

NORTHERN REGION
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January 18, 2008

Humboldt County Planning Commission
825 Fifth Street
Eureka, California 95501

Dear Planning Commissioners:

Revisions to the Humboldt County Timberland Production Zone Regulations

The Department of Fish and Game (DFG) has reviewed the proposed revisions to the Humboldt County Timberland Production Zone (TPZ) Regulations described in Staff Report #10 for the November 15, 2007, Humboldt County Planning Commission meeting. These TPZ revisions, undertaken within the framework of the Humboldt County General Plan Update (Update), are intended to make the County forest resources regulations consistent with State statutes for residential development in TPZ. These revisions are also intended to maintain working timberlands by minimizing conversion and fragmentation from rural residential development.

As a trustee for the State's fish and wildlife resources, DFG has jurisdiction over the conservation, protection, and management of fish, wildlife, native plants and the habitat necessary to sustain their populations. As a responsible agency, DFG administers the California Endangered Species Act (CESA) and other provisions of the Fish and Game Code to conserve the State's fish and wildlife public trust resources.

DFG submitted a July 17, 2007, letter to the County with comments and recommendations on the Update Notice of Preparation for a Draft Environmental Impact Report (DEIR). In this letter, DFG: 1) recommended adoption of Sketch Plan A as the environmentally superior project alternative, 2) listed significant fish and wildlife resources occurring on County agricultural and forest lands, and 3) identified potentially significant impacts from urban and rural residential development on these resources and mitigations to avoid them.

The County recognizes the threat and significance of conversion, fragmentation, and degradation of forestland by its inclusion of the following guiding principle in the current Update:

“The plan must contain long-term agricultural and timberland protections such as increased restrictions on resource land subdivisions and patent parcel development.”

For reasons included in our July 17, 2007, letter, and explained below, DFG supports County TPZ revisions that:

- 1) best maintain TPZ's principal use for timber production, watershed protection, and fish and wildlife habitat;
- 2) minimize conversion of TPZ to other uses, such as low-density rural residential development;
- 3) minimize fragmentation, parcelization, and habitat degradation of TPZ lands.

DFG finds that fragmentation and conversion of forest and agricultural lands by urban and rural development has substantial effects on fish and wildlife habitat. These effects can diminish the long-term sustainability of fish and wildlife populations, including State- and federally-listed species, e.g., northern spotted owl, marbled murrelet, coho salmon, and important commercial and recreational species, e.g., black-tailed deer, Roosevelt elk and steelhead trout. Consequently, DFG supports the Update's intent to focus future County growth and development into areas with existing infrastructure, such as roads, domestic water and sewer, and services such as schools, retail shopping, police and fire protection. By encouraging future development where urban services already exist, the Update would guide future County growth in ways that minimize fragmentation and loss of agricultural and forest lands, which are important fish and wildlife habitat.

Scale and Significance of County TPZ

According to the Update Natural Resources and Hazards Report, forested lands (including State and federal lands) account for 1.9 million acres, or more than 80% of the County. TPZ covers 0.9 million acres, or more than 40% of the County. Humboldt County accounts for approximately 17% of California's TPZ acreage.

County timberlands provide extensive and critical habitat for numerous State- and federally-listed or otherwise sensitive species. A partial list of these species and their status includes:

- Coho salmon (*Oncorhynchus kisutch*), State- and federally-threatened;
- Chinook salmon (*Oncorhynchus tshawytscha*), federally-threatened;
- Coastal cutthroat trout (*Oncorhynchus clarkii clarkii*), State species of special concern;
- Steelhead trout (*Oncorhynchus mykiss*), federally-threatened;
- Willow flycatcher (*Empidonax traillii*), State-endangered;
- Marbled murrelet (*Brachyramphus marmoratus*), State-endangered and federally-threatened;

- Northern spotted owl (*Strix occidentalis caurina*), federally-threatened;
- Pacific fisher (*Martes pennanti*, West Coast Distinct Population Segment), federal candidate for listing, and
- Humboldt marten (*Martes americana humboldtensis*), State species of special concern.

