other cases where habitat suitability models already have been written, the computer code will be modified to accept digital vegetation maps and other input coverages of the CNCB. The parameters in the model that account for focal species habitat preferences will be modified to reflect the information on Focal Species autecology and distributions of the CNCB that was identified, collected and compiled in a previous step. The model will then be run on the CNCB data and the results analyzed in a cyclic manner until reasonable results are acquired. Results for each species will be reviewed by the LEGACY-TLC Science Advisory Board and cooperating focal species experts. Results will be used in the analysis to create the 'Vision Map'.

2.5. REPRESENTATION ANALYSES

2.5.1. Determine the Optimum Level of Classification and Spatial Scale for Further Analysis

A *series* is a unit of vegetation named after the plant species (or genus) that is dominant in the layer with the greatest amount of cover (Sawyer and Keeler-Wolf 1995). The dominant *layer* consists of **trees** in forests and woodlands, **shrubs** in chaparral and scrub communities, and **herbaceous** plants in grasslands and other non-woody communities. Each series is comprised of one or more floristic a*ssociations*; fine-scale units of vegetation based on groups of species that commonly co-occur. Associations are typically defined to include characteristic understory species as well as overstory dominants. The vegetation *sub-series* (literally, "below the series-level") constitute important elements of diversity somewhere between the series and association-levels. The purpose of recognizing the sub-series as a vegetation class is to acknowledge important ecological variation and place it within the hierarchy of the existing CNPS classification. Sub-series level vegetation types can reflect variation in overstory composition, geographic location, habitat specificity, ecological function, stage of development, history (land-use or otherwise), or some combination of all the above.

2.5.2. Obtain a Vegetation Coverage with Formation Level, Size-Class, Canopy Closure, and GAP

Recently, two vegetation maps have been created each containing a component of a sub-series vegetation map. The Southern Oregon - Northern California (ORCA) Wildlife Habitat Map/Database Version 1.0a was produced in 1997 by Dr. Lawrence Fox III at Humboldt of State University Spatial Analysis Laboratory, in cooperation with LEGACY-TLC and numerous additional public and private partners. It is in ArcInfo raster format with a cell size of 30m x 30m. Structural vegetation patterns and land conditions have been classified in a manner aggregated from the WHR classification system, indicating a structural type with size and canopy closure stages. Nine contiguous Landsat Thematic Mapper satellite images were acquired (dates between June 22 and August 9, 1994) and interpreted into comprehensive habitat classes for both public and private lands covering 51,500 square miles (33 million acres). Essentially, the end product is a physiognomic habitat type database emphasizing vegetation structure and leaf shape (broadleaf or needle leaf), (Fox, 1997). Most WHR habitat classes were generalized to accommodate the limited species discrimination abilities of Landsat TM imagery. Each forest type pixel represents one of four spatial distinct modified WHR types: conifer stands containing less than 20% hardwoods, conifer stands containing less than 50% hardwoods, hardwoods stands containing less than 50% conifers, and hardwood stands containing less than 20% conifers. A very large conifer size class, MCN7D (greater than 36 inches diameter at breast height), was added to the classification within the CNCB. Since this size class is not specifically two storied, WHR size class 6 was not used

The GAP analysis vegetation coverage (GAP) was produced by Dr. Frank Davis, at the University of California Santa Barbara Biogeography Laboratory. The California GAP Analysis combined the Vegetation Type Maps (VTM) (A. E Wieslander, 1935) and

the 1988 Redwood Coverage within the range of the redwoods to form a base coverage delineating species. A 1990 TM satellite imagery mosaic was re-sampled to 100 meters resolution and used as a background coverage. The polygons were digitized on the computer screen by aggregating background VTM polygons together by grouping areas of similar reflectance on the TM image. The GAP polygons were attributed by the polygons from the base coverage that formed them. If no background coverage existed polygons were attributed with field data or the species from near by polygons. GAP polygons are composed of up to three dominate species within up to three spatially distinct vegetation communities. One hectare minimum mapping unit was employed which is too large to assess highly localized vegetation types or widespread types that occur in small patches.