Urban and Exurban Development and Conversion of Timberlands

Between 1984 and 1994, approximately 76,000 acres of California's private timberlands were converted to non-timber uses such as housing, roads, and agriculture, "but many more acres were effectively removed from timber production due to fragmentation of ownerships and growing residential uses" (CAL FIRE 2003). For instance, CAL FIRE (2003) found that whereas only 4% of natural habitat in El Dorado County was converted by development, nearly 40% had greatly reduced habitat quality. CAL FIRE (2003) projects that in the next 40 years approximately 10% of California's current forest and rangeland will be impacted by development. Combined with the 15% of California's presettlement-era native landscape already converted by urbanization and agriculture (CAL FIRE 2003), this anticipated 10% increase is cumulatively significant. Parcelization of timberlands (the dividing up of large parcels into many smaller ones) for low-density rural residential development is an indicator of probable future urbanization (CAL FIRE 2003) and often results in conversion of timberlands to primarily residential use.

Low-density rural home development, approximately 6-25 homes/km², or 16-64 homes/square mile, in areas dominated by native vegetation is known as "exurban development" (Hansen et al. 2005). Exurban development is the fastest-growing form of land use in the United States at least since the 1970s (Odell et al., 2003; Brown et al., 2005; Hansen et al., 2005). The area occupied by exurban development densities in the conterminous United States has increased five-fold since 1950 (Brown et al., 2005).

Exurban development has important economic and social implications as well as ecological consequences. It affects large areas of California well beyond the immediate boundaries of developed areas. It affects downstream watershed processes including stormwater run-off regimes and water quality and availability, alters regional ecosystem functions, limits the potential for listed species recovery and reduces traditional forest and ranchlands management options. Over the coming decades, exurban development has the potential to dramatically alter Humboldt County's landscape and diminish the ability of forestlands to produce forest products, provide wildlife habitat, protect vital watershed functions and provide quality of life amenities such as recreational opportunities, open space and viewsheds.

Exurban Development Effects on Forest Habitat

Timber production has well-documented impacts on forest ecosystems, including fish and wildlife habitat fragmentation or loss. With time, as forests mature after harvest and with application of conservation principles and wise use, these impacts may be ameliorated. However, residential development results in direct permanent conversion of habitat and has its own distinct and significant suite of effects on forest habitat quality and use by fish and wildlife. Exurban development has three principal effects on forest habitat: 1) structures, roads, driveways, yards and associated facilities convert and degrade natural wildlife habitat and fragment what forest remains into smaller, less contiguous areas of functional habitat; 2) results in the introduction or increased prevalence of exotic species or species that are habitat generalists, termed “human adapted” or “urban exploiters”, and 3) decreases native species abundance and biodiversity and results in the loss of “human-sensitive” species that require natural habitats. In general, these effects occur because development tends to favor species well-adapted to human habitation with subsequent negative effects on sensitive species and those species best adapted to natural habitats (Marzluff and Neatherlin 2006).

The impacts of urban and rural development on fish and wildlife habitat in adjacent natural areas are well documented. The development-related loss of native species abundance and diversity or the increase in exotic and native generalist species has been shown for bird assemblages (Beissinger and Osborne 1982; Wilcove 1985; Luginbuhl et al., 2001; Odell et al., 2003), mammals (Maestas et al., 2001), fish (Paul and Meyer 2001), amphibians (Davidson et al., 2001; Ridley et al., 2005), terrestrial and freshwater invertebrates (Miyashita et al., 1998; Paul and Meyer 2001; Ridley et al., 2004), and plants (Galatowitsch et al., 1999; Mack and Lonsdale 2001; Reichard and White 2001).

Additionally, human development negatively impacts wildlife through increased road-kill (Trombulak and Frissell 2000; Malo et al., 2004), light pollution (Rich and Longcore 2006), the killing of and disturbance to wildlife by domestic animals such as house cats, and increased human conflict with wildlife such as black bear, mountain lion, and fox, which often results in killing (depredation) of these animals.

When residential development occurs dispersed across rural settings, these effects are magnified because: 1) structures require 100-foot-wide defensible space fire-safe buffers around them (Public Resources Code §4291), 2) local wildlife population’s response to exurban development can continue several decades after initiation (Hansen et al., 2005), and 3) in addition to local effects, exurban development has been shown to alter the ecological processes and biodiversity of distant public lands, including parks, preserves and national forests (Hansen et al., 2005).

Exurban development also profoundly affects wildfire management options and has ramifications for public safety, fire-fighting costs, and the decision-making process and policies regarding wildfire suppression, controlled burning, fuels management, and let-burn policies. All this can have significant effects on TPZ fish and wildlife habitat.

Exurban Development Effects on Water Quality and Aquatic Habitat

DFG is concerned that exurban development in TPZ will result in year-round use of native-soil ("dirt") roads designed only for the summer dry season. Wet-weather road use on poorly-maintained native-soil roads previously established and used for forest management can be a significant source of sediment input to Humboldt County streams. Exurban development often converts logging roads and even skid trails, whose wet-weather use and maintenance are subject to the California Forest Practice Rules, to driveways and private residential road systems subject to little or no regulatory oversight. These roads often become chronic sediment sources to nearby streams with significant impacts to the County's salmon and steelhead resources.

Streams are the principal water source for many rural residences on timberlands in the County. DFG finds stream water diversions can result in significantly decreased flows, higher water temperatures, diminished aquatic habitat values, and in extreme cases, dewatering of stream reaches. Although water diversions are subject to the authorities of the Fish and Game Code and require the issuance of lake or streambed alteration agreements with DFG, most diversions for new rural residential use appear unregulated, which combined with existing diversions, can have significant impacts to the County's salmon and steelhead resources. Residences and other structures proposed for TPZ which intend to divert water from streams for domestic or agricultural water supplies cannot be considered ministerial projects and will be subject to the requirements of CEQA pursuant to CEQA §15268(d). DFG believes water diversions are likely to become an increasingly significant issue for fish, wildlife, and rural residents during the life of the Update, as water diversions from exurban development increase.

To maintain adequate stream and river flows for fish and wildlife species and for management of timberlands during the Update period, DFG recommends the County develop a water budget for each of the County's 12 planning watersheds. DFG recommends the County develop enforceable regulations that condition the approval of proposed TPZ residences on demonstrate of adequate long-term water availability and summer storage capacity. Proof of adequate long-term water availability and summer storage capacity must be required in all watersheds and not only for temperature impaired watersheds. DFG supports the development of a County policy that ensures stream diversions for rural residences and agriculture maintain sufficient stream flows for fish and wildlife species consistent with Fish and Game Code §5901 and §5937.

Water quality impairment to streams from onsite wastewater treatment systems (OWTS) effluent inputs from rural residences is another potentially significant consequence of residential conversion of TPZ. Both OWTS and sediment inputs from the use of residential dirt roads have been identified by the Trinidad and Westhaven Integrated Coastal Watershed Management Plan as priority issues in need of solutions because they are the principal pollution sources to the Trinidad Area of Special Biological Significance. Due to a lack of regulatory oversight, rectifying the water quality impacts from OWTS and sediment-delivery from private roads and driveways of dispersed rural residences is a difficult problem to rectify. Pursuant to CEQA §15065(a)(3), these effects can be cumulatively considerable within a watershed.

Exurban Development Effects on Sensitive Species

The marbled murrelet is one example of a species that likely would be adversely affected by exurban development in TPZ. Old-growth redwood forests in California are essential nesting habitat for the marbled murrelet (Hamer and Nelson 1995; Cooperrider et al., 2000). Humboldt County had approximately 50,000 acres of old-growth redwood forests representing approximately 60% of the state's total (Fox 1989). Many of the County's largest old-growth redwood stands are bordered by TPZ and occur near populated areas susceptible to exurban development. These stands include those in the Headwaters Forest Reserve; The Pacific Lumber Company's marbled murrelet conservation areas near Eureka, Fortuna, and Hydesville; Grizzly Creek Redwoods State Park along the Van Duzen River; Humboldt Redwoods State Park near Redcrest, Miranda and Redwood National, and State Park near the communities of Orick and Big Lagoon.