2.5.3. Construct a Sub-Series Level Habitat Classification with Seral Stage Information

LEGACY-TLC has begun constructing a vegetation map classified to the sub-series hierarchy level, the California Wildlife Habitat Relationship (WHR), tree canopy closure, and WHR size classes (SS VEG). This sub-series map is being created by combining components of ORCA and GAP coverages. Other vegetation databases will be used that contain more detailed sub-series species information than GAP. The GAP coverage will be used to bring ORCA from a generalized WHR classification to a true WHR classification. The vegetation formation of ORCA will be compared to the primary, secondary, and tertiary WHR classification and species types contained in GAP polygons. The SS VEG will receive the WHR type and the species attributes of GAP that the vegetation formation of the ORCA pixel matches closest to with the size classes and density coming from ORCA. The SS VEG will be a raster format map where the attributes of each pixel will contain up to three dominate species, WHR type, size class and density. This resulting vegetation and cover class database can then be used to estimate the acreage of each sub-series vegetation type and predict species from the WHR class. The first phase of this analysis within the range of the redwoods in the CNCB is nearing completion. The GAP coverage within the range of the redwoods is being updated with the 1988 Redwood Coverage.

2.5.4. Perform GAP Analysis to Identify Under Represented Habitat Types

The newly created vegetation coverage will be analyzed to determine which vegetation types at the sub-series level are not represented or are under represented in the current system of protected areas (i.e. status one and two below). We will uses the same management classification of the national GAP standards which is broken down into four levels of status:

1) An area having permanent protection from conversion of natural land cover and a mandated management plan is in operation to maintain natural disturbance events.
2) An area having permanent protection from conversion of natural land cover and a mandated management plan in operation to maintain a primarily natural state, but which may receive use or management practices that degrade the quality natural communities.
3) An area having permanent protection from conversion of natural land cover for the majority of the area, but subject to extractive uses of either a broad, low intensity type or localized intense type.

4) Lack of irrevocable easement of mandate to prevent conversion of natural habitat types to anthropogenic habitat types and allow for intensive use throughout the region (Thorne, 1996).

The analysis will use the vegetation map and a coverage of the current management status to determine the protection status of each vegetation type. The management status is a GIS coverage derived from land allocations on federal land, other public land holdings, timber company ownership, and special management areas (i.e. habitat recovery areas, non-industrial timber management plans, habitat conservation plans, research natural areas, conservation easement, land trust, etc.). Further classification of special management areas is necessary to place them into this conservation status classification. The area of each vegetation type (sub-series hierarchy level and seral stage) within each management category will be calculated. The California GAP Analysis did not include any seral stage information in their study.

2.6. DEVELOP CALIFORNIA NORTH COASTAL BASIN 'VISION MAP'

The "Vision Map" will identify components of a reserve system of core conservation areas, stewardship zones, and landscape linkages. It will be created by combining the results from the Focal Species Analysis, ecologically significant watersheds from the Special Element Mapping, under represented vegetation types from the Representational Analysis.

2.6.1. Overlay Results From Each Focal Species Sub-set

In the first phase of creating the 'vision map' we will combine the areas mapped out with the landscape level models for each of the individual focal species sub-set. Each species will receive a relative ranking depending on the correlation that each species shows with each of the three components of the reserve system (core conservation areas, stewardship zones, and landscape linkages). By layering the results of each focal species modeled in a GIS overlay analysis, we will create a composite map that has higher scores for core and lower scores for landscape linkages. Also, we will use the combination of focal species categories as a complimentary method of delineating reserve components. Focal species that are categorized as wilderness quality indicators will be used to identify core conservation areas. Focal species that are categorized as habitat quality indicators but not as a wilderness quality indicator and wide-ranging predator will be used to identify stewardship zones. Focal species that are categorized as wide ranging predators and dispersal limited but not as a wilderness quality indicator will be used to identify landscape linkages.

2.6.2. Add High Ranking Watersheds to Results From Focal Species Analysis

Watersheds with a high-ranking score from the special element mapping will also be used to delineate reserve components. High-ranking watersheds will be added one at a time to the preliminary design developed from the focal species overlay analysis with the intention of increasing the functional size of the components. Cumulatively ranked watersheds will be added to core habitat beginning with the one with the highest score. Watersheds ranked by individual special elements will be used to build core areas or stewardship areas outward. Moderately ranked watersheds will be used to increase the

zones of landscape connectivity. Watersheds that are important special element refugia that are near urbanized or intensely manipulated land will be identified for special consideration. Riparian fingers will be ruffed in through urban and agricultural areas using satellite images or Digital Ortho Quarter Quad (DOQQ). These areas will be used as corridors allowing access of large carnivores to regulate meso-carnivore release (i.e. raccoon, skunk, possum, and feral cats), while also supplying protection of special elements associated with wetlands and riparian areas.

2.6.3. Add considerations of hydrology, natural disturbance regimes, and other natural processes

After adding high ranking watersheds and riparian fingers to the preliminary reserve design, adjustment for consideration of natural process will be made. The historical size of fires in various vegetation types will be compared to the size and juxtaposition of core habitat where fire data is available. The relationship between natural disturbance process being allowed to proceed unabated and the size and shape of large habitat patches within the reserve system that supply refugia for a particular target focal species will be investigated. If there is an unacceptable risk of loosing the refugia, the core reserve and inner buffer will be enlarged.

2.6.4. Identify under represented Types and add to Preliminary Reserve Design

We will repeat the GAP analysis on the preliminary reserve design created in the overlay process and by the results from expert opinion feedback. Under represented polygons will be added to the reserve components keeping with the principals of conservation biology. GAP analysis methodology will also be used to conduct a fine-scale assessment of rare vegetation types by employing revised techniques at the appropriate scale. Results will be sent out to the Science Advisory Board and the Steering Committee, and focal species experts for review.

2.7. CALIFORNIA NORTH COASTAL BASIN BIODIVERSITY CONSERVATION PLAN

2.7.1. Hold Public Watershed Planning Meetings to Develop Preliminary Watershed Level Maps of Local Conservation Priorities and Concerns

Within this strategy, the needs of the regional landscape will be assessed and then incorporated into watershed level plans. LEGACY-TLC and partners will engage local communities in a planning process that will cumulate into the development of Watershed Level Biodiversity Conservation Plan (WBCP). L-TLC and cooperating groups will work with a broad group of citizens in outreach to communities through presentations, ecological mapping seminars and encouraging citizen members to map focal species locations within their watershed. This network of community members will be invited to participate in a map based planning process.

2.7.2. Design Watershed Level Reserve Proposals by Integrating Local Conservation Priorities and the 'Vision Map'

The Vision Map, along with detailed information of the CNCB focal species, will be used to identify the spatial extent of cores, stewardship zones, and landscape linkages within each watershed. The participants will integrate the available information along with their hopes and desires for their future. An example of this is the 'Redwood to the Coast Corridor Project' in the Mattole Watershed where LEGACY-TLC is networking with associate groups and local residents to design and implement a Citizen Based Wildlife Management Plan. After completion of each Watershed Level Biodiversity Plan, LEGACY-TLC and partners will integrate them into the BCP for the CNCB.

2.7.3. Develop Citizen Based Watershed Level Biodiversity Conservation Plans

After the reserve design is complete, concepts of sustainable land use that also conserves biological diversity will be promoted in a citizen based wildlife management plan. Citizens that are practicing sustainable land use practices within the watershed that the plan is for will be sought out and used as examples to other land owners. A detailed guide of compatible uses within the different components will be specified.

2.7.4. Append Watershed Level Plans Together: Create Draft Biodiversity Conservation Plan (BCP)

Watershed level plans will be append together to create draft biodiversity conservation plan (BCP) for the CNCB. In areas where no local plan is created LEGACY-TLC and partners will develop the watershed level biodiversity plans. The BCP will then be evaluated for the contribution to the stated goals.

2.7.5. Develop Implementation Plan at Various Scales: Watershed - Vicinity - Region

Stewardship recommendations will be developed that are specific to each focal species. Stewardship recommendations will incorporate species biology, current distribution, and factors necessary to ensure population viability.

3. PROPOSED RESULTS AND PRODUCTS

3.5. 'Vision Map'- Areas of Ecological Significance and Conservation Priorities
  3.5.1. Proposal to the California Wilderness Coalition's Wildlands Project Statewide "Conservation Blueprint"
  3.5.2. Additional 'Vision Maps' with community involvement
3.6. Ecological Integrity Assessment of the North Coastal Basin (draft completed)
3.7. Focal Species of the North Coastal Basin
3.8. Rare Vegetation of the North Coastal Basin
3.9. Ecological Mapping Manual (outline completed)
3.10. Field Data
3.11. Watershed level Biodiversity Conservation Plans
3.12. Community Awareness and Participation Summaries

4. Projects Current and Proposed

4.5. Mateel Forest Carnivore Track Plate Project (proposed)
4.6. Ecological Mapping Manual- Focal Species and Special Elements Inventory (proposed)
4.7. Focal Species of the North Coastal Basin (current)
4.8. Organizational Development and Funding (current)
4.9. Vision Mapping (preliminary proposed)
4.10. LEGACY-TLC Spatial Analysis and GIS Mapping Laboratory (current)
4.11. Mapping of the fragmentation of wildlife habitat across the USA (current)
4.12. Rare and Threatened Vegetation of the North Coastal Basin (current)
4.13. Ecological Integrity Assessment of the North Coastal Basin (current)
4.14. Biodiversity Conservation Plan including a reserve system map (current)

5. Appendices:

A. Proposed Budgets
B. References
C. Cooperators and Partners
D. Staff and Board Biographies
E. Science Advisory Board

A. References

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