Human-adapted corvids (ravens, crows, and jays) are effective nest predators whose abundance has increased dramatically in western North America and urbanized areas worldwide in the last century (Luginbuhl et al., 2001). Increased nest predation by corvids and other human-adapted species has a significant effect on bird populations adjacent to urbanized areas (Wilcove 1985; Marzluff 2001; Odell et al., 2003; Hansen 2005). Corvid predation on eggs and nestlings is also a major cause of marbled murrelet nest failure (Nelson and Hamer 1995).

The placement of residences in TPZ in close proximity to old-growth forest stands would degrade habitat for the marbled murrelet and would likely result in higher rates of nest failure due to increased corvid predation (see Marzluff and Neatherlin 2006). Exurban development in TPZ near old-growth stands may result in jeopardy (local extinction) of the marbled murrelet. Given the marbled murrelet's State-endangered and federally-threatened status, DFG recommends the Update DEIR thoroughly evaluate how revisions to the TPZ regulations could result in exurban development near old-growth forest stands and how this development could affect the marbled murrelet's persistence in the County.

Other listed and sensitive forest-associated animals may also be affected by exurban development for similar reasons as described for the marbled murrelet. For example, the Pacific fisher (a federal candidate for listing as threatened) may be more susceptible to predation, disease, or vehicle collision in areas where human development or loss of forest canopy has occurred (Higley and Matthews 2006). Residential development of forests has many other potentially significant impacts to forest-associated species. The effects of exurban development on water quality and quantity mentioned earlier could have significant effects on coho salmon, steelhead trout, and other listed salmonids. These impacts should be assessed and disclosed in the Update DEIR.

Non-Regulatory Approaches to Maintaining TPZ

To supplement regulatory approaches to conserve timberlands, DFG recommends the County work collaboratively with willing landowners, local governments and other stakeholders to promote non-regulatory approaches to prevent conversion or fragmentation of TPZ. Utilizing conservation easements, for instance, and perhaps resources available from the Headwaters Fund and local land trusts, may be one effective means to promote TPZ conservation.

Another approach to conserving TPZ is the creation of municipal or county “community forests,” which would serve the multiple purposes of providing wildlife habitat and watershed protection, conveniently accessible open space and recreational opportunities, aesthetic values, and sustainable timber production with its related economic benefits. The City of Arcata’s Community Forest is a successful local example of how TPZ on the urban fringe can be conserved in this manner while providing numerous benefits to the community. DFG recommends the Update and TPZ revisions include policies to collaborate with municipalities, community services districts, and other stakeholders to promote community forests, especially in areas adjacent to rapidly urbanizing communities.

Oak Woodlands Conservation

As mentioned in DFG’s July 17, 2007, Update comment letter, oak woodlands are a diverse, ecologically important and widely distributed habitat type in Humboldt County. According to the Biological Resources Report, oak woodlands comprise at least 20% of seven of the County’s twelve planning watersheds. Oak woodlands provide habitat for numerous game and non-game species such as black-tailed deer, Roosevelt elk, black bear, squirrels, quail, turkey, band-tailed pigeons and a diversity of other migratory bird species. However, the distribution, acreage, and quality of the County’s oak woodlands, like much for the rest of California, have declined considerably over the past 150-years.

The reasons for this decline include fire suppression and encroachment by conifers, wood cutting, and conversion to industrial timberlands, other agricultural uses and residential and commercial development. Statewide more than a third of all oak woodlands have been lost since the settlement of California by non-indigenous people; of an estimated 10-12 million original acres, seven million remain. Of the remaining oak woodlands, most have been modified or degraded, and only about four percent are formally protected.

Based upon recent trends in Sonoma and Mendocino counties, vineyard conversions of southern Humboldt County's oak woodlands and associated coastal prairies appears likely to accelerate during the Update time period. Sudden Oak Death, detected in 2002, in the Redway-Garberville area, is another potentially serious threat to County oak woodlands.

DFG recognizes that only a portion of the County's oak woodlands are on TPZ, however, revisions to County TPZ regulations can have a significant effect on this habitat type. In recognizing both the importance of oak woodlands and their continuing statewide loss, the California Legislature in 2002, passed the Oak Woodlands Conservation Act (Oak Act) Fish and Game Code §1360-1375. The legislative intent of this act is to support and encourage the voluntary, long-term, private stewardship and conservation of California's oak woodlands. The Oak Act encourages local land use planning that is consistent with the preservation of oak woodlands and provides incentives to protect and encourage farming and ranching that promotes healthy oak woodlands.

As part of the Oak Act, the Oak Woodlands Conservation Fund was established to provide grant funds for: 1) public education and outreach, 2) the purchase of oak woodland conservation easements, 3) land improvement, and 4) for cost-sharing incentive payments to private landowners who enter into long-term conservation agreements. To qualify for this grant funding, the County needs to meet the conditions set forth in Fish and Game Code §1366. DFG finds the County, in developing the Update and related environmental reports, may have already met, or will meet, some of these conditions. DFG encourages the County to satisfy the requirements of Fish and Game Code §1366 to allow participation in the Oak Woodlands Conservation Fund and to facilitate coordination with local organizations such as the Buckeye Conservancy, land trusts, and the Humboldt County Resource Conservation District to promote the conservation of this valuable and dwindling resource.

DFG finds the most effective means to manage and conserve State fish and wildlife resources is to utilize regional landscape-level or ecosystem-based approaches. The parcelization of large tracts of TPZ and ranch lands into smaller residential "ranchettes" will degrade the wildlife habitat values of these lands and diminish the ability of local government and state agencies to regulate and help sustainably manage TPZ.

The effects of exurban development on TPZ will also affect wildlife populations, biodiversity patterns, and habitat quality on adjacent State and federal lands, including parks, preserves, refuges and wildlife areas. For these reasons DFG supports the County's efforts to maintain long-term timberland protections by approving TPZ revisions and other Update polices and standards that minimize conversion, fragmentation, and exurban development on TPZ.

Recommendations

- 1) Require TPZ revisions best maintain TPZ's principal use for timber production, watershed protection, and fish and wildlife habitat.
- 2) Require TPZ revisions minimize fragmentation, parcelization, and habitat degradation.
- 3) Require TPZ revisions minimize conversion of TPZ to other uses such as urban and exurban development.
- 4) The Update DEIR must thoroughly evaluate how revisions to TPZ regulations and related Update provisions could impact State- and federally-listed species.
- 5) The Update DEIR must thoroughly evaluate how revisions to TPZ regulations, and related Update provisions, could influence exurban development in TPZ and how such development could affect forest ecosystem function, including effects on forest plant and animal communities.
- 6) The Update DEIR must thoroughly evaluate how revisions to TPZ regulations could result in exurban development near old-growth forest stands and how this development could affect the marbled murrelet's persistence in the County.
- 7) The Update DEIR must thoroughly evaluate how exurban development resulting from revisions to TPZ regulations could affect wildfire suppression, forest fuels management, and let-burn policies both on TPZ and on adjacent federal lands.
- 8) Require proof of adequate water supply and summer storage capacity in all watersheds if riparian and other water rights are to be utilized to divert water from streams for domestic and agricultural purposes.
- 9) Where residences or structures are approved on TPZ, require a means to ensure that forest roads and driveways are constructed and maintained to prevent sediment discharge to streams.

- 10) The Update and TPZ revisions should include policies to collaborate with local governments, willing landowners, and other stakeholders to promote forest conservation easements and community forests, especially in areas adjacent to rapidly urbanizing communities.
- 11) Satisfy the requirements of the Oak Woodlands Conservation Fund to allow for grant funding that encourages the voluntary, long-term, private stewardship and conservation of the County's oak woodlands.

If you have any questions or comments regarding this matter, please contact Staff Environmental Scientist Gordon Leppig at 619 Second Street, Eureka, California, 95501 or telephone (707) 441-2062.

Sincerely,

GARY B. STACEY
Regional Manager

cc: See Page Thirteen and Fourteen

